



Seismo Info 12/2024



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The FSVO compiles the most important food safety information every month:

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★★★ very important info ★★ important info ★ interesting info

Microbiology

★★★ **Outbreak of the novel *Cryptosporidium parvum* IlyA11 linked to salad bars:** In December 2023, Sweden reported 60 confirmed or suspected cases of cryptosporidiosis caused by the novel ***Cryptosporidium parvum* subtype IlyA11**. A case-control study found that 85% of affected individuals had consumed items from salad bars, particularly kale mix salad. Traceback investigations involving 15 producers from Sweden, Belgium, and Spain failed to identify the specific source. [Epidemiol. Infect.](#), 7 pages. (18.11.2024).

★★ **Multidrug-resistant (MDR) *Escherichia coli* and *Klebsiella pneumoniae*:** A study conducted in Kenya, Uganda, and Jordan identified a total 785 *E. coli* isolates represented 124 sequence types (STs), of which 20 (16.1%) were shared between the three countries. The dominant *E. coli* ST was **ST131** in all three countries. Additionally, three *E. coli* STs were identified as **pathogenic** and present in food-producing animals. Similarly, 123 distinct STs of *K. pneumoniae* were identified, and only 11 (8.9 %) STs were shared across the three countries; four STs were considered high-risk by the researchers. Regarding the antimicrobial resistance profiles of the pathogens, **extended-spectrum beta-lactamase (ESBL)** genes were identified through WGS in 50.8 % of *E. coli* isolates and 68.8 % of *K. pneumoniae* isolates. [FoodSafetyMag](#), 5 pages. (14.11.2024).

★★ **Listeria monocytogenes in chicken carcasses and cuts:** A total of 104 samples of chicken meat acquired on the day of slaughter from two slaughterhouses in Spain were analyzed. The results shows that chicken carcasses and cuts represent a major reservoir of *L. monocytogenes* (75/104 samples). The strains of *L. monocytogenes* isolated had a high degree of **resistance to antibiotics** and were capable of forming **biofilms** on polystyrene surfaces. Moreover, the correlation observed between the number of antibiotics to which the strains are resistant and their ability to form biofilms is worrying since it suggests that those strains capable of forming the most robust biofilms [Foods](#), 2 pages. (27.11.2024).

★ **Multidrug-resistant bacterium posing a global public health threat:** A strain of the bacterium *Klebsiella pneumoniae* isolated from an 86-year-old woman with a urinary infection admitted to hospital in Brazil's Northeast region in 2022 proved **resistant to all available antibiotics**. The patient died 24 hours after being hospitalized. This particular strain of *Klebsiella pneumoniae* had previously been detected in the United States. The bacterium frequently causes infections in hospitals, is not eliminated by any existing antibiotic. [EurekAlert](#), 3 pages. (12.11.2024). Original

Publication: [Lancet Microbe](#). ★ **MRSA and VRSA along food chain:** Methicillin-resistant *Staphylococcus aureus* (MRSA) is an increasing public health concern, yet data on MRSA and Vancomycin-resistant *S. aureus* (VRSA) in animal-derived food remains limited. This study investigated the prevalence, presence of enterotoxins, antimicrobial resistance profiles, and resistance genes in *S. aureus* strains isolated from chicken carcasses, ready-to-eat chicken sandwiches, and buffalo milk sold in Mansoura City, Egypt. The results revealed that 52.1% of poultry and dairy samples were contaminated with *S. aureus*, 88.8% of isolates were multidrug-resistant, and 39.2% were enterotoxigenic. [IntJFoodMicr](#), 10 pages. (09.11.2024).

★ **Antimicrobial resistance trends in foodborne pathogens:** This article highlights trends in **antimicrobial resistance** in foodborne pathogens, focusing on U.S. surveillance data. Concerning trends were noted regarding *Salmonella* and *Campylobacter* increased resistance to critical antibiotics. [FoodSafetyMag](#), 2 pages. (18.11.2024). Original Publication: [USDA's FSIS](#).

★ **Increase of global prevalence of ESBL-producing Enterobacteriaceae in vegetables:** This meta-analysis examined 63 studies (2014–2024) to determine the global prevalence of extended-spectrum β -lactamase (**ESBL**)-producing *Enterobacteriaceae* in vegetables, revealing a pooled prevalence estimate (PPE) of 11.9% (95% CI: 0.091–0.155) from 2762 isolates, with significant regional variation. The blaSHV gene was the most common ESBL-encoding gene (PPE: 42.8%), and prevalence increased by 9.0%, 9.8%, and 15.9% in 2018–2019, 2020–2021, and 2022–2024, respectively. [Foods](#), 10 pages. (09.12.2024).

★ **Seafood as a source of antibiotic resistant Enterococcus spp.:** This study examines antibiotic-resistant *Enterococcus* spp. in retail seafood from Central Italy, identifying a high prevalence (68.25%) among 422 samples, with *E. faecalis* and *E. faecium* being most common. *Enterococcus* spp. was more frequent in **frozen** than **fresh seafood**, with no significant difference between farmed and wild-caught sources. Over **70% of isolates were multidrug-resistant**, showing notable resistance to Quinupristin/Dalfopristin and Tetracycline. Alarmingly, resistance to last-resort antibiotics like Vancomycin and Oxazolidinones was observed. [Appl. Food Res.](#), 11 pages. (17.11.2024).

★ **Alfalfa sprouts modulate the virulence of Shiga toxin-producing Escherichia coli:** This study investigates the growth and virulence modulation of **Shiga toxin-producing Escherichia coli (STEC)** on alfalfa sprouts, highlighting how the pathogen adapts to this environment during production and storage. The study revealed that STEC from sprouts produced from **sanitizer-treated seeds** exhibited **higher virulence** compared to those from untreated seeds, as indicated by lower lethal doses in an animal model. [IntJFoodMicr](#), 10 pages. (14.11.2024).

★ **Microbiological quality of retail collected plant-based meat-alternative products in Switzerland:** This study assessed the microbiological quality and presence of foodborne pathogens in 100 plant-based meat alternative (PBMA) products in Switzerland. While no *Salmonella* or *Listeria monocytogenes* were found, other *Listeria* species, *Staphylococcus aureus*, and *Bacillus cereus* group members were detected in small percentages. [FSN](#), 2 pages. (20.11.2024). Original Publication: [JFoodProt](#).

★ **In vitro assessment of emerging mycotoxins in cheese:** Some *Penicillium* strains used in **cheese** ripening produce **mycotoxins** like roquefortine C (ROQC), cyclopiazonic acid (CPA), enniatins (ENNs), and beauvericin (BEA). This study analyzed ROQC and CPA, alone and combined with ENNs A, A1, B, and B1, in human neuroblastoma cells. ROQC and CPA reduced cell viability, with enhanced effects when combined with ENNs. **Commercial cheese extracts** containing these mycotoxins also strongly reduced cell viability. [Arch Toxicol](#), 1 page. (25.09.2024).

★ **Campylobacter jejuni can accelerate colon cancer spread:** The researchers found a significant difference in the presence of *C. jejuni* in the tissues of patients whose **cancer** had metastasized versus those whose cancer had not spread beyond the gut. Patients with detectable levels of the pathogen had poorer prognoses for their cancers than those who did not have *C. jejuni*. These findings were confirmed against large national datasets of tumor samples. [FoodSafetyMag](#), 4 pages. (04.12.2024). Original Publication: [Cell Host Microbe](#).

Chemistry

★ **Per- and Polyfluoroalkyl substances and bone mineral density:** This study examined associations between **mid-childhood PFAS exposure** and **adolescent bone mineral density** (aBMD) in the Project Viva cohort. Results showed that higher **perfluorooctanoate (PFOA)** and **perfluorodecanoate (PFDA)** concentrations were linked to **lower aBMD** in females and less active males, with physical activity and dairy intake potentially moderating these effects. [EnvSciTech](#), 10 pages. (01.11.2024).

★ **Salt in foods: a definitive source of microplastics to humans:** Microplastic (MP) contamination in **salt** poses a risk to food safety and human health, with Indian salts showing higher MP levels (17.16 ± 8.81 MPs/kg) compared to Sri Lankan salts (7.9 ± 6.2 MPs/kg). Fiber-shaped MPs (<1 mm) made of **polypropylene** and **polyethylene** were predominant, with the chemical risk categorized as higher for Indian salts. The presence of MPs in salts is likely due to the use of **contaminated water** in production and specific manufacturing processes. [JCF](#), 12 pages. (20.10.2024).

★ **Even low levels of arsenic in drinking water raise kidney cancer risk:** The findings examined the relationship between **kidney cancer** rates and **arsenic levels in drinking water** across 240 Texas counties. The team analyzed cancer data from 28,896 cases of cancer among adults in Texas aged 20 and older. The analysis found that exposure to between **1 and 5 parts per billion** raised kidney cancer risk by **6 percent**, and exposure **above 5 parts per billion** raised the risk by **22 percent**. In addition, the risk of cancer increased by 4 percent with each doubling of water arsenic levels. [EurekAlert](#), 2 pages. (02.12.2024). Original Publication: [Environ. Pollut.](#)

Nutrition

★★ **Are there hidden dangers to fortification:** Researchers have found evidence to suggest that **fortification of foods** and beverages is leading to excessive intakes of certain nutrients, also known as overnutrition. Even if the findings are not alarming the team did raise the concern that 2% of the study participants were at risk of excessive vitamin **B6 levels**, which could lead to **peripheral neuropathy**. [FoodNavigator](#), 2 pages. (19.11.2024). Original Publication: [BMC Nutrition](#).

★★ **Processing and safety of novel proteins:** An EFSA project revealed that various processing techniques can significantly influence the safety and nutritional profile of novel proteins. While heating can reduce the activity of non-digestible proteins (NEPs) from genetically modified crops and decrease Immunoglobulin E reactivity in certain proteins, there are exceptions where these benefits may not apply. A notable area of uncertainty pertains to the impact of these processing methods on **gut microbiota**, indicating a need for further research to fully understand these effects. [Affidia](#), 2 pages. (21.11.2024). Original Publication: [EFSA](#).

★★ **Some prenatal supplements have the inadequate amount of choline and iodine:** The study conducted in the U.S. evaluated **prenatal vitamins** for their content of essential nutrients like **choline** and **iodine**, as well as for the presence of toxic metals such as **arsenic**, **lead**, and **cadmium**. Only 26% of products listed **choline**, and fewer than half of those had the correct amount as labeled. 53% of products listed **iodine**, but only 16% contained the labeled amount. Some products also exceeded safety limits for heavy metals. The study highlights inconsistencies in labeling and the potential risks of heavy metal exposure during pregnancy, which can lead to adverse birth outcomes. [MedicalXpress](#), 2 pages. (21.11.2024). Original Publication: [AJCN](#).

★★ **Carrageenan could disrupt intestinal barrier and increase risk of type 2 diabetes:** In the study, young, healthy men with a BMI of less than 30 kg/m² (average BMI 24.5 kg/m²) were given either **carrageenan** (E 407) in addition to their normal diet, in an amount roughly equivalent to two to three times the daily dose consumed in the U.S., or a placebo. Both groups were observed over a period of two weeks. The results showed an increase in the **permeability of the small intestine**, most likely due to inflammation of the gut. The data also indicated that participants with higher body weight experienced a reduction in **insulin sensitivity**. [MedicalXpress](#), 2 pages. (27.11.2024). Original Publication: [BMC Med](#).

★ **Non-fermented milk consumption tied to higher heart disease risk in women:** A recent study involving around 100,000 Swedish women and men examined how **milk consumption** impacts cardiometabolic proteins. Through tracking various metrics and self-reported food and beverage intake, the researchers found that **women** who consumed 300 milliliters (mL) or more of nonfermented milk had an association with a higher risk of **ischemic heart disease** and **myocardial infarction (heart attack)**. [MedNewsToday](#), 2 pages. (18.11.2024). Original Publication: [BMC Med](#).

★ **Ultra-processed foods might trigger psoriasis:** To see if **ultraprocessed foods** (UPF) have any influence on **psoriasis**, researchers looked at records for more than 18,500 people taking part in a major French health database. Data came from late 2021 through mid-2022. After adjusting for other psoriasis risk factors, people with active disease were 36% more likely to place within the highest third of daily UPF intake, compared to folks who'd never had psoriasis, the researchers found. [MedicalXpress](#), 2 pages. (27.11.2024). Original Publication: [JAMA Dermatol.](#)

★ **Twin research underscores link between low fruit and vegetable intake and depression:** The study assessed the associations between **fruit and vegetable** intake and **depressive symptoms** over 11 years, in 3,483 twins from Australia, Denmark, Sweden and the U.S. The findings revealed that higher intakes of both fruit and vegetables were associated with lower symptoms of depression over time. [MedicalXpress](#), 2 pages. (02.12.2024). Original Publication: [Sci Rep](#).

Allergy

★★ **Safety risk of emerging food packaging alternatives:** The review identifies several **food safety hazards** associated with **new packaging materials**, such as the risk of **allergenicity** from proteins in bio-based materials and **potential microbiological and chemical contaminants** in reusable packaging. Additionally, recycled materials may contain substances not intended for food contact, further complicating safety assessments. [Affidia](#), 2 pages. (29.11.2024). Original Publication: [CompRevFoodSciFS](#).

★ **Food allergy found to have highest risk of developing eosinophilic esophagitis:** Eosinophilic esophagitis (EoE), a disorder of the esophagus, is increasingly recognized as a major cause of **swallowing difficulties** in children and adults. Researcher conducted analysis of four common allergic conditions—asthma, allergic rhinitis, atopic dermatitis and food allergy— found that people suffering from **food allergy** had the highest risk of developing EoE among the other conditions studied. [MedicalXpress](#), 2 pages. (24.10.2024). Original Publication: [ACAAI](#).

Close up

New information concerning the [FSVO's early detection system](#) for food safety:

- Signal Report “**Energy costs and their potential impact on food safety**” (in French) (19.12.2024)
- Signal Report “**Higher freezing temperatures – consequences for food safety?**” (in French) (19.12.2024)
- Signal Report “**Melatonin for post-harvest treatment**” (in French) (19.12.2024)
- Signal Report “**Persistence of pathogenic microorganisms in production environments**” (in French) (19.12.2024)

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[FSVO website](#)

[Early detection for food safety: Visualization](#)

★★★ very important info ★★ important info ★ interesting info

Microbiology

★★★ **First Hepatitis E Virus detection in raw milk in Italy:** In a study of 220 raw ovine (ruminants) milk samples from three Italian provinces, 2.3% tested positive for **Hepatitis E Virus (HEV)** RNA, marking the first detection of HEV RNA in **sheep milk** in Italy. [Foods](#), 5 pages. (11.10.2024).

★★★ **First H5N1 bird flu detection in swine:** The USDA confirmed the first case of **H5N1** bird flu in a **pig** on an Oregon backyard farm, which shared facilities with poultry. Pigs are concerning carriers as they can harbor both avian and human flu viruses, potentially allowing for gene exchange that could create a new virus capable of infecting humans more easily. [swj](#), 2 pages. (01.11.2024). Original Publication: [USDA](#).

★★★ **Opisthorchiasis outbreak in Italy:** This study examines a 2022 outbreak of **Opisthorchis felineus** infections in central Italy, transmitted by **raw Cyprinidae fish**. **Forty-seven cases** were identified, mostly traced back to a single restaurant near Lake Trasimeno, with the majority presenting symptoms like fever. Due to praziquantel shortages, some patients received albendazole, which often failed to clear the infection. [FSN](#), 2 pages. (06.11.2024). Original Publication: [J. Infect.](#)

★ **Salmonella outbreak tied to red onions in Canada:** In July 2020, an investigation began into a *Salmonella* Newport outbreak in Canada, linked to **red onions** from California. Whole-genome sequencing identified **515** cases across seven provinces, with a majority reporting onion consumption prior to illness. Collaborative traceback efforts led to food recall warnings, marking this as Canada's largest Salmonella outbreak in over 20 years. [FSN](#), 3 pages. (14.10.2024). Original Publication: [Epidemiol. Infect.](#)

★ **Imported eggs linked to Swedish Salmonella infections:** An outbreak of *Salmonella* with a probable connection to imported eggs is being investigated in **Sweden**. Since the beginning of the year, several reports of people infected with *Salmonella* Enteritidis have been identified where epidemiological investigations have pointed to the consumption of eggs. On some occasions, officials suspect they were **imported from Ukraine**. [FSN](#), 2 pages. (15.10.2024). Background information: [FRAE](#)

★ **Antibiotic-resistant *Aeromonas* spp. isolated from mussel and oyster:** This study investigates the **prevalence of antibiotic-resistant *Aeromonas* spp.** in live **mussels** and **oysters** available for retail in Canada, revealing that 52% of the 180 samples tested positive for third-generation **cephalosporin (3GC)**-resistant bacteria. A subset of ten *Aeromonas* strains underwent whole genome sequencing, uncovering **multiple antibiotic resistance** and **virulence** genes, as well as mobile genetic elements indicative of potential horizontal gene transfer. [JFoodProt](#), 32 pages. (09.10.2024).

★ **Antibiotic resistance genes in edible insects vs. livestock:** A recent study highlights the growing threat of **antibiotic-resistant genes (ARGs)** in the global food system, particularly concerning emerging food sources like edible insects. The research compares ARG prevalence in **edible insects** and **livestock**, suggesting that **livestock harbours more ARGs** due to differences in gut microbiota and antibiotic exposure. [Foods](#), 10 pages. (14.10.2024).

★ **Antifungal resistance:** Fungi cause superficial and life-threatening infections, with over 6.5 million cases and 3.8 million deaths yearly. **Many fungi are resistant** to the four available drug classes, and resistance can evolve rapidly. A UN meeting on antimicrobial resistance highlighted the **growing global issue of fungal pathogens**. Agricultural fungicides, like azoles, may contribute to drug resistance in human infections. [Conversation](#), 4 pages. (18.10.2024). Additional Information: [WHO - fungal pathogens priority list](#).

★ **Microplastics in wastewater treatment plants harbor pathogens:** Microplastics in wastewater can harbor pathogenic bacteria and viruses, including *Listeria monocytogenes*, *Escherichia coli*, **Norovirus**, *Klebsiella pneumoniae*, and *Acinetobacter* spp., protected by biofilms called **plastispheres**. These plastispheres shield pathogens from treatment, allowing them to **persist** in treated water and sludge. The study underscores the need for advanced wastewater treatment and plastic waste management to prevent microplastic-associated pathogens from entering the food chain and posing health risks. [EurekAlert](#), 2 pages. (07.11.2024). Original Publication: [PlosOne](#).

★ **Worldwide systematic review: prevalence of *Blastocystis* sp. in water sources:** Contaminated water sources can lead to outbreaks of **parasitic infections** like *Blastocystis* sp., significantly straining healthcare systems and impacting community health. A systematic **review** analyzed 24 studies with 2,451 water samples from 15 countries, finding an overall prevalence of 18.8% for *Blastocystis* sp., with the highest infection rate in wastewater (35.5%) and notable levels in **tap water (19.1%)**. [FoodbPathDis](#), 10 pages. (10.10.2024).

Chemistry

★★ **Brominated flame retardants (BFR) in household items:** A study revealed that black plastic often contains harmful **brominated flame retardants (BFR)** and **organophosphate flame retardants (OPFRs)**, particularly in household items like kitchen utensils. Testing over 200 products found 85% were contaminated, with high levels detected in items such as a spatula, tray, and necklace. This contamination is likely due to the recycling of electronic waste. The banned substance **Decabromodiphenyl ether (DecaBDE)** was found in concentrations exceeding EU limits. [Chemosphere](#), 10 pages. (15.10.2024).

★★ **Harmful substances detected in coffee pods:** ÖKO-TEST conducted an analysis of coffee pods for potentially harmful substances. The results: 14 out of 21 samples (67%) were rated as “poor” or “inadequate.” Concerns included the detection of acrylamide, pesticide residues, as well as furan and methylfuran. [Utopia.de](#), 3 pages. (29.10.2024). Original Publication: [Ökotest](#).

★★ **EPA approves first antimicrobial treatment for preharvest agricultural water:** The U.S. EPA has approved SANIDATE 12.0 as the **first antimicrobial treatment for foodborne pathogens in preharvest agricultural water**. The product uses two active chemicals—**Hydrogen Peroxide** (18.5%) and **Peroxyacetic Acid** (12.0%)—to reduce pathogens like *E. coli* and *Salmonella* in water used on crops. [FoodSafetyMag](#), 2 pages. (05.11.2024). Original Publication: [EPA](#).

★★ **PFAS in fish miles away from large contamination source:** A new study from Harvard's John A. Paulson School of Engineering reveals that **fish** can accumulate high levels of **per- and polyfluoroalkyl substances (PFAS)** even far from contamination sources. Researchers examined **fish** and **shellfish** from Cape Cod, Massachusetts, near a military base that historically used PFAS-containing **firefighting foams**, finding concerning PFAS concentrations in fish tissues up to 8 km away. [EurekAlert](#), 2 pages. (16.10.2024). Original Publication: [Environ. Sci. Technol.](#)

★ **Risk of PFAS accumulation:** A study investigating **15** per- and polyfluoroalkyl substances (**PFAS**) in a male volunteer, including both long-chain and short-chain compounds, found that **long-chain PFAS**, like PFOA and PFOS, have **half-lives of several years**, leading to **bioaccumulation** in humans. **Short-chain PFAS**, like PFPeA and PFHxA, were eliminated more quickly due to **lower retention** in the body. Elimination pathways involve renal and gastrointestinal processes, influenced by each compound's specific binding affinity to transporters. These findings are crucial for assessing PFAS risk, particularly in relation to contaminated food and water sources. [BfR](#), 4 pages. (07.11.2024). Original Publication: [Environ Int.](#)

★ **Agricultural plastic mulch threatens soil and food safety:** A study on California's Central Coast reveals that **plastic mulch** use in agriculture leads to **soil contamination**, affecting moisture, microbial activity, and nutrient availability. Even at relatively low levels of **macroplastic accumulation**, declines in soil quality were observed, raising **concerns for food safety** due to potential **uptake of microplastics by crops**. The findings suggest that current "best practice" plastic management is insufficient, emphasizing the need for improved practices to protect both soil health and food security from ongoing plastic pollution. [EurekAlert](#), 2 pages. (23.10.2024). Original Publication: [PNAS](#).

★ **Abrasion of plastic kitchen utensils:** Plastic kitchen utensils such as **salt mills** or **salad spinners** are used in the preparation of food. **Abrasion** can get into food. In a test of 14 salt mills and 14 salad spinners, four salt mills and one salad spinner were found to be problematic. Kitchen utensils should be regularly checked for wear and replaced if necessary to avoid plastic getting into food. [Analytik News](#), 2 pages. (02.10.2024).

★ **Mycotoxins of the beauvericin and enniatin groups in infant foods:** This study investigated the presence of mycotoxins **beauvericin** and **enniatis** in various **infant foods**, including cereal-based creams, biscuits, and pasta, using liquid chromatography-mass spectrometry. The results indicated that beauvericin was most frequently detected in pasta, while enniatin B was predominant in biscuits. The estimated daily intake of these **mycotoxins** was notably higher in infants aged 1-3 years compared to older children, emphasizing the potential risk due to their higher food intake relative to body weight. [FoodContr](#), 10 pages. (02.2025).

Nutrition

★ **Vitamin A, C and iron intake decreases in women:** A study found that **vitamin A**, **vitamin C**, and **iron** intake in **women** of reproductive age, including **pregnant** women, has decreased over the past 20 years. This decline may impact the health of both mothers and babies. [EurekAlert](#), 2 pages. (11.10.2024). Original Publication: [JAMA Netw Open](#).

★ **Artificially sweetened beverages and progression of coronary calcification:** This study examines the link between the cumulative intake of artificially sweetened beverages (ASBs) and sugar-sweetened beverages (SSBs) during young adulthood and the **progression of coronary artery calcium (CAC)** by midlife, utilizing data from the CARDIA study. Analyzing 2,466 participants over a follow-up period. The findings suggest that prolonged consumption of beverages, particularly ASBs, may **elevate the risk of CAC progression** in young adults. [Nutr. Metab. Cardiovasc. Dis.](#), 24 pages. (10.10.2024).

Fraud / Deception

★★★ **Operation Opson XIII:** Europol, OLAF, DG SANTE, DG AGRI, and 29 countries across Europe, as well as food and beverage producers from the private sector, joined forces in the 2024 edition of **operation OPSON**. This yearly operation, now in its thirteenth run, targets **counterfeit** as well as substandard **food and beverages**. Law enforcement, customs, and food regulatory agencies seized around **22 000 tonnes of food** and around **850 000 litres** of (mostly alcoholic) beverages. In total, goods valued at over **EUR 91 million** were taken off the market. [Europol](#), 2 pages. (23.10.2024).

★★ **Fake wine in Italy:** Several European authorities have uncovered a group involved in **counterfeiting French wine in Italy**. The investigation was led by the French Gendarmerie (Gendarmerie Nationale). It involved the Italian Carabinieri Corps (NAS Carabinieri) and Swiss Federal Police with support from Europol and Eurojust. Suspected criminals **faked French red wine**, charging up to €15,000 (\$16,300) per bottle. The counterfeit wine was forged in Italy. [FSN](#), 1 page. (17.10.2024). Additional Information: [SRF](#).

★ **Wild blueberries often replaced by cheaper varieties:** The **2024 OPSON XIII operation** found that **50%** of tested products labeled as "**wild blueberries**" in Germany contained other blueberry species. Among **canned samples**, **76%** were misrepresented, and only a fraction contained genuine wild blueberries (*Vaccinium myrtillus*). Conducted from December 2023 to May 2024, this operation highlights consumer protection concerns, as wild blueberries are typically more expensive than cultivated varieties. [BVL](#), 1 page. (23.10.2024). Additional Information: [Extended article: CVUA Stuttgart](#).

★ **Fake extra virgin olive oil: 71 tons seized with chlorophyll:** A major operation exposed a food crime network producing **fake extra virgin olive oil** in Cerignola, Foggia. Authorities seized **71 tons** of adulterated oil, charged seven people, and uncovered the deceptive use of **chlorophyll**, raising serious concerns about food safety. [RG](#), 3 pages. (05.11.2024). Additional Information: [Food Unfolded: Fake olive oil](#).

★ **Salmon frequently mislabeled in grocery stores and sushi restaurants:** A study in Seattle revealed that **18%** of **salmon** samples were mislabeled, with **sushi restaurants** showing higher mislabeling rates than grocery stores. The most common error was **mislabeling farmed salmon as wild**, particularly in restaurants, where **32.3% of samples were mislabeled**. [EurekAlert](#), 2 pages. (07.11.2024). Original Publication: [PlosOne](#).

★ **Illegal import of hazardous american food products in France:** An investigation reveals the **illegal import** and sale of American food products in France that contain harmful additives. These products, including Peanut Butter M&M's, Fanta Strawberry, Heinz Pickle Sauce, and Lucky Charms cereal, are banned in the European Union due to dangerous substances like **titanium dioxide and aluminum sulfate**. Despite the restrictions, over 72 tons of these products have been intercepted by customs, indicating a larger issue with the illegal food trade. [Marianne](#), 2 pages. (22.10.2024). Additional Information: [Radio France article](#).

Close-up

New information concerning the [FSVO's early detection system](#) for food safety:

- **Publication of the visualization «[Early detection for food safety](#)»:** The Federal Office for Food Safety and Veterinary Affairs (FSVO) identifies emerging health risks for the Swiss population to ensure long-term food safety. To this end, the office filters and records current food safety information in the form of notifications. The following visualization presents these notifications, including by hazard (e.g., Listeria) and food groups (e.g., fruits).
- **Publication in the journal Food Risk Assess Europe (FRAE) of the report “Exploratory survey on energy costs and their potential impact on food safety”** (Abstract in English, German and French. Report in German) available at <https://doi.org/10.2903/fr.efsa.2024.FR-0048>
- **Publication in the journal Food Risk Assess Europe (FRAE) of the report “Impact of mercury released from permafrost on food safety in Switzerland”** (Abstract in English, German and French. Report in English) available at <https://doi.org/10.2903/fr.efsa.2024.FR-0048>

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Zusammenfassungen wurden teilweise mit Unterstützung von ChatGPT-4.0 erstellt.*



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★★★★ very important info ★★★ important info ★ interesting info

Microbiology

★★★★ **Swiss *Listeria* outbreak linked to baker's yeast:** A major *Listeria* outbreak in **Switzerland** has sickened more than 30 since 2022 and seven people have died. The first case was reported in April 2022, and the outbreak peak occurred in 2023. Listeriosis was the primary cause of death in all seven cases, according to notification data. All 34 isolates were genetically related to *Listeria monocytogenes* from **baker's yeast products** from a commercial factory and its production lines. [FSN](#), 2 pages. (01.10.2024). Original Publication: [Emerg Infect Dis](#).

★★★★ (ESBL)- and carbapenemase-producing *Enterobacteriales* isolated from fresh herbs and salads: A study conducted in **Switzerland** examined the presence of extended-spectrum β -lactamase (ESBL)- and carbapenemase-producing *Enterobacteriales* (CPE) in 118 fresh **herbs** and 101 bagged **salads** from retail sources. Fresh herbs and salads are reservoirs of bacteria with **antibiotic resistance genes**. 13% of the salads and 5% of fresh herbs contained ESBL-producing bacteria. 6% of the fresh herbs contained CPE. [JFoodProt](#), 29 pages. (02.10.2024).

★★★ **Sushi consumption positively associated with ESBL-E colonization in health care workers (HCW):** The objective of this study was to determine the prevalence, molecular epidemiology, and risk factors for gut colonization with **extended-spectrum β -lactamase-producing *Enterobacteriales* (ESBL-E)**, carbapenemase-producing *Enterobacteriales* (CPE), and vancomycin-resistant enterococci (VRE) in healthcare workers (HCWs). In September/October 2022, a cross-sectional study among HCW from 14 institutions in Northeastern **Switzerland** was performed. Occupational factors showed no association. In the multivariable analysis, non-European ethnicity, travel to high-risk countries, systemic antibiotics, antibiotic eye drops, and **monthly sushi consumption** were positively associated with ESBL-E colonization. [Antimicrob. Agents Chemother.](#), 12 pages. (26.09.2024).

★★ **Food safety challenges in circular agri-food systems:** A recent article by **Food and Agriculture Organization** of the United Nations (FAO) experts highlights the **emerging risks**, data gaps, and opportunities for **food safety in circular agri-food production models**. Transitioning from linear to circular practices aims to "do more with less," but unique challenges arise due to the perishable nature of food. Effective food safety management must analyze vulnerable entry points and potential risks in these systems to ensure safety. [FoodSafetyMag](#), 3 pages. (11.09.2024). Original Publication: [npj Sci Food](#).

★★ **Characterization of *Enterococcus* spp. isolated from fish, vegetables and humans:** This study investigates the phenotypic and genotypic characteristics of *Enterococcus faecalis* and *Enterococcus faecium* isolated from **fish, vegetables**, and **human** diarrheal samples to assess their pathogenicity as food-borne pathogens in **Egypt**. Out of 326 samples tested, **21.17% were positive** for *Enterococcus* species, with *E. faecalis* being more prevalent than *E. faecium*. The study found significant **antibiotic resistance**, particularly against **vancomycin** and **tetracycline**, with a notable presence of **multidrug-resistant** strains. [Sci Rep](#), 17 pages. (18.09.2024).

★★ **First case report of mycotic abdominal aortic aneurysm caused by *Campylobacter fetus* in Serbia:** Infections with *Campylobacter fetus* are uncommon in humans. The primary reservoirs are the digestive and genital tracts of livestock, primarily cattle and sheep. However, a rare case of **mycotic abdominal aortic aneurysm** associated with *Campylobacter fetus* was detected in Serbia. The patient denied contact with animals, as well as consumption of undercooked meat and unpasteurized milk, so the source of infection was not identified. [Pathogens](#), 2 pages. (17.09.2024).

★ **Waterborne viruses in groundwater:** Aquifers, which provide drinking water for nearly half the world's population, face significant challenges from microbial contamination, particularly from waterborne viruses such as **human adenovirus (HAdV)**, **norovirus (NoV)** and **enterovirus (EV)**. The abundance of eight viral pathogens (HAdV, EV, NoV genogroup I and II, rotavirus, influenza A virus, hepatitis E virus and SARS-CoV-2) and the virome diversity of groundwater in the aquifer of the Besòs River Delta in **Catalonia** were assessed. [WaterRes](#), 11 pages. (15.11.2024).

★ **Reused agricultural residues contain more resistant and potentially pathogenic bacteria:** In the **circular economy**, reusing agricultural residues, treated biowaste, and sewage sludges as **soil conditioners** is vital for transforming waste into valuable resources. However, these materials can also facilitate the **spread of antimicrobial-resistant pathogens in soils**. This study found that compost samples had greater bacterial diversity and higher levels of **potentially pathogenic bacteria**, while **wastewater treatment plant sludges** showed the highest frequency of *Salmonella* and **resistome** diversity, indicating the need for combined omics and cultivation-dependent methods to assess the biological risks of using sludge in agriculture. [J. Hazard. Mater.](#), 5 pages. (23.09.2024).

★ **Invasive Group B *Streptococcus* infection - outbreak:** The virulent strain of *Streptococcus agalactiae* (Group B Streptococcus (GBS)), **Sequence Type 283 (ST283)**, can cause invasive disease in otherwise healthy adults. 58 patients had contact with **raw freshwater fish** before symptoms appeared, with six of them having wounds on their hands. Eight patients may have consumed undercooked freshwater fish, while the exposure history of the remaining four patients is still being investigated. [CHP](#), 2 pages. (20.09.2024). Original Publication: [ProMed](#). Additional Information: [Food Safety News](#).

★ **Rare *Salmonella* type outbreak:** A rare type of *Salmonella*, known as *Salmonella enterica* subsp. *enterica* serovar **Umbilo (*Salmonella* Umbilo)**, has infected 20 individuals in Denmark and 17 in Austria, with cases reported since July. The Danish patients, ranging in age from under 1 to 85, are being investigated by health officials, who are focusing on **potential links to contaminated food**, particularly **salad** and **lettuce**. Austria, Denmark, Germany, Italy, Qatar, Switzerland, United Arab Emirates and the United Kingdom were affected (RASFF notification). Whole-genome sequencing has shown that the bacteria from the patients are closely related, and this serotype has not been seen in Denmark since 2017. [FSN](#), 2 pages. (24.09.2024). Additional Information: [Fresh Produce Consortium \(FPC\)](#), [RASFF notification](#).

★ **Pigs may be transmission route of rat hepatitis E to humans:** New research indicates that **pigs** may transmit a strain of the **hepatitis E virus (HEV)** common in rats, known as "rat HEV," which has recently infected humans. Since the first human case was reported in 2018 in a person with a suppressed immune system, at least 20 cases have been documented, including individuals with normal immune function. The route of infection remains unclear, but **consumption of raw pork**, often linked to other human HEV infections, could also be a potential transmission pathway for rat HEV. [ProMed](#), 2 pages. (29.09.2024). Original Publication: [PNAS](#). Additional Information: [Science Daily](#).

★ **An outbreak associated with *Escherichia albertii*:** In February 2023, an outbreak of gastroenteritis linked to *Escherichia albertii* occurred at a junior high school in Hangzhou, **China**, affecting 22 out of 770 students, with symptoms including diarrhea, abdominal pain, nausea, and vomiting. The outbreak was traced back to a meal consumed by the affected students, although no food samples were available for testing. Genetic analysis of isolates from six patients revealed they belonged to the same sequence type (ST2686) and exhibited minimal genetic variation, indicating a common clonal origin. This incident marks the first reported *E. albertii* outbreak outside Japan. [Epidemiol. Infect.](#), 4 pages. (04.10.2024).

★ **Profiling the Enterobacterales community isolated from retail foods in England:** This study investigates the prevalence and characteristics of Enterobacterales in **retail foods** in England, revealing a diverse community with significant public health implications. From 110 food samples, 253 Enterobacterales were identified, predominantly *Proteus mirabilis* and *Escherichia coli*, with 63% of isolates exhibiting **antimicrobial resistance**, including **multi-drug-resistant strains**. Notably, *Klebsiella* showed higher resistance levels, while certain species produced more biofilm biomass. [JFoodProt](#), 48 pages. (02.10.2024).

★ ***Burkholderia multivorans* infections associated with use of ice machines:** During 2021–2022, a total of 23 cases of infection by *Burkholderia multivorans* (sequence type ST659) were reported at two southern California **hospitals** and linked to contaminated **ice and water from ice machines**. In addition to these **23 cases**, this report also includes 23 previously unreported cases of *B. multivorans* ST659 infections that occurred during 2020–2024: 13 at a northern California hospital, eight at a hospital in Colorado, and two additional cases at one of the southern California hospitals. The same brand of ice machine and brands of filters, descaling, and sanitizing products were used by all four hospitals. [MMWR](#), 5 pages. (03.10.2024).

Chemistry

★★ **Banned pesticides in Europe's food supply: Pesticides banned** in Europe are currently produced by European companies and exported to third countries. These EU banned pesticides find their way back to Europe as **residues** in food. They are found in **randomly collected** samples from Member States' national monitoring programs. Certain products contain EU banned pesticides more often than others: **tea (38.3%), coffee (22.7%), spices (12.5%) and legumes (11.4%)**. Between 2011 and 2022, the rate of samples with EU-banned pesticides went up 10 times for coffee and three times for spices. [PAN](#), 2 pages. (26.09.2024). Original Publication: [PAN](#).

★★ **Cannabinoids increasingly found in sweets:** This is shown by more than 90 RASFF notifications concerning products containing cannabidiol (CBD), classified as a novel food. 44 of these notifications came from the German authorities. Cannabinoids are increasingly present in foods that are also appealing to children and adolescents. In 2023, authorities reported more than 20 products in the rapid alert system that could be confused with regular products by children. These include **gummy drops, chewing gum, honey, syrup, soft drinks, and cookies**. In addition to CBD, some products contained the psychoactive cannabinoid hexahydrocannabinol (**HHC**), which is now banned for sale in Germany. [IdW](#), 1 page. (26.09.2024).

★★ **Per- and polyfluoroalkyl substances (PFAS) in six different fish species from Swiss lakes:** This study investigated **PFAS** levels in freshwater fish from Swiss lakes, focusing on six common species: *Coregonus wartmanni*, *Cyprinus carpio*, *Oncorhynchus mykiss*, *Perca fluviatilis*, *Salmo trutta*, and *Squalius cephalus*. The results were compared to EU regulations and EFSA guidelines for tolerable weekly intake (TWI), with a specific focus on correlations between fish size and PFAS concentration. Our findings reveal significant PFAS contamination, particularly in *Perca fluviatilis* with perfluorooctane sulfonic acid (PFOS) and perfluorohexane sulfonic acid (PFHxS) levels often **exceeding EU safety limits**. [Anal Bioanal Chem](#), 10 pages. (01.10.2024).

★★ **Heavy metals in tomatoes:** Recent reports of **cadmium** contamination in **tomatoes** have raised concerns about the potential emerging risk of heavy metals in salad crops. Traditionally not seen as high-risk, tomatoes have been flagged by the Rapid Alert System for Food and Feed (RASFF) due to two separate incidents in September 2024 involving high cadmium levels from Turkey and Italy. [Food Manu](#), 2 pages. (09.10.2024). Original Publication: [RASFF](#), [RASFF](#).

★★ Evidence for widespread human exposure to food contact chemicals: A study has found that 3,601 **food contact chemicals** (FCCs), including bisphenols and PFAS, are **leaching** from food packaging into human bodies, raising concerns about potential health risks. While some chemicals are known to be hazardous, many others **lack sufficient safety data**, leaving their health implications unclear. For 25% of the known FCCs, the authors found evidence for their presence in humans. This includes 194 FCCs from human biomonitoring programs, with 80 of these having hazard properties of high concern. [EurekAlert](#), 2 pages. (16.09.2024). Original Publication: [J Expo Sci Environ Epidemiol](#).

★ Potential mammary carcinogens used in food contact articles: Many nations have **food contact material** (FCM) legislation purporting to protect citizens from hazardous chemicals, often specifically by regulating **genotoxic carcinogens**. With the use of the database on migrating and extractable **food contact chemicals** (FCCmigex), 189 potential mammary carcinogens were measured in FCMs. When limiting these results to migration studies published in 2020–2022, 76 potential **mammary carcinogens** have been detected to migrate from FCMs sold in markets across the globe, under realistic conditions of use. [EurekAlert](#), 2 pages. (25.09.2024). Original Publication: [Front Toxicol](#). Additional Information: [FCCmigex database](#).

★ Chloropropanols in foods: Chloropropanols are process contaminants in **foods** that pose **potential health risks**. These contaminants typically arise during the **deodorization process of vegetable oils**, particularly in high concentrations within oils like **palm oil** and products derived from them, such as margarine, baked goods, pastries, and infant formula. [Foods](#), 5 pages. (12.09.2024).

★ Elevated lead levels found in one-third of cinnamon samples: A recent study by **Consumer Reports** found that one-third of **cinnamon products** tested contained elevated levels of lead, raising concerns about food safety following a previous incident where tainted cinnamon applesauce poisoned numerous children. The FDA had previously identified high lead levels in certain cinnamon products and urged recalls, particularly in **New York**, which has strict lead standards. The study revealed lead levels in some products reaching up to 3.5 parts per million, significantly above the safety threshold for **children**. [NYT](#), 3 pages. (12.09.2024). Original Publication: [CR](#).

★ Potential health risk of cannabis tea: Besides many other uses, **dried Cannabis** may be used for “tea” preparation. A dramatic increase of phytocannabinoids, mainly of the neutral species, occurred when **cream** was added during steeping, and the transfer of Δ^9 -THC into “tea” achieved a range of 53–64%. Under such conditions, drinking a 250 mL cup of such tea by a 70 kg person might lead to a multiple **exceedance of the Acute Reference Dose (ARfD)**, 1 $\mu\text{g}/\text{kg}$ bodyweight even in the case when using hemp with a Δ^9 -THC content below 1% in dry weight for preparation. [JAgrFoodChem](#), 5 pages. (13.09.2024).

★ Uptake of PFAS in crops: The study found significant variation in **PFAS uptake** by grass-based forage crops grown in **biosolid-amended soils**. Higher **PFOS** transfer factors were associated with elevated levels of precursors like **PFOSA** and **NETFOSAA**. The study suggests that these precursors may contribute to PFOS accumulation in plants. Additionally, a second harvest of forage crops showed higher PFOS uptake compared to the first. [J Sci Food Agric](#), 10 pages. (09.10.2024).

★ Aspartame linked with memory and circadian rhythm impairment: A study investigated the neurobehavioral effects of **chronic aspartame exposure** through **drinking water** in **mice**, at doses equivalent to 7–28% of the FDA-recommended human daily intake. Results showed that aspartame led to **memory impairment** and **disrupted circadian rhythms**. [JAgrFoodChem](#), 5 pages. (10.10.2024).

Nutrition

★★ **Seafood and fish oil supplement intake and risk of persistent tinnitus**: This longitudinal study investigated the relationship between **seafood** and **fish oil supplement** intake and the risk of developing persistent **tinnitus** among 73,482 females in the Nurses' Health Study II over 30 years. The findings revealed that regular seafood consumption, particularly of tuna fish, light-meat fish, and shellfish, was associated with a lower risk of persistent tinnitus, while fish oil supplement use was linked to a higher risk. [AJCN](#), 10 pages. (28.09.2024).

★ **A vegan dietary pattern is associated with high prevalence of inadequate protein intake in older adults:** A simulation study examined the impact of transitioning to **plant-based diets** on protein intake among older adults, using data from the **Dutch National Food Consumption Survey**. The study found that while flexitarian, pescatarian, and vegetarian diets resulted in a slight decrease in utilizable protein intake (about 5%), a vegan diet led to a significant reduction, with nearly 50% less utilizable protein compared to the original diet. Consequently, while 7.5% of men and 11.1% of women in the original diet did not meet the estimated average requirements for protein, this figure rose to 83.3% in the vegan scenario, highlighting the risk of inadequate protein intake with a fully plant-based diet. [JNHA](#), 8 pages. (10.2024).

★ **Diet culture on TikTok:** This study analyzes the portrayal of dieting on **TikTok**, focusing on its potential impact on public health and eating disorders among young people. By examining 250 videos from popular diet-related hashtags, the research found that over half of the videos featured body checking, often **negatively influencing body image**, while most promoted **healthy eating**. Although only a small percentage displayed disordered eating behaviors, the prevalence of body checking and the promotion of the thin ideal raise concerns about social comparisons and self-worth linked to food. [PHN](#), 9 pages. (23.09.2024).

★ **Toddlers get nearly half their calories from ultra-processed foods:** Toddlers in the UK obtain nearly half (47%) of their calories from **ultra-processed foods** (UPFs), and this rises to 59% by the age of seven, according to a new study. The most common UPFs consumed by the toddlers—who were 21 months when their parents recorded their diets—were flavored yogurts and wholegrain breakfast cereals, products typically seen as healthy. By the age of seven, the most common UPFs were **sweet cereals, white bread and puddings**. [MedicalXpress](#), 2 pages. (03.10.2024). Original Publication: [Eur. J. Nutr.](#)

★ **Ultra-processed vegan foods:** The review examines the growing trend of **ultra-processed vegan foods**, which serve as alternatives to animal-source foods (ASFs) like meat and dairy. While these plant-based products are designed to mimic the sensory qualities of ASFs, their **health implications are largely overlooked**. The authors argue that despite being perceived as healthier options, these vegan ultra-processed foods may pose certain **health risks**. [J. Food Sci.](#), 14 pages. (08.10.2024).

Fraud / Deception

★ **UK food agencies highlight key food crime topics:** Raw pet food, smokies, and unapproved producers were some of the issues identified by food agencies in the United Kingdom in a report on **food crime**. Details come from the 2024 Food Crime Strategic Assessment published by the Food Standards Agency (FSA) and Food Standards Scotland (FSS). Food crime costs the UK up to £2 billion annually. Seven types of food crime are listed: **document fraud, theft, waste diversion, unlawful processing, substitution, misrepresentation, and adulteration**. [FSN](#), 3 pages. (16.09.2024). Original Publication: [FSA](#).

★ **Nutrient profiling assessment of packaged snack foods:** The nutrient profiling of packaged snack foods available in Indian market were analyzed. A significant difference was observed in the **values of nutrients** analyzed through laboratory methods in comparison to the values given on **nutrition label** in majority of the products. Out of total 23 packaged chips 2, 7, 8 and 13 products were having **higher content of sugar, saturated fat, sodium and total fat** than the threshold levels. [FrontNutr](#), 2 pages. (18.09.2024).

★ **High rates of seafood mislabeling and ambiguous market names:** **Seafood mislabeling** rates were high in Calgary, Alberta, with 20.2% of invertebrates and 21.3% of finfish being mislabeled. Product substitutions sometimes involved **endangered species**, including European eel and threadfin porgy. **Ambiguous market names** were found to be a significant **predictor** of the sale of species of conservation concern. [EurekAlert](#), 2 pages. (24.09.2024). Original Publication: [PeerJ - L & E](#).

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Microbiology

★★★ **Heavy rainfall and flooding played a role in the 2022 UK *E. coli* outbreak:** In September 2022, a large outbreak of **STEC O157:H7** was identified in the United Kingdom. It was one of the biggest *E. coli* outbreaks since the early 1980s. Analytical epidemiology and food chain analysis suggested lettuce was the likely vehicle of infection. Researcher found **lettuce** incriminated in the outbreak may have been contaminated by **heavy rainfall and flooding**, transporting STEC from animal feces to crops in fields. [FSN](#), 2 pages. (10.09.2024). Original Publication: [Eurosurveillance](#).

★★ **The impact of the Ukraine war on foodborne pathogens:** Researchers have observed a significant rise in **botulism** and **salmonellosis** cases in Ukraine following the Russian invasion, utilizing open-source data from EPI-WATCH to analyze infectious disease patterns before and during the conflict. The analysis revealed a dramatic increase in outbreak reports during the conflict, with botulism cases rising from 22 to 122 and salmonellosis from four to 39. The findings emphasize the potential of open-source data and **artificial intelligence** in monitoring infectious diseases in conflict areas where formal surveillance is lacking. [Emerg Infect Dis](#), 4 pages. (09.2024). Additional information: [FRAE](#).

★★ **A new pandemic could ride in on animals we eat:** Researchers warn the animals we eat could be the gateway for a pandemic in the form of **antimicrobial resistance**, unleashing a wave of deadly superbugs. The researchers analysed this public health and food security challenge in the **food animal industry** in Southeast Asia. [EurekAlert](#), 2 pages. (21.08.2024). Original Publication: [IJFST](#).

★★ **Yersinia outbreak linked to milkshakes in Australia:** In January 2023, an outbreak of *Yersinia enterocolitica* in residential aged care facilities was confirmed using whole genome sequencing. There were 55 cases, including six staff. Scientists have found a contaminated ingredient used in milkshakes was likely to blame for the *Yersinia enterocolitica* Biotype 1A outbreak in the Australian state of Queensland. [FSN](#), 1 page. (05.09.2024). Original Publication: [Commun Dis Intell](#).

★★ **Human circovirus 1 (HCirV-1):** A recent study identified a **novel human circovirus** in an immunocompromised 66 year old woman with sudden onset of self-limiting hepatitis in **Switzerland**. The authors detected human circovirus 1 (HCirV-1) transcripts in hepatocytes and HCirV-1 in the patient's blood, stool, and urine. The patient lives alone in rural Switzerland, without direct contact with animals. She had not traveled outside Switzerland during the past 8 years. Her dietary habits were unremarkable except for sporadic consumption of **raw calf liver**, which she most recently consumed before 2018. She eats **cured pork** and **beef products** and gets milk from the supermarket. [ProMed](#), 3 pages. (04.09.2024). Original Publication: [Emerg Infect Dis](#).

★★ **Contamination of *Vibrio parahaemolyticus* in crayfish for sale in China:** Although *Vibrio parahaemolyticus* is commonly recognized as a halophilic foodborne pathogen associated with **seafood**, it has been found to be a **major pathogen in crayfish-associated food poisoning** cases. In a recent study, the *V. parahaemolyticus* contamination level in crayfish production-sale chain was investigated using crayfish and environmental samples collected from crayfish farms and markets. *V. parahaemolyticus* contamination was found in the entire crayfish production-sale chain (detection rate of 66%), while the *V. parahaemolyticus* contamination level of the market samples was extremely high (detection rate of 92%). [Front Micr](#), 10 pages. (14.08.2024).

★★ **First findings of *Sarcocystis* species in game deer and feral pigs in Australia:** This is the first study to report the presence of *Sarcocystis* spp. in deer and feral pigs in Australia. Oesophagus, diaphragm and heart tissue from 90 deer and eight feral pigs were **visually** examined for sarcocysts. All results were negative. **PCR** testing of randomly selected deer and feral pigs gave positive results, which were subsequently confirmed by **histopathology**. As no visual cysts were found, infected animals, particularly those reared in free-range systems, could pass through meat quality controls undetected. [Int J Food Micr](#), 10 pages. (16.08.2024).

★ **Emerging of Shiga toxin-producing *E. coli* O177:H11 and O177:H25 from cattle in Italy:** In 2023–2024, a study on **Shiga toxin-producing *Escherichia coli* (STEC)** contamination of hide and carcasses of dairy cattle at slaughter was planned in Emilia-Romagna region (northern **Italy**). When the study was still in progress and 60 animals were sampled, the detection of **STEC O177** isolates reached **high rates** and gained attention. A total of five STEC O177 strains were detected, namely four from three carcasses (5 %) and one from a hide sample (1.7 %). This is the first detection of STEC O177 from bovine meat in Europe. [Int J Food Micr](#), 9 pages. (02.10.2024).

★ **High *Campylobacter* diversity in retail chicken:** Infections with *Campylobacter* spp. are largely underreported, and the **burden of outbreaks may be underestimated**. Current strategies of testing as few as one isolate per sample can affect attribution of cases to epidemiologically important sources with high **Campylobacter diversity**, such as chicken meat. Multiple culture method combinations were utilized to recover and sequence *Campylobacter* from 45 retail chicken samples purchased across Norwich, UK, selecting up to 48 isolates per sample. Positive samples contained 1–8 sequence types (STs). Simulation revealed that up to 87 isolates per sample would be required to detect 95% of the observed ST diversity, and 26 isolates would be required for the average probability of detecting a random theoretical outbreak ST to reach 95%. [Epidemiol Infect](#), 10 pages. (22.08.2024).

★ **Rare infection linked to consumption of raw dairy products:** The study details a probable case of food poisoning caused by *Lactococcus lactis cremoris* in an adult woman in India. A 58 year old female was taken to an emergency room with a history of sudden onset of high-grade fever, vomiting, seizures, and loss of consciousness. Researchers said that *Lactococcus lactis cremoris* was isolated from her blood culture. The patient's history included travel to a local pilgrimage and consumption of **unpasteurized dairy products** leading up to the incident. [FSN](#), 2 pages. (26.08.2024). Original Publication: [Cureus](#).

★ **Outbreak investigation of *Listeria monocytogenes* in peaches, plums, and nectarines:** The U.S. Food and Drug Administration (FDA) investigated an outbreak of *Listeria monocytogenes* infections linked to recalled **peaches, plums, and nectarines** (stone fruit). As part of this investigation, FDA initiated an inspection and collected environmental samples from the facility that packed the recalled stone fruit. Two environmental sub-samples collected from the facility were positive for *Listeria monocytogenes*. Whole genome sequencing (WGS) analysis confirmed that the strain of *Listeria* found in the positive sub-samples matched the same strain of *Listeria* making people sick in this outbreak. [FDA](#), 2 pages. (30.01.2024).

★ **Climate change linked to increased risk of salmonella:** A new study highlights that **climate change** is likely to increase the risk of **salmonella** poisoning from contaminated food, particularly leafy greens like lettuce. Researchers found that higher humidity levels can lead to bacterial diseases such as leaf spot, which in turn helps salmonella survive on these plants, raising food safety concerns. The study indicates that controlling plant diseases is crucial for preventing foodborne illnesses, as salmonella affects approximately 1.2 million people annually in the U.S., with fresh produce being a common source of infection. [UPI](#), 2 pages. (29.08.2024). Original Publication: [AEM](#).

Chemistry

★★★ **More patients added to toll in deadly outbreak traced to microdosed chocolate:** The patient count in a deadly outbreak traced to **microdosed chocolate** continues to increase with 145 patients having developed symptoms. In addition to **muscimol**, FDA analysis of chocolate bar samples identified the presence of the following compounds: **acetylpsilocin** (also known as 4-acetoxy-N), **psilocin**, **pregabalin**, **desmethoxyangonin**, **dihydrokavain**, and **kavain**. Although these compounds individually have known effects when ingested, less research exists on their interactions when ingested together. [FSN](#), 2 pages. (22.08.2024). Original Publication: [FDA](#).

★★ **What contaminates Ukraine's war-affected fields?** Corteva Agriscience's study of **Ukrainian** farmland affected by war has revealed concerning levels of heavy metal contamination, particularly excess **nickel**, which can harm plant health and reduce crop yields. Results of 400 soil samples tested showed that nickel levels exceeded legal limits by up to 20%, while **lead** and **arsenic** were also present but mostly within acceptable ranges. The analysis, conducted in a certified laboratory, assessed various soil parameters and highlighted the need for farmers to monitor nickel content in their crops. To mitigate contamination, methods such as deep plowing and organic fertilizers are recommended. [NV](#), 2 pages. (29.08.2024). Additional information: [FRAE](#).

★★ **Emerging chemical risks in food and feed:** This **technical report** summarizes **EFSA's activities from 2020 to 2023**, highlighting identified emerging chemicals, the strengths and weaknesses of the identification process, and recent regulatory developments aimed at establishing an early warning system for these risks. It emphasizes the importance of collaboration with various organizations to create a sustainable system for identifying emerging chemical risks and facilitating information exchange. [EFSA](#), 42 pages. (09.08.2024).

★★ **Underexplored food safety hazards of beekeeping products:** A review summarised scientific information on the less-researched **food safety hazards** of honey, bee bread, royal jelly, propolis, and beeswax. Research gaps are also identified such as the presence of region-specific **phytotoxins**, the presence of potential **allergens**, the effect of different thermal treatments and storage conditions on the **5-hydroxymethylfurfural** formation, the impact of beekeepers' activities (e.g., the usage of smoke and plastics) on the contamination of bee products, the presence of **environmental contaminants** in the increasingly popular urban honeys and finally the impact of **climate change**, as well as different processing and storage conditions on the **microbial contamination** and mycotoxin content of bee products. [Comp Rev Food Sci FS](#), 10 pages. (13.08.2024).

★★ **Haem iron found in red meat linked to diabetes:** A study points to a link between the development of **type 2 diabetes** and higher consumption of **haem (heme) iron**. Results of the study show that people who consumed the most haem iron had a 26% higher risk of type 2 diabetes than those who ate the least. The researchers also found that higher haem iron consumption was associated with metabolic biomarkers linked to the development of type 2 diabetes, along with lower levels of beneficial biomarkers. The researchers were also concerned about the addition of haem iron to plant-based meat alternatives, as a way to mimic some of the flavor and appearance of real meat. [Med News Today](#), 2 pages. (20.08.2024). Original Publication: [Nature Metabolism](#).

★★ **Comprehensive assessment of pesticide use patterns and increased cancer risk:** A comprehensive analysis of the relationship between **total pesticide use** and **cancer** incidence in the **United States** was conducted using a population- and community-based approach. This population-based approach provides a more holistic understanding of the community effects of total pesticide exposure. This comprehensive analysis took into account potential confounders such as socio-economic status, smoking rates and agricultural land use. The results show that the effect of pesticide use on cancer incidence can rival that of smoking. Geographical trends showed that counties with higher agricultural productivity, such as the leading corn-producing states of the Midwest, also had increased cancer risk due to pesticide exposure. [Front Cancer Control Soc](#), 12 pages. (25.07.2024). Additional Information: [Reporterre](#).

★★ **Study explores food safety risks of non-traditional, sustainable agriculture practices:** A study found that, while **alternative farming practices** in rice cultivation aimed at reducing water usage can lower greenhouse gas emissions and arsenic levels in rice, the same practices may also increase **cadmium** content. The same study also demonstrated that no-till farming techniques raise the likelihood of **mycotoxin** contamination in crops. [FoodSafetyMag](#), 2 pages. (09.09.2024). Original Publication: [npj Sci Food](#).

★★ **Cytotoxic effects induced by combined exposure to mycotoxins:** This study investigates the **combined cytotoxic effects of the mycotoxins** sterigmatocystin, ochratoxin A, and patulin on human tumor and healthy 3D spheroids, addressing the often-overlooked issue of co-exposure in mycotoxin risk assessment. By testing a range of concentrations based on previous studies and estimated dietary exposure, the researchers found that mixtures of these mycotoxins exhibited **greater cytotoxicity than individual exposures**, with many synergistic interactions identified through isobologram analysis. The results underscore the potential for increased toxicity from the co-occurrence of these mycotoxins in food, emphasizing the need for standardized regulatory approaches to address mycotoxin mixtures. [Food Chem Toxicol](#), 34 pages. (23.08.2024).

★ **Combined effect of two Alternaria mycotoxins:** This study investigates the combined effects of two Alternaria mycotoxins, **alternariol (AOH)** and **alternariol monomethyl ether (AME)**, on porcine epithelial intestinal cells (IPEC-1). The research demonstrates that **co-exposure** to AOH and AME significantly **decreases cell viability** more than exposure to either toxin alone, indicating a **synergistic** effect, particularly at higher concentrations tested. Additionally, both toxins **increase oxidative stress**, as evidenced by elevated levels of reactive oxygen species (ROS) and oxidative damage to lipids, proteins, and DNA. The study also notes a decrease in the activity of antioxidant enzymes, suggesting that the combination of AOH and AME exacerbates oxidative damage compared to individual exposures. [Agriculture](#), 12 pages. (30.08.2024).

★ **Mycotoxins in plant-based beverages:** This study aimed to present a review providing new data to the population on **exposure to mycotoxins** by consumption of **plant-based beverages**. Based on the data collected, the occurrence of 21 mycotoxins was reported in plant-based beverages from different food matrices. Concerning probable daily intake, the highest values refer to **deoxynivalenol, tentoxin, and fumonisin B1**. In terms of exposure to mycotoxins, plant-based beverages can lead to a greater exposure to consumers than milk. Despite this, plant-based beverages alone do not pose a risk to consumer health. [Food Res Int](#), 2 pages. (15.08.2024).

★ **Lead poisoning in Ecuador:** A study by Ecuador's Ministry of Public Health revealed 31 **cases of lead poisoning** in Guayaquil, Quito, and Santa Elena, with 15 of the affected being children. Blood tests indicated that one in ten samples exceeded the World Health Organization's intervention value of 5 micrograms of lead per deciliter. The study, prompted by a contamination scandal involving **Ecuadorian fruit preserves**, highlighted the potential for thousands more cases, as lead exposure can lead to serious health issues, particularly in children. [EIUnj](#), 3 pages. (19.08.2024). Additional Information: [Panorama Ecuador](#).

★ **Plastic in soft drinks:** An investigation by Agir pour l'Environnement, a French citizens' association working to protect the environment, has revealed the presence of six types of plastic in soft drinks, with up to 46 **microplastic** fragments detected in a liter after multiple openings. The study, conducted by specialized laboratories, aimed to simulate real consumption conditions also found potentially harmful **nanoparticles**. The association has referred the matter to the French Health and Safety Agency (ANSES) and the Directorate-General for Fraud Control (DGCCRF) for a rapid investigation. [AgirPourEnv](#), 1 page. (22.08.2024). Original Publication: [AgirPourEnv](#).

Nutrition

★★ **Meat substitutes and cardiovascular diseases:** A study reveals the unhealthy effects that **ultra processed vegan foods** can have on the heart. A recent study concludes that **plant-based meat substitutes** favour **cardiovascular diseases**. [Frankfurter Rundschau](#), 2 pages. (16.08.2024). Original Publication: [Lancet Reg Health - Eur](#).

★ **Ultra-processed food consumption is associated with overweight among vegetarians:** This study examines the relationship between **ultra-processed food (UPF)** consumption and overweight among **Brazilian vegetarian adults**, finding that 26 % of participants were **overweight**. Data collected from 925 individuals revealed a median

UPF consumption of 1.8 times per day, with increased UPF intake correlating with a higher probability of being overweight. Factors such as age, eating more meals away from home, duration of vegetarianism, and living in wealthier regions also influenced overweight prevalence. [Int J Food Sci Nutr](#), 13 pages. (23.08.2024).

★ **Diet low in magnesium possibly linked to DNA damage, chronic degenerative conditions:** Researchers from the University of South **Australia** have found a potential link between **low magnesium levels, DNA damage**, and increased **homocysteine** levels, which may elevate the risk of chronic degenerative diseases such as **Alzheimer's, Parkinson's**, and various **cancers**. In a study involving 172 middle-aged adults, blood samples revealed that low magnesium correlated with higher DNA damage and homocysteine levels (after adjusting for age and gender). The findings suggest that adequate magnesium supply is crucial for protecting genes from toxicity associated with homocysteine, particularly when folate and vitamin B12 are deficient. [Nutraceuticals W](#), 1 page. (21.08.2024). Original Publication: [Eur J Nutr](#).

Fraud / Deception

★ **Australian study on baby and toddler food marketing:** A study of **baby** and **toddler foods** on supermarket shelves across Australia has revealed a staggering number of **unregulated claims** that mislead parents into thinking these often sugar-loaded products are healthy. The findings showed that none of the products for children aged 6–36 months met international guidelines for promotion and more than three quarters failed on overall nutritional requirements, mainly due to **excess energy and sugar**. [MedicalXpress](#), 3 pages. (13.08.2024). Original Publication: [Matern Child Nutr](#).

★ **Soy sauce authenticity: global trade, adulteration risks:** The review highlights the increasing global production and trade of **soy sauce**, emphasizing the importance of authenticity due to **risks of fraud** and **food safety concerns**. It examines production standards and fraudulent activities over the past two decades, while also discussing the challenges in discerning quality attributes in soy sauce. [Trends Food Sci](#), 33 pages. (14.08.2024).

Close up

New information concerning the [FSVO's early detection system](#) for food safety:

- **Publication in the journal Food Risk Assess Europe (FRAE) of the report “The future of food safety: possible trends for the years 2022-2032 and their influence on food safety and nutrition”** (Abstract in English. Report in German and in French) available at <https://doi.org/10.2903/fr.efsa.2024.FR-0041>

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Seismo Info 08/2024



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★★★★ very important info ★★★ important info ★ interesting info

Microbiology

★★★ **Outbreak of *Listeria* infections linked to plant-based beverages:** At least twenty people have been infected with *Listeria monocytogenes* in relation to recalled **almond milk, coconut milk, almond-coconut milk and oat milk** in Canada. There have been fifteen hospitalizations and three deaths associated with this outbreak investigation. [FSN](#), 2 pages. (10.07.2024). Original Publication: [GovCanada](#).

★★★ **Emerging issue: *Salmonella* in livestock workers:** The US CDC has issued a notice about a multidrug-resistant strain of *Salmonella Newport* found in **livestock workers**. The strain has also been found in cattle in the US and Mexico. The strain, known as REPJP01, has caused severe human illness and outbreaks globally, with over 2,500 reported cases in the US. This strain is concerning due to its **resistance to multiple antibiotics**, leading to higher hospitalization rates, and the potential for spreading resistance to other bacteria. [Beef](#), 1 page. (16.07.2024).

★★★ **Raw milk cheese linked to *Yersinia* spp. Outbreak in France:** A *Yersinia* spp. outbreak in France linked to **raw goat milk cheese** has affected **over 130 people**, with cases reported in several European countries and the United States. The implicated cheese brand has been recalled from more than 20 countries. The European Centre for Disease Prevention and Control (ECDC) is monitoring the situation and warns of the high risk of contracting **yersiniosis** for consumers who have been exposed to the contaminated products. [FSN](#), 1 page. (16.07.2024). Original Publication: [ECDC](#).

★ ★ **Vibrio becoming more prevalent in seafood:** In a new scientific opinion, the **European Food Safety Authority** (EFSA) warns that **antimicrobial resistance** to critical antibiotics is increasing in some **Vibrio** species, and that the prevalence of the pathogen is expected to increase globally due to climate change. [FoodSafetyMag](#), 2 pages. (23.07.2024). Original Publication: [EFSA](#). Additional Information: [EFSACHannel](#).

★ ★ **Plasmid-mediated multidrug resistance in foodborne *Vibrio parahaemolyticus*:** A new study identified a conjugative IncA/C2-pST3 plasmid from a **multidrug-resistant *V. parahaemolyticus*** strain of seafood origin that carried **12 different antimicrobial resistance genes** (ARGs). The multidrug-resistance plasmid with high stability could be transferred to enterobacterial species (*E. coli* and *Salmonella*), which played a critical role in conferring multidrug resistance. The authors conclude that these findings emphasize the urgent need for continued surveillance of resistance plasmids and changes in antimicrobial resistance profiles among the *V. parahaemolyticus* population. [Front Micr](#), 13 pages. (31.07.2024).

★ ***Vibrio mimicus* lineage carrying cholera toxin and *Vibrio* pathogenicity:** *Vibrio mimicus* bacteria have caused **sporadic cases and outbreaks** of cholera-like diarrhea throughout the world, but the association of lineages with such events is unexplored. Genomic analyses revealed *V. mimicus* lineages carrying the virulence factors cholera toxin and toxin coregulated pilus, one of which has persisted for decades in **China** and the **United States**. [Emerg Infect Dis](#), 2 pages. (08.2024).

★ **Rising antimicrobial resistance in certain *Salmonella* serovars isolated from retail chicken meat:** Data on antimicrobial resistance in non-typhoidal *Salmonella* (NTS) isolates collected by the National Antimicrobial Resistance Monitoring System for Enteric Bacteria from retail chicken meat across the United States between 2013 and 2020 were analyzed. A total of 3,067 samples tested positive for NTS. The most common NTS serovars were **S. Kentucky** (n = 1,088), **S. Infantis** (n = 587), **S. Enteritidis** (n = 475), and **S. Typhimurium** (n = 424), respectively. A significant **increasing** trend in the proportion of **S. Infantis** and a decreasing trend for *S. Typhimurium* has been observed. [EurekAlert](#), 3 pages. (18.07.2024). Original Publication: [Food Contr](#).

★ **Possibility of wildlife-to-human crossover heightens concerns about CWD: Chronic wasting disease** (CWD) a contagious neurological disease, is caused by misfolded proteins called **prions**. It currently is known to infect only members of the cervid family — elk, deer, reindeer, caribou and moose. Recent research shows that the barrier to a spillover into humans is less formidable than previously believed and that the prions causing the disease may be evolving to become more able to infect humans. [The Western News](#), 1 page. (06.08.2024). Original Publication: [MPR News](#). Additional Information: [Acta Neuropathol](#).

★ **Oysters potentially contaminated with *Campylobacter* prompt FDA to issue warning:** The U.S. Food and Drug Administration is advising restaurants and food retailers not to serve or sell and to dispose of oysters, and consumers not to eat recalled oysters harvested between the 1st and 18th July in Lewis Bay, Massachusetts, because they may be contaminated with ***Campylobacter jejuni***. [FDA](#), 2 pages. (05.08.2024).

★ **The pathogens that could spark the next pandemic:** The number of **pathogens** that could trigger the **next pandemic** has grown to more than 30 according to an updated list published by the World Health Organization (WHO). While some of this year's priority pathogens are concentrated in particular regions, others are already present across the globe. This includes **Influenza A viruses, Sarbecoviruses, Monkeypox virus, *Klebsiella pneumoniae*, Non-typhoidal *Salmonella enterica* serovars and Lentivirus humimdef1** [Nature](#), 2 pages. (02.08.2024). Original Publication: [WHO](#), [euro news](#).

★ ***Anisakis* is associated with colon cancer:** A study from Spain has found a potential link between the parasitic nematode ***Anisakis*** and **colon cancer**, suggesting that individuals with colon cancer have higher levels of antibodies against this parasite. *Anisakis*, which infects fish, can cause serious health issues in humans and may contribute to **chronic inflammation** and DNA damage, which are factors in cancer development. The research involved comparing blood samples from colon cancer patients and healthy individuals, revealing a decreased immune response in cancer patients. [Parasitol Res](#), 10 pages. (25.04.2024).

★ **UK grocery chain is first retailer to raise freezer temperatures by 3°C:** The grocery chain Morrisons has become the first UK retailer to raise its **freezer temperatures** to -15 °C, which is an industry effort to increase frozen food storage and transportation temperature standards for the sake of sustainability. The **Move to -15°C Coalition** advocates for the current industry standard for frozen food storage to be raised from -18°C to -15°C. [Food Safety Mag](#), 2 pages. (12.08.2024). Original Publication: [Guardian](#). Additional Information: [The Move to -15°C](#).

Chemistry

★★ **Persistent 'forever chemicals' in pesticides:** This study is the first-ever comprehensive review of the many ways per- and polyfluoroalkyl substances (PFAS) are introduced into **U.S. pesticide products**. **Pesticides containing PFAS** are used throughout the country on staple foods such as corn, wheat, kale, spinach, apples and strawberries. They are widely used in homes in flea treatments for pets and insect-killing sprays. [EurekAlert](#), 3 pages. (24.07.2024). Original Publication: [ehp](#), [PAN](#).

★★ **EPA issues rare emergency ban on pesticide:** The US Environmental Protection Agency (**EPA**) has issued a rare **emergency ban** on the pesticide active substance **chlorthal-dimethyl** (DCPA), or **Dacthal**, due to concerns over its harmful effects on fetal development, including risks of impaired brain development and low birthweight. This marks the first emergency action of its kind in nearly 40 years, prompted by the pesticide's potential to cause irreversible health issues for unborn babies and the agency's difficulties in obtaining necessary health data from its manufacturer, AMVAC Chemical Corp. Despite the company's proposals for safety protocols, the EPA determined that the risks were too significant to allow continued sales, as the pesticide can remain at dangerous levels for over 25 days after application. [BS](#), 1 page. (08.08.2024). Original Publication: [EPA](#). Additional Information: [DCPA Emergency Order](#).

★★ **Elevated level of urinary tellurium is a potential risk for increase of blood pressure:** A study from Nagoya University, Japan, has found a significant link between **tellurium** contamination in **plant-based foods** and the development of **high blood pressure**. Researchers discovered that increased tellurium levels, primarily from mining and manufacturing activities, correlate with rising blood pressure in both humans and animal models. While **cereals** and **legumes** were found to elevate urinary tellurium levels, they did not directly increase hypertension risk due to their beneficial nutrients. The study emphasizes the need for better monitoring of tellurium in food and suggests that dietary intake is a major contributor to increased exposure. The findings highlight tellurium as a potential global health risk for hypertension. [food ingredients 1st](#), 4 pages. (06.08.2024). Original Publication: [Environ Int](#).

★ **Heavy metals (Pb, Cd, Ni) in insect-based products for human consumption:** A recent study investigates the presence of heavy metals – lead (Pb), cadmium (Cd), and nickel (Ni) – in 52 insect-based products (IBPs) available through European **e-commerce platforms**, highlighting the potential health risks associated with their consumption. The research found that 70% of IBPs containing 100% insect powder exceeded regulatory **Pb limits**, while 10% surpassed **Cd limits**. Although the overall health risk from consuming these products was deemed low by the European Food Safety Authority (EFSA), some individuals may face potential health risks from Ni exposure. [Food Contr](#), 10 pages. (03.08.2024).

★ **Copper nanoparticles as a potential emerging pollutant:** At the forefront of agricultural innovation, **copper-based nanoparticles** (Cu-based NPs) have seized global attention in recent years. Their prowess in combating phytopathogenic microorganisms, boosting plant yield and defenses, and their dual role as pesticides or fertilizers – depending on the dosage – positions them at the epicenter of exciting scientific advancements. However, this is a two-edged sword: the environmental impact of Cu-based NPs is an escalating concern. The release of these particles post-use raises serious questions about the **accumulation of toxic copper levels** in soil and, consequently, in crops. [Emerg Contam](#), 15 pages. (12.2024).

★ **Trifluoroacetic acid (TFA) found in EU drinking water:** The Pesticide Action Network Europe (PAN Europe) conducted an analysis of 55 samples of **drinking water**, tap water, and mineral water from 11 EU countries, revealing widespread contamination by **trifluoroacetic acid** (TFA), which enters the water primarily as a degradation product of **PFAS** pesticides and fluorinated gases. TFA was present in 34 out of 36 tap water samples tested. The detected TFA levels ranged from "below the detection limit" of 20 ng/L to a concerning 4'100 ng/L; 6% of tap water samples were free of TFA. The study included 17 **mineral water** samples and 2 **spring water** samples; 12 out of the 19 samples were found to be contaminated with TFA. [Affidia](#), 2 pages. (16.07.2024). Original Publication: [PAN](#). Additional Information: [FoodSafetyMag](#).

★ **Rapeseed oil tested:** A recent test of 30 **rapeseed oils** revealed both positive and concerning findings. While eleven oils received top marks, issues were identified with critical **mineral oil components**, increased **trans fats**, and the presence of a banned pesticide, **DDT**, in an organic product. The test also highlighted that only a few oils used rapeseed sourced solely from Germany or Austria, with many containing questionable mineral oil components, including MOAH. Aside from these issues, the majority of oils were not adulterated or spoiled. [Öko](#), 6 pages. (25.07.2024).

★ **Mycotoxin risks in key regions:** A recent survey highlights ongoing **mycotoxin risks** affecting animal welfare, productivity, and agricultural sustainability, with analysis of over 11,500 samples from 77 countries revealing widespread contamination. The most frequently detected mycotoxins include *Fusarium* mycotoxins, deoxynivalenol (DON), zearalenone (ZEN), and fumonisins (FUM), particularly prevalent in regions such as North and Central America, South Asia, China and Taiwan. The study indicates a significant increase in DON levels compared to the previous year. [All About Feed](#), 2 pages. (05.08.2024).

★ **Microplastics in beef hamburgers:** This study investigates the presence and characteristics of **microplastics** in **beef hamburgers**, analyzing ten samples from two **Italian** companies using Fourier-transformed infrared micro-spectroscopy. Microplastics were **found in all samples**, with concentrations ranging from 200 to 30,300 MP particles/kg, predominantly in irregular shapes and grey color, with sizes mainly between 51 and 100 µm. **Eighteen different polymers** were identified, with polycarbonate, polyethylene, and polypropylene being the most prevalent. The findings highlight significant microplastic contamination in processed beef, suggesting various sources of contamination, and aim to inform guidelines for reducing microplastics in meat products. [Meat Sci](#), 10 pages. (09.08.2024).

Nutrition

★★ **Carbs vs. fat vs. protein: which one triggers more insulin release?** A study has shed new light on how **carbohydrates, proteins, and fats** might affect insulin secretion. The study examined insulin responses in pancreatic islets from deceased human donors with and without **type 2 diabetes**, as well as stem cell-derived pancreatic islets. This study suggests that insulin secretion in response to nutrients may actually be more complex and individualized than previously believed. For the first time, researchers identified subsets of human pancreatic islets exhibiting larger insulin responses to proteins or fats than carbohydrates. [MedNewsToday](#), 2 pages. (09.07.2024). Original Publication: [Cell Metab](#).

★★ **Keto diet study shows increased LDL cholesterol:** The research team found that those volunteers who followed a ketogenic diet during a month had 16% higher levels of **LDL cholesterol** in their blood than the control group and 26% higher levels of **apolipoprotein B**, a protein known to clog arteries. The researchers noted that those volunteers who had been on the ketogenic diet also had reduced levels of a type of gut bacteria known to be involved in promoting a strong immune system and also in the production of vitamin B. [MedicalXpress](#), 2 pages. (06.08.2024). Original Publication: [Cell Rep Med](#).

★ **Artificially sweetened beverage consumption:** A recent systematic review and meta-analysis by Chen *et al.* examines the relationship between **artificially sweetened beverage** (ASB) consumption and **mortality**, analyzing data from 11 prospective cohort studies involving over 2 million participants. The findings indicate that higher ASB intake is associated with an increased risk of **all-cause mortality** (pooled risk ratio of 1.13) and **cardiovascular disease** (CVD) mortality (pooled risk ratio of 1.26), while no significant association was found with cancer mortality. [Nutr J](#), 13 pages. (31.07.2024).

★ **Drone food delivery is spreading across Australia:** The first large-scale rollout of autonomous food delivery in Australia started operating in Melbourne. Given unhealthy foods saturate online food delivery platforms, the enthusiasm for **drone delivery** raises serious public health concerns as research suggests people will eat more **junk food**. [MedicalXpress](#), 2 pages. (26.07.2024). Original Publication: [Conversation](#).

Allergy

★ **Soy-containing foods and food supplements:** More and more people are eating a predominantly **plant-based diet**. Their diet partly relies on **soy-based** meat or milk substitutes. For certain population groups, the German Bundesinstitut für Risikobewertung (BfR) sees possible **health risks** due to its content in **isoflavones** and other **hormone-like substances** as well as its **allergenic potential**. [BfR](#), 10 pages. (28.06.2023). Additional Information: [BfR](#).

★ **Allergy risks from insect-based foods:** Researchers from James Cook University have highlighted potential allergy risks associated with **insect-based foods**, particularly for individuals with existing shellfish allergies, as these foods can trigger allergic reactions due to the close relationship between insects and crustaceans. Their study examined various cricket (*Acheta domesticus*) and black soldier fly (*Hermetia illucens*) products, revealing that **current allergen testing methods are inadequate** in detecting these unique insect allergens. [MedicalXpress](#), 1 page. (31.07.2024). Original Publication: [Mol Nutr Food Res](#). Additional Information: [Mol Nutr Food Res](#).

Fraud / Deception

★★ **Intentional adulteration of foods with chemicals: snapshot for 2009–2022:** Global occurrence of the intentional **adulteration of food** with a **chemical toxicant** culled from the literature and news reports from 2009 to 2022 was analyzed in terms of the ability to cause mass public health harm. A total of 76 intentional adulteration events that involved over **27 chemicals** and **16 foods** were identified. A total of 253 deaths and 4,887 cases of illness were attributed to intentional adulteration events. [J Food Prot](#), 7 pages. (07.07.2024).

★★ **Transnational operations targeting illegal pesticide trade in Europe:** Law enforcement agencies in **South-Eastern Europe** have joined forces to combat the alarming **rise of illegal pesticide trafficking**, which poses a severe threat to farmland, nature reserves, and potentially also consumer health. [Affidia](#), 1 page. (18.07.2024). Original Publication: [Europol](#).

★★ **Are vegetable oils the biggest food fraud risk?** Professor Chris Elliott, Queen's Univ., Belfast, N. Ireland, delves into why **vegetable oils** are particularly prone to food fraud, examining historical cases, current **vulnerabilities**, and potential solutions. [New Food](#), 2 pages. (24.07.2024). Original Publication: [Trends Food Sci](#).

★ **Food authenticity and the interactions with human health and climate change:** A recent article examines the growing concerns surrounding food authenticity and fraud, highlighting their implications for consumer health and the food supply chain, particularly in the context of climate change. It discusses how **climate change** may affect the **quality of food ingredients**, potentially impacting authenticity, and emphasizes the need for technological advancements and risk management tools to address these challenges. The review refers to relevant studies that explore the connections between climate change, human health, and food fraud. [Crit Rev Food Sci Nutr](#), 14 pages. (05.08.2024).

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★★★★ very important info ★★★ important info ★ interesting info

Microbiology

★★★★ **Emerging food safety risks in alternative protein sources:** A recent review addresses the **chemical and microbiological safety concerns of emerging protein sources** of plant origin, including **soil-based** (faba bean, mung bean, lentils, black gram, cowpea, quinoa, hemp, and leaf proteins) and **aquatic-based** (microalgae and duckweeds) proteins. The results indicated the occurrence of multiple chemical and microbiological hazards either in the raw materials that are the protein sources and eventually in the analogues. [Affidia](#), 2 pages. (17.06.2024). Original Publication: [CompRevFoodSciFS](#).

★★★ **Is AI 'food safe?':** The application of AI in food safety includes foodborne pathogen detection, identification, and characterisation; enhanced public health systems; and food safety risk prediction, monitoring, and optimization along the supply chain. Certain components of the food safety plan, like preventive maintenance and environmental monitoring, can benefit from the predictive capabilities of AI; however, the **quality of the data** fed into the system is critical. Using unreliable data could cause AI to overestimate or underestimate risks and provide incorrect information, thereby complicating a food safety professional's job. [FoodSafetyMag](#), 3 pages. (02.07.2024). Original Publication: [Annu. rev. food sci. technol.](#).

★★★ **Cryogenic microorganisms and food safety in refrigerators:** The survival of cryogenic microorganisms in refrigerators has become an important factor causing **food safety issues**. In view of this, an in-depth investigation and analysis of food safety issues caused by **microorganisms in refrigerators** has been carried out in this review. [Trends Food Sci](#), 3 pages. (22.02.2024).

★★★ **Occurrence of mycotoxins in total mixed ration of dairy farms in Portugal:** This study aims to explore the presence of **mycotoxins** in total mixed rations (TMR) employed for feeding dairy cattle and their **potential carry-over to milk**. A total of 87 TRM samples were collected in farms from the north of Portugal from 2019 to 2022. Among the emerging toxins, **beauvericin** and **enniatiins** exhibited the highest detection rates. In addition, milk samples analysis showed that roquefortine, beauvericin and enniatiins are carried-over to milk, with an estimated rate ranging between 2% and 10%. [FoodContr](#), 2 pages. (30.06.2024).

★★★ **Persistent cross-species transmission systems dominate Shiga toxin-producing *Escherichia coli* O157:H7 epidemiology in a high incidence region:** In Alberta, **Canada**, a study investigated the epidemiology of Shiga toxin-producing *Escherichia coli* O157:H7, finding that persistent cross-species transmission systems between cattle and humans played a significant role in the high incidence of the disease. Through genomic analysis, the study identified locally evolving lineages associated with *E. coli* illnesses for up to 13 years, with a notable shift towards more **virulent strains**. [bioRxiv](#), 49 pages. (02.07.2024).

★ **Antibiotic-resistant bacteria found in half of chicken meat from supermarket:** Approximately half of **raw chicken** sold at one of the Europe's Biggest grocery chain stores across five European countries are contaminated with **antibiotic-resistant foodborne pathogens**, according to the findings of a recent sampling and testing project commissioned by animal welfare advocacy groups. [FoodSafetyMag](#), 2 pages. (20.06.2024). Original Publication: [Es-sere Animali](#).

★ ***Cronobacter sakazakii* strains isolated from households:** A study conducted a microbiological survey and genomic analysis of *Cronobacter sakazakii* strains isolated from U.S. **households** and retail foods to understand their **transmission** dynamics, particularly in relation to powdered infant formula (PIF) contamination. Samples from 263 homes and 4,009 retail food items revealed that 24.7% of homes and 5.1% of retail foods were contaminated with *C. sakazakii*, with higher contamination rates in kitchen areas and certain food categories like grains and nuts. [AEM](#), 10 pages. (04.07.2024).

★ **Certain gut bacteria, viruses may increase type 2 diabetes risk:** Researchers identified specific bacterial strains and viruses that can cause functional changes to the **gut microbiome** that are correlated with heightened **type 2 diabetes risk**. The study identifies within-species phylogenetic diversity for strains of 27 species that explain inter-individual differences in T2D risk, such as *Eubacterium rectale*. [MedNewsToday](#), 2 pages. (08.07.2024). Original Publication: [Nat. Med.](#).

Chemistry

★★★ **Fibreglass found in bivalves:** A new study has revealed worrying levels of **fibreglass accumulation** in oysters and mussels. This marks the first-time fibreglass or glass reinforced plastic (GRP) particles have been found entering the **human food chain**, raising urgent environmental and **human health concerns**. [Food Manu](#), 2 pages. (02.07.2024). Original Publication: [J. Hazard. Mater.](#). Additional Information: [The Fish Site](#).

★★★ **Food safety concern of ashwagandha:** In the UK, at present, there are no safe levels established or set limits for the use of **ashwagandha** in food supplements. Some risk assessments have shown an association between ashwagandha and effects on thyroid hormone levels; and scientific literature reports possible thyroid toxicity, hypoglycaemic effects, and potential liver toxicity. The UK Food Standards Agency (FSA) aims to determine whether a safe level of ashwagandha for use in **food supplements** can be established, while also assessing the risks associated with consuming food supplements containing ashwagandha. [FoodSafetyMag](#), 2 pages. (08.07.2024). Original Publication: [FSA](#).

★★★ **Critical substances identified in food supplements:** The EU Heads of Food Safety Agencies (HoA) recently published a list of **117 substances** that should be prohibited or restricted in **food supplements** to protect public health, with twelve substances marked as a priority for legal restrictions. The EU Commission is expected to task the European Food Safety Authority (EFSA) with evaluating these substances, potentially leading to their regulation. [BVL](#), 1 page. (06.06.2024). Original Publication: [HoA](#). Additional Information: [BVL](#), [BVL](#), [FoodSafetyMag](#).

★★ **US - Microdosing candies may be linked to death:** The Food and Drug Administration is investigating nearly 50 illnesses—including one possible death—that might be linked to **microdosing candies** available online and at retailers nationwide. These chocolate bars and gummies showed higher than normal amounts of **muscimol**, a chemical found in mushrooms of the genus *amanita*, which could be a potential cause of symptoms consistent with those observed in persons who became ill after eating the products [MedicalXpress](#), 2 pages. (03.07.2024). Original Publication: [FDA](#), [FSN](#).

★★ **Migration of endocrine and metabolism disrupting chemicals from plastic food packaging:** This study aims to characterize the endocrine and metabolism disrupting activity, as well as the chemical composition of migrates from **plastic food contact articles** (FCAs) from four countries as significant sources of human exposure. This study demonstrates the migration of endocrine and metabolism disrupting chemicals from plastic FCAs into **food simulants**, rendering a migration of these compounds into food and beverages probable. [Affidia](#), 3 pages. (27.06.2024). Original Publication: [Environ Int.](#)

★ **EFSA raises concern about a small organic arsenic species in food:** The European Food Safety Authority (EFSA) has identified health risks of dietary exposure to **dimethylarsinic acid** (DMA), a small organic arsenic species in food. EFSA found **rice and fish** to be the highest contributors to the exposure to monomethylarsonic acid, MMA(V) and DMA(V) in the human diet. While MMA(V) was determined not to pose a health concern to any age group, DMA(V) did. [FoodSafetyMag](#), 2 pages. (02.07.2024). Original Publication: [EFSA](#). Additional Information: [Affidia](#).

★ **Xylitol linked to increased risk of heart attack and stroke:** Research has linked an increased risk of heart attack and stroke to the consumption of **xylitol**, a sugar alcohol often used as a sugar substitute. [FoodNavigator](#), 3 pages. (11.06.2024). Original Publication: [Eur. Heart J.](#)

★ **Testing finds high BPA, glycidol levels in canned tuna:** Testing of **canned tuna in oil** sold in Europe by a consumer journal in Switzerland found the toxic chemicals **bisphenol A** (BPA) and/or **glycidol** in all the tuna products tested. Mercury and 3-MCPD were not found at levels high enough to cause concern. [FSN](#), 3 pages. (21.06.2024). Original Publication: [saldo](#). Additional Information: [Affidia](#).

★ **BPAs in plastic bottles linked to type 2 diabetes risk:** A new study has revealed that reducing exposure to the common chemical **bisphenol A** (BPA) can lower the risk of type 2 diabetes. The research is the first to provide evidence that BPA may elevate diabetes risk. [MedNewsToday](#), 2 pages. (28.06.2024).

★ **Are plastic bottles safe in the sun?** Scientists raise concerns that plastic bottles release harmful chemicals when exposed to sunlight. While plastic water bottles are known to potentially release various **volatile organic compounds** (VOCs) when exposed to light, existing knowledge in this field remains limited. A recent study systematically examined the composition, yield, and toxicity of VOCs released from six plastic containers obtained from different continents under UV-A and solar irradiation. After light exposure, all **containers released VOCs**, including **alkanes, alkenes, alcohols, aldehydes, carboxylic acids, aromatics**, etc. [FoodNavigator](#), 3 pages. (02.07.2024). Original Publication: [EEH](#).

★ **Association of diet with per- and polyfluoroalkyl substances in plasma and human milk:** Per- and polyfluoroalkyl substances (PFAS) are related to various adverse health outcomes, and food is a common source of **PFAS exposure**. Dietary sources of PFAS have not been adequately explored among U.S. pregnant individuals. We examined associations of dietary factors during pregnancy with PFAS concentrations in maternal plasma and human milk in the New Hampshire Birth Cohort Study. **Fish/seafood** and **egg** intake was positively associated with plasma PFAS. **Red meat** intake was positively associated with PFOS in human milk. White **rice** intake was positively associated with PFOA in human milk. [SciTotalEnviron](#), 10 pages. (10.07.2024).

Nutrition

★ **Ultra-processed food and NCDs:** In Europe, 2.7 million deaths annually are linked to just four major commercial products: ultra-processed food (UPF), alcohol, tobacco, and fossil fuel. In a newly published report, the World Health Organization attributes these products to risk factors such as unhealthy diets and obesity, which in turn increase the chances of developing non-communicable diseases (NCDs). In the WHO European Region, 2.27% of deaths are linked to **sodium**, 1.06% to diets high in **processed meat**, 0.14% to **sugar-sweetened beverages**, and 0.05% to **trans fatty acids**. [FoodNavigator](#), 2 pages. (12.06.2024). Original Publication: [WHO](#).

★ **Intake of ultra-processed foods linked with increased risk of death:** In a study, older adults who reported consuming higher amounts of ultra-processed foods, as defined by the NOVA classification system, were about 10% more likely to die over a median follow-up of **23 years** compared with those who consumed less processed food. The findings are based on a large study that has tracked over half a million U.S. adults. According to the results, higher intake of **ultra-processed foods** was associated with modest increases in death from any cause and from deaths related specifically to heart disease or diabetes, but no association was found for cancer-related deaths. [EurekAlert](#), 2 pages. (30.06.2024). Original Publication: [Nutrition 2024](#).

Fraud / Deception

★ **Online-purchased food supplements containing red yeast rice:** Thirty-five different red yeast rice (RYR) supplements, purchased from an EU-bound e-commerce platform or from registered online pharmacies, were screened for their compliance to the European legislation for citrinin content and the amount of total monacolin K. It was found that at least four of the thirty-five RYR supplements ($\approx 11\%$) might have reason for **concern for the safety** of the consumer either due to high total **monacolin K** concentrations exceeding the European predefined limits for total monacolins or **severe bacterial contamination**. Moreover, three samples ($\approx 9\%$) were likely adulterated, and the labeling of six of the seventeen samples ($\approx 35\%$) originating from an EU-based e-commerce platform was not compliant. [Foods](#), 2 pages. (18.06.2024).

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★★★★ very important info ★★★ important info ★ interesting info

Microbiology

★★★★ **STEC can spread through air:** The U.S. Food and Drug Administration (FDA) has revealed preliminary findings from a multi-year environmental study of a specific growing region in the Southwest U.S., which sought to better understand the ecology of human pathogens in the environment. The research team is continuing to analyze data from this study, but preliminary findings suggest that **Shiga toxin-producing *Escherichia coli* (STEC)** strains detected in water, sediment, and plant tissue genetically matched strains isolated in air samples, providing evidence that STEC in air can transfer to other locations and surfaces. [Food Safety Mag](#), 2 pages. (05.06.2024). Original Publication: [FDA](#).

★★★ **HPAI to infect mice fed contaminated raw milk, HPAI in muscle of sick dairy cow:** A recent study has shown the ability of Highly Pathogenic Avian Influenza (HPAI) H5N1 to infect mice fed contaminated **raw milk**, while, separately, testing conducted by the U.S. Department of Agriculture Food Safety and Inspection Service (USDA-FSIS) has found HPAI traces in **muscle** from culled dairy cows. [Food Safety Mag](#), 1 page. (28.05.2024). Original Publication: [N Engl J Med](#). Additional Information: [USDA](#)

★★★ **Two hunters from the same lodge afflicted with sporadic Creutzfeldt Jakob Disease:** A team of medical workers and researchers in the U.S. has published a case study of two men, both deer hunters, who developed a rare prion disease. The medical team suggests that two patients with the same rare disease at nearly the same time implies they had both eaten venison from the same animal or another in its group—an extremely rare case of novel animal-to-human transmission of chronic wasting disease. Prior research has shown that some wild animals, such as

deer, can become infected with a type of prion disease known as **chronic wasting disease**. [MedicalXpress](#), 1 page. (23.04.2024). Original Publication: [AAN](#).

★ ★ **Emergence of *Salmonella* Infantis carrying the pESI-like plasmid from eggs:** This study is the first to report the characteristics of *S. Infantis* carrying the pESI-like plasmid isolated from **eggs**. In this study, the pESI-like plasmid was only detected in 18 (78%) of 23 ***Salmonella* Infantis** isolates, and it was absent in the other 9 *Salmonella* serovars. In particular, *S. Infantis* isolates carrying the pESI-like plasmid showed the significantly **higher resistance to antibiotics** than *Salmonella* isolates without the pESI-like plasmid ($p < 0.05$). Moreover, all *S. Infantis* isolates carrying the pESI-like plasmid were identified as **extended-spectrum β -lactamase (ESBL)** producers. [Food Microbiol.](#), 1 page. (25.05.2024).

★ ***Salmonella* less prevalent in backyard poultry farms:** The study aimed to address the limited research on backyard farms despite their increasing popularity as a chicken meat source in the U.S., with concerns raised by the CDC about *Salmonella* outbreaks linked to these farms. Researchers compared ***Salmonella*** prevalence in **backyard and commercial poultry farms**, finding higher rates in large commercial operations but similar levels of **multidrug-resistant (MDR) *Salmonella*** in both types of farms. [Food Safety Mag](#), 1 page. (06.05.2024). Original Publication: [Foodb Path Dis](#).

★ **Emerging multidrug-resistant *Salmonella* Typhimurium ST213:** A strain of *Salmonella* resistant to modern antibiotics has been discovered, posing a significant public health threat. *Salmonella enterica* serovar Typhimurium ST213 is an emergent multidrug-resistant sequence type associated with the food chain, and gastrointestinal and invasive infections in North America. The strain is **highly resistant and aggressive**, and transmitted through various **food** sources. [D1](#), 1 page. (03.06.2024). Original Publication: [npj Antimicrob Resist](#).

★ **Multidrug-resistant *Escherichia coli* isolates from imported shrimp:** A study from the USA analyzed **antimicrobial resistance** and virulence traits in multidrug-resistant (MDR) *E. coli* isolates obtained from imported shrimp using whole-genome sequencing (WGS). Antibiotic resistance profiles were determined phenotypically. WGS identified key characteristics, including their multilocus sequence type (MLST), serotype, virulence factors, antibiotic resistance genes, and mobile elements. Most of the isolates exhibited **resistance** to gentamicin, streptomycin, ampicillin, chloramphenicol, nalidixic acid, ciprofloxacin, tetracycline, and trimethoprim/sulfamethoxazole. [Foods](#), 23 pages. (05.06.2024).

★ **Microbial composition of edible insect products:** Edible insects offer a promising protein source for humans, but their food safety risks have not been previously investigated within the United States. Therefore, the aim of this study was to investigate the **microbial content of processed edible insect** products. All samples were negative for *Salmonella*. Whole genome sequencing revealed the presence of 12 different bacterial genera among the analyzed isolates, with a majority belonging to the ***Bacillus*** genus. Some of the isolates of *Bacillus cereus* group were identified as biovar Emeticus. [J Food Prot](#), 17 pages. (12.04.2024).

★ **Microbial community structure of plant-based meat alternatives:** A reduction in animal-based diets has driven market demand for alternative meat products, currently raising a new generation of **plant-based meat alternatives (PBMA)**s. As their popularity increases, questions emerge about the **safety** and nutritional risks of these novel products. To consider these issues, a recent study examined 32 PBMA from **Austrian** supermarkets. A high diversity of different ***Bacillus***, but also some ***Enterobacteriaceae*** and **potentially pathogenic species** were isolated with the culturing approach. [npj Sci Food](#), 15 pages. (13.05.2024).

★ **Emerging linezolid- and vancomycin-resistant *Enterococcus* spp. in fish and crustacean:** *Enterococcus* spp., particularly *E. faecalis* and *E. faecium*, are emerging pathogens commonly isolated from **fish** and **seafood**. Their widespread distribution causes them to be food contaminants. Due to their potential dissemination to humans, antimicrobial-resistant *Enterococcus* spp. in fish are a **worldwide** health issue. The emergence of linezolid-resistant vancomycin-resistant enterococci recovered from Egyptian fish and shrimp, suggests that fish and seafood might participate a fundamental part in the emergence of antimicrobial resistance among humans. [Int J Food Micr](#), 10 pages. (16.06.2024).

★ **Outbreak of *Listeria monocytogenes* in hospital linked to a fava bean product:** In 2021, an incidence of 0.5 per 100,000 population was reported for listeriosis in the European Union/European Economic Area (EU/EEA), while the incidence in **Finland** was 1.3 per 100,000. Analysis revealed that contamination of the **ready-to-eat fava bean (*Vicia faba*)** product after pasteurisation during processing or packaging is the likely cause of this listeriosis outbreak. [Eurosurveillance](#), 10 pages. (09.05.2024).

★ **New microsporidian parasite, *Microsporidium theragrae*:** An Italian study describes and characterizes a severe **Microsporidia infection** in a batch of **salted and dried cod**. Particularly, the case involves a batch of approximately 800 kg obtained from *Gadus macrocephalus*. On about **20% of the samples**, the presence of whitish nodules with a diameter ranging from 1 to 2 mm was observed on the surface of the fillets and in cross-section. The molecular examination of the nodular lesions and the analysis of the sequence of an 897 bp fragment of the small subunit 16S rRNA revealed 100% identity with *Microsporidium theragrae*. [IJFS](#), 10 pages. (03.05.2024). Additional Information: [Parasitol Res.](#)

Chemistry

★★★ **Plant-based meat analogues in the human diet: what are the hazards?** Research regarding meat analogues is mostly based on formulation and process development. Information concerning their safety, shelf life, and long-term nutritional and health effects is limited. A recent article reviews the existing literature and analyzes potential hazards introduced or modified throughout the processing chain of plant-based meat analogues via extrusion processing, encompassing nutritional, microbiological, chemical, and allergen aspects. [Foods](#), 31 pages. (15.05.2024).

★★ **Plant-based food contact materials: presence of hazardous substances:** Plant-based food contact materials are being increasingly used to **replace plastic materials**, driven by regulations like the European Single Use Plastic Directive (EU) 2019/904. A study analyzed 28 plant-based material samples from the **Dutch** market for various substances, finding unauthorized **plant protection products, PFAS, and metals** like aluminium, manganese, and iron. Some materials contained **6:2 fluorotelomer alcohol** and other unauthorized substances, highlighting potential risks associated with these plant-based alternatives. [Food Addit Contam Part A](#), 10 pages. (30.05.2024).

★★ **Are gloves worn by food handlers protective of or damaging to food safety?** A recent study has analysed the risk of **microbial, chemical, and physical contamination** risks posed to food by disposable gloves worn by food handlers. Evidence shows that gloves of poor quality can result in the potential for direct physical, chemical, and microbiological contamination. Current **glove** manufacturing standards, as well as regulations and testing requirements, appear to be **inadequate** with respect to direct contamination challenges. [FoodSafetyMag](#), 1 page. (30.05.2024). Original Publication: [J Food Prot.](#)

★★ **Uptake of tire-derived compounds in leafy vegetables:** Tire and road wear particles are one of the most abundant types of **microplastic** entering the environment. The toxicity of tire and road wear particles has been linked to their organic additives and associated transformation products. In the agricultural environment, these tire-derived compounds could be taken up by **edible plants**, leading to human exposure. Sixteen tire-derived compounds were measured in 28 commercial leafy vegetable samples from Israel, **Switzerland**, Italy, and Spain. In commercial leafy vegetables, six **tire-derived compounds were detected**. [Front. Environ. Sci.](#), 13 pages. (28.05.2024). Additional Information: [20 Minuten](#).

★★ **Microplastics in olive oil and other vegetable oils:** A recently published study has found the widespread presence of **microplastics** contaminating popular **vegetable oils**, including (extra virgin) olive oil, sunflower oil, and mixed seed oils from Italy and Spain. The study analyzed samples of various edible oils packaged in both plastic and glass bottles. The results raise concern: microplastics were detected in every single sample, regardless of the type of packaging used. [Affidia](#), 3 pages. (06.06.2024).

★ **Lead in some snacks for small children:** A new study by Consumer Reports (CR) has found alarming levels of **lead** in some **vegetable puffs** marketed for small children. CR tested six kids' snacks made with cassava or sorghum for lead. Lead is measured in percentage of California's maximum allowable dose level (MADL). [FSN](#), 1 page. (05.06.2024). Original Publication: [CR](#). Additional Information: [CR](#).

★ **Undesired substances and microbial contamination in plant-based drinks:** As the likelihood of contamination of **plant-based drinks** (PBDs) varies considerably depending on their plant origin, a survey of selected, most common organic products on the German market was carried out to monitor **mycotoxins, pesticide residues, heavy metals** and **microbial contamination**. Mycotoxin contamination with T2/HT2 toxins was found in 71% of the oat drinks analysed. Consumption of 500 ml of a highly contaminated oat drink can exceed 80% of the tolerable daily intake for **T2/HT2 toxin** based on the highest levels measured. Cadmium, lead and nickel were detected at low to moderate levels in some PBDs. [Food Contr](#), 2 pages. (29.05.2024).

Nutrition

★★ **Unhealthy food marketing on videogame livestreaming platforms:** Food and drink advertisements on **videogame livestreaming** platforms like Twitch are associated with more positive attitudes towards, and purchases and intake of, **unhealthy "junk" foods** that are high in fat, salt and/or sugar like energy drinks among adolescents aged 18 or younger, according to new research presented at this year's European Congress on Obesity (ECO 2024). [MedicalXpress](#), 3 pages. (13.05.2024). Original Publication: [ECO 2024](#).

★★ **Goat milk formula recalled for not providing sufficient nutrition:** A company is recalling 1,506 boxes of **Goat Milk Formula Recipe Kit** on the recommendation of the U.S. Food and Drug Administration (FDA) and advises consumers to immediately discontinue use of the product as **infant formula**. The FDA is concerned that the formula does not meet all FDA requirements for infant formula, **does not provide sufficient nutrition** when used as an infant formula, and the storage instructions may be insufficient for the product. [FSN](#), 2 pages. (13.05.2024). Original Publication: [FDA](#).

★★ **Safety challenges of novel food:** The Food and Agriculture Organization of the United Nations (FAO) and the Singapore Food Agency (SFA) have published a joint scientific review on **novel food sources** and production systems. Specifically, the review discusses known **food safety hazards** associated with plant-based proteins, seaweeds, jellyfish, insects, and microbial proteins, as well as foods derived from cell culturing, precision fermentation, vertical farming, and 3D food printing. [Food Safety Mag](#), 2 pages. (20.05.2024). Original Publication: [Comp Rev Food Sci FS](#).

★★ **Sodium intake and atopic dermatitis:** A study finds that changes in **daily salt intake** may explain eczema flares. A high sodium diet may increase the risk of eczema, according to researchers, who found that eating just one extra gram of sodium per day increases the likelihood of flares by 22%. [EurekAlert](#), 2 pages. (05.06.2024). Original Publication: [JAMA Dermatol](#).

★ **Rhabdomyolysis after the consumption of crayfish in Wuhan, China:** Epidemiological characteristics and etiology of crayfish-related rhabdomyolysis were investigated. Cases of **crayfish-related rhabdomyolysis** in Wuhan were monitored. The first case occurred on July 12, 2016. Subsequently, 423 patients were reported over the next 7 years, with **muscle pain, weakness, and chest distress** as main symptoms. In total, 65 % (273/423) of patients were females, and young adults (aged 20-49 years) account for 86% (363/423) of patients. The median incubation time was 6 h. 95% (236/248) of patients had consumed **crayfish tail shrimp** and 92% (227/248) had consumed crayfish [Front Nutr](#), 10 pages. (22.04.2024).

★ **Consumption of high salt food is an indicator of an increased stomach cancer risk:** In Asian countries, the link between high salt consumption and stomach cancer has already been proven. A long-term study by MedUni Vienna has now shown for the first time that this risk is also reflected in the cancer statistics in Europe. Data from more than 470,000 adults from the large-scale British cohort study "UK-Biobank" were analysed and revealed that people who frequently add **salt** to their food are around **40 per cent** more likely to develop **stomach cancer** than those who do not use the salt shaker at the table. [EurekAlert](#), 2 pages. (08.05.2024). Original Publication: [Gastric Cancer](#).

★ **Regular use of fish oil supplements may increase first time heart disease and stroke risk:** Researchers from China say they have found an association between use of **fish oil supplements** and heightened **cardiovascular risk** among heart-healthy individuals even as the study showed benefits of the supplements for those with poor cardiovascular health. Researchers reported that individuals with no known cardiovascular disease who regularly took **fish oil** supplements had a 13% higher risk of developing **atrial fibrillation** and a 5% higher risk of having a stroke than those who had good heart health but did not consume fish oil. [MedNewsToday](#), 3 pages. (23.05.2024). Original Publication: [BMJ](#).

Allergy

★★ **Allergenicity assessment of food sources and ingredients containing new or modified proteins:** The exposition to novel **alternative protein** sources may increase exposure to unfamiliar proteins and raise the prevalence of food allergies. Assessing the allergenicity of these novel foods is challenging due to uncertainties about acceptable risks and safety criteria. This paper synthesises these challenges, addressing the varied interpretations of "safe" across jurisdictions and societal attitudes towards **allergenic risk**. It aims to identify knowledge gaps and set research priorities for better allergenicity assessment of novel foods. [Food Chem Toxicol](#), 2 pages. (27.05.2024).

Fraud / Deception

★ **Intentional adulteration of foods with chemicals - snapshot for 2009 to 2022:** A total of 76 **intentional adulteration** events that involved over 27 chemicals and 16 foods were identified. The chemicals used included **pesticides, rat poisons, illicit drugs, and commercial chemicals**. A total of 253 deaths and 4887 cases of illness were attributed to intentional adulteration events; there were deaths in 20% and cases of illness in 50% of the adulteration events. Intentional adulteration during manufacturing which accounted for 21 events (28%), intentional adulteration at the place (node) of food preparation accounted for 17 events (22%) and on-farm intentional adulteration accounted for 8 events (10%). [J Food Prot](#), 2 pages. (23.05.2024).

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★★★★ very important info ★★★ important info ★ interesting info

Microbiology

★★★★ Avian flu: WHO warns of a high concentration of the H5N1 virus in milk from contaminated cows:

The World Health Organization (WHO) has reported 889 human cases of **avian (bird) flu** in 23 countries between 2023 and April 1, 2024, with a **case fatality** rate of **52%**. Traces of the H5N1 virus were found in **cow's milk** in the United States, prompting the WHO to recommend the **consumption of pasteurized milk** and to conduct studies on the virus's survival in milk. The virus has been found to spread to mammals, including cows and goats, and there has been a case of cow-to-human transmission in Texas. While human infections remain rare and there is no evidence of human-to-human transmission, health officials are concerned about the potential for the virus to mutate and spread more easily among humans. [SudOuest](#), 2 pages. (19.04.2024). Original Publication: [WHO](#). Additional Information: [CDC - Bird Flu Virus Infections in Humans](#), [Vogelgrippe \(admin.ch\)](#)

★★★ **Genetic traces of avian flu virus in pasteurized milk:** The US FDA has detected genetic traces of the highly-pathogenic **avian influenza virus H5N1** in pasteurized milk, but it remains unclear whether the genetic material is from live and infectious viral particles or remnants of dead ones. Testing is ongoing to determine if viable, infectious H5N1 can be identified in **milk** samples, with the FDA emphasizing that the milk supply is still considered safe due to the pasteurization process effectively inactivating bacteria and viruses. Despite the unexpected spread of H5N1 to dairy cows in the USA, federal agencies remain confident in the safety of the milk supply and are closely monitoring for any potential risks to consumer health. [arsTechnica](#), 1 page. (24.04.2024). Original Publication: [FDA](#).

★★★ **Outbreak: Listeria detected in vegan cheese for the first time:** The presence of *Listeria monocytogenes* in **vegan cheese** was reported for the first time, leading to an **outbreak** of listeriosis in **France** and subsequent cases in **Belgium, Germany, and the Netherlands**. The affected individuals had consumed vegan cheese. The lack of pasteurization in plant-based milk used for vegan cheese production was highlighted as a potential factor contributing to the contamination. [Archyde](#), 2 pages. (30.04.2024). Original Publication: [N Engl J Med](#).

★★ **Listeria monocytogenes and enoki mushroom cultivation:** Two outbreaks of listeriosis have been linked to the consumption of **enoki mushrooms (*Flammulina velutipes*)**. After the first outbreak, import sampling by the U.S. FDA identified that **43%** of the samples evaluated were **positive for *Listeria monocytogenes* (*Lm*)**. These observations raised questions about the potential sources of *Lm* contamination of enoki mushrooms. The data of a recent study indicate a high potential for establishment of *Lm* contamination at any point during enoki cultivation to result in *Lm*-contaminated mushrooms. [J Food Prot](#), 23 pages. (01.05.2024).

★★ **Switzerland - *Listeria monocytogenes* outbreak in 2022 linked to smoked trout:** In summer 2022, the Swiss Federal Office of Public Health noticed an increase in reports of **listeriosis** cases, indicating a possible ongoing outbreak. This listeriosis outbreak could be contained within a relatively short time thanks to identification of the source of contamination through the established combined approach of timely interviewing every listeriosis patient or a representative, and continuous molecular analysis of the patient- and food-derived *L. monocytogenes* isolates. [SMW](#), 5 pages. (03.05.2024).

★★ ***E. coli* outbreak linked to organic walnuts:** CDC, public health and regulatory officials in several states, and the FDA (USA) are collecting different types of data to investigate a multistate outbreak of *Escherichia coli* O157 infections. Epidemiologic and traceback data show that **organic walnuts** may be contaminated with *E. coli* and may be making people sick. [ProMed](#), 2 pages. (30.04.2024). Original Publication: [CDC](#), [FDA](#). Additional Information: [Int J Environ Res Public Health](#).

★★ **Homemade nut-based dairy analogs - bacterial risks:** That study was based on a content analysis of more than 500 recipes, for soaking tree nuts and subsequently preparing **nut-based dairy analogs**, posted on online blogs and YouTube videos. Of all the analyzed recipes, 49% (99) of the videos and 30% (84) of the blogs lacked **food safety messages**. According to the authors, many consumers know the food safety risks of dairy products, eggs and raw meat, but are less likely to understand the risks associated with dry goods, including tree nuts such as almond, cashew, walnut and pistachio. [MedicalXpress](#), 4 pages. (17.04.2024).

★★ **Health risk of probiotics:** Probiotics have long been associated with a myriad of health benefits, so much so that their adverse effects whether mild or severe, are often neglected or overshadowed by the enormous volume of articles describing their beneficial effects in the current literature. Recent evidence has demonstrated several **health risks of probiotics** (infections, immunological effects, metabolic disturbance, allergic reactions, spread of antimicrobial resistance) that warrant serious reconsideration of their applications and further investigations. The health risk of transmitting **antimicrobial resistance** by probiotics is highlighted. [Heliyon](#), 16 pages. (09.03.2024).

★ **Foodborne illnesses from leafy greens in the United States:** Leafy green vegetables are a major source of foodborne illnesses. A recent study combines results from three outbreak-based attribution models with illness **incidence** and **economic cost** models to develop comprehensive pathogen-specific **burden estimates** for leafy greens and their subcategories in the USA. Norovirus, Shiga toxin-producing *Escherichia coli* (both non-O157 and O157:H7), *Campylobacter* spp., and nontyphoidal *Salmonella*, are associated with the highest number of cases. [J Food Prot](#), 30 pages. (10.04.2024).

★ **Salmonella in wild boar meat:** A survey was conducted from 2018 to 2023 to assess the presence of **Salmonella** in 280 hunted wild boar (226 carcasses after evisceration and skinning; 258 livers; and 174 fecal samples) in Central **Italy** (Umbria and Marche regions). The overall prevalence was **2.86%** (confidence interval 95%, 1.45–5.45%) with five positive samples detected in carcasses, three in liver, and one in a fecal sample. [Foods](#), 12 pages. (10.04.2024).

★ **Study looks at fridge temperatures and *Listeria* risk:** Higher fridge temperatures in the homes of older people could be putting them at greater risk of **Listeria** infection, according to a study. Researchers looked at the **temperatures** of domestic refrigerators in the **Netherlands** and the impact on listeriosis cases related to ready-to-eat (RTE) cooked meat products. A survey among 1,020 Dutch consumers assessed their knowledge and behavior regarding refrigerators. [FSN](#), 2 pages. (25.04.2024). Original Publication: [Int J Food Micr](#).

★ **ESBL-*Escherichia coli* with biofilm formation from chicken meat:** A new study aimed to detect extended-spectrum β -lactamase (ESBL)-producing *Escherichia coli* in chicken meat in Istanbul, Turkey. Out of 208 raw chicken meat samples, 101 (48.5%) were confirmed as *E. coli* positive, with 80 (**79.2% of the *E. coli* positive samples**) **demonstrating multiple antibiotic resistance** and 18 (**17.8% of the *E. coli* positive samples showing phenotypic ESBL resistance**), with the *bla*_{TEM} group being the most frequently detected β -lactamase gene. Moreover, 44 43.5% of the *E. coli* isolates were found to produce **biofilms**. [Food World](#), 2 pages. (14.04.2024). Original Publication: [Foods](#).

★ **Raw meat-based diet for pets as a neglected source of human exposure to pathogens: Raw meat-based diets (RMBDs) for pets** are increasingly popular among pet owners. However, the potential role of RMBDs as a new source of bacteria resistant to last-resort antibiotics which could affect people living with pets has been neglected. This study demonstrates that RMBDs from European brands available in Portugal can be a vehicle for multidrug-resistant clinically-relevant *Salmonella* and *Escherichia coli* carrying genes encoding resistance to the last-resort antibiotic colistin [Eurosurveillance](#), 5 pages. (04.03.2024).

★ **Resistance to critically important antibiotics in uncooked meat:** New research presented at the ESCMID Global (formerly ECCMID) 34th Congress in Barcelona, Spain has found substantial levels of resistance to critically important **antibiotics** in **meat** sold for human and animal consumption. The team found the highest sample-level positivity rate for resistant *E. coli* in uncooked meat for human consumption was in **chicken** – 100% of samples were positive for resistance to **spectinomycin** and **streptomycin**, and 47% of samples positive for resistance to critically important **fluoroquinolones**. For lamb, pork and beef, the values were 27%, 38% and 27% for spectinomycin, 40%, 38% and 47% for streptomycin and 7%, 8% and 13% for fluoroquinolones, respectively. This study confirms that uncooked meat carries multidrug resistant *E. coli*, commonly including resistance to antibiotics critically important for human health. [EurekAlert](#), 2 pages. (28.04.2024). Original Publication: [ESCMID Global](#).

Chemistry

★★ **Pyrrolizidine alkaloids and tropane alkaloids in milk samples:** The study investigated the presence of **pyrrolizidine alkaloids** (PA), their corresponding N-oxides (PANO), and **tropane alkaloids** (TA) in milk samples from individual dairy farms in the German federal states of Bavaria and Schleswig-Holstein. A total of 228 milk samples were analyzed, with 11% found to contain PA/PANO at generally low levels, and 1.8% containing atropine (L-hyoscyamine). The study provides first-time results on **contamination rates** and levels of these toxins in milk from individual dairy farms, contributing to the understanding of food safety and risk assessment in the dairy industry. [Food Addit Contam Part A](#), 19 pages. (09.04.2024).

★★ **Ciguatera toxin in amberjack causing ciguatera poisoning in the Canary Islands:** Ciguatera Poisoning (CP) is an illness associated with the consumption of fish contaminated with potent natural **toxins** found in the marine environment, commonly known as ciguaterins (**CTXs**). The risk characterization of CP has become a worldwide concern due to the widespread expansion of these natural toxins. A recent study focused on characterizing the CTX profile of an **amberjack** (*Seriola* sp.) responsible for a recent CP **case in the Canary Islands** (Spain). For the first time fish contaminated in the Canary Islands showed traces of a ciguatera toxin recently identified in the dinoflagellates *Gambierdiscus silvae* and *G. caribeus* from the Caribbean Sea. [Toxins](#), 10 pages. (13.04.2024).

★★ **Micro and nano plastics in fruits and vegetables:** Plastics are becoming common environmental pollutants. **Plants** are access routes for plastics in the trophic chain since they can adsorb particles through their roots or on their surfaces. In this review, various methods for sample preparation and analytical methods for plastic isolation and identification from vegetables, fruits, and their seedlings were discussed. The **effects** that plastic particles have on them were also addressed. All of the studies show convincingly that micro and nano plastics are already present in fruits and vegetables, or can easily enter into their seedlings and have a variety of effects. [Heliyon](#), 9 pages. (18.03.2024).

★★ **Seaweeds as a major source of dietary microplastics exposure in East Asia:** Microplastics (MPs) occurrence in marine ecosystems is well known, but their accumulation in seaweeds and subsequent **human exposure** remain understudied. A new study quantifies MPs presence in two commonly consumed seaweeds, **kelp** (*Saccharina japonica*) and **nori** (*Pyropia yezoensis*), in East Asia, revealing widespread **contamination** dominated by microfibers (<500 µm). [Food Chem](#), 10 pages. (10.04.2024).

★ **Microplastic contamination in salt-cured fish and commercial sea salts:** **Microplastic** (MP) contamination in seafood, particularly processed varieties like **dried and salt-cured fish**, poses a significant threat to human health. This study investigated MP levels in salt-cured fish and commercial sea salts along the Indian east coast. Results showed substantially higher MP concentrations compared to global averages, with fragments and fibres (< 250 µm) composing 70% of identified MPs. [Environ Sci Pollut Res Int](#), 10 pages. (13.04.2024).

★ **Pesticides, phthalates, and heavy metal residues in vegetables from hydroponic and conventional cultivation:** Hydroponic cultivation of **fresh produce** is gaining popularity worldwide, but few studies have provided a comparative assessment of hydroponic and conventional soil-based vegetables. In this study, we analyzed a series of hazardous chemicals, including 120 pesticides, 18 phthalates (PAEs), and 2 heavy metals (lead and cadmium) in four vegetable commodities (lettuce, celery, tomato, and cucumber) from hydroponic and conventional soil-based cultivation. The health risks of eating hydroponic vegetables are lower than for conventional soil-based vegetables. [Foods](#), 10 pages. (10.04.2024).

★ **Butylated hydroxyanisole induces vascular endothelial injury:** Butylated hydroxyanisole (BHA) is one of the most commonly used **antioxidants** and is widely used in food (E320), but whether it causes **vascular damage** has not been clearly studied. A recent study demonstrated for the first time that BHA reduced the viability of human umbilical vein endothelial cells (HUVECs) and bEnd.3 mouse brain microvascular endothelial cells in a dose- and time-dependent manner. Moreover, BHA inhibited the migration and proliferation of vascular endothelial cells (ECs). [Food Chem Toxicol](#), 10 pages. (22.04.2024).

★ **Microcystin contamination in irrigation water:** Microcystins (MCs) are natural **hepatotoxic compounds** produced by cyanobacteria and pose significant risks to water quality, ecosystem stability, and animal, plant, and human health when present in elevated concentrations. The contamination of **irrigation water** with MCs presents a growing threat to terrestrial plants. The customary practice of irrigating crops from local water sources, including lakes and ponds hosting cyanobacterial blooms, serves as a primary conduit for transferring these toxins. A new study highlights that MCs from irrigation water reservoirs can **bioaccumulate** and come into contact with plants, transferring into the food chain. [Toxins](#), 10 pages. (19.04.2024).

★ **PFAS increase likelihood of death by cardiovascular disease:** For the first time, researchers have formally shown that exposure to **per-and polyfluoroalkyl substances (PFAS)** increases the likelihood of death by **cardiovascular disease**. The findings are especially significant because proving an association with death by chemical exposure is difficult, but researchers were able to establish it by reviewing death records from Northern Italy's Veneto region, where many residents for decades drank **water** highly contaminated with PFAS. [The Guardian](#), 3 pages. (29.04.2024). Original Publication: [Environ Health](#).

★ **Toxic thallium levels are rising in the Baltic Sea:** Toxic **thallium** levels are on the rise in the Baltic Sea, with **human activities** being the primary culprit, as revealed by a study from the Woods Hole Oceanographic Institution. Thallium, a highly toxic heavy metal, poses significant ecological concerns due to its **persistence** in the environment and potential for **bioaccumulation**. The study highlights the urgent need for stricter environmental monitoring and proactive pollution control to mitigate the impact of thallium contamination not only in the Baltic Sea but also in other coastal regions near industrial activities. [earth.com](#), 2 pages. (05.05.2024). Original Publication: [Environ Sci Technol](#). Additional Information: [FOCUS online](#), [whoj.edu](#), [Geo](#).

Nutrition

★★★ **Poor diet increases cancer risk – scientists uncover missing link:** Poor diet can increase the risk of obesity, heart disease, type 2 diabetes, and some cancers. However, experts have not yet found any firm causative links between individual dietary components and cancer. A new study has discovered that **methylglyoxal** – which is produced when glucose is broken down in cells – may help explain the link between poor diet and cancer. They suggest that a long-term poor diet leads to an increase in the production of methylglyoxal, which switches off cancer-preventing genes, increasing cancer risk. [MedNewsToday](#), 3 pages. (17.04.2024). Original Publication: [Cell](#). Additional Information: [Science Daily](#), [Daily Mail](#).

★★ **Ready-made bowls and salads often contain a lot of sugar:** The Bavarian Consumer Center conducted a market check on **ready-made bowls** and **salads** from system catering providers and found that many of these seemingly healthy options contain surprisingly **high amounts of sugar**. One salad sample contained 34 grams of sugar, equivalent to two-thirds of the recommended maximum daily intake. While the nutritional values can be checked online, the information is often difficult to find and compare. [Öko](#), 3 pages. (11.04.2024).

★★ **Emulsifiers and type 2 diabetes:** Based on the analysis of data from dietary records of 104,139 adults in France who participated in the NutriNet-Santé web-cohort study between 2009 and 2023, and after an average follow-up of seven years, researchers observed that **chronic exposure** to the following emulsifiers was associated with an increased risk of type 2 diabetes: **carrageenans** (E407), **tripotassium phosphate** (E340), **mono- and diacetyltartronic acid esters of mono- and diglycerides of fatty acids** (E472e), **sodium citrate** (E331), **guar gum** (E412), **gum arabic** (E414) and **xanthan gum** (E415). [MedicalXpress](#), 2 pages. (23.04.2024). Original Publication: [Lancet Diabetes Endocrinol.](#)

★ **Intravenous "beauty" drips: Intravenous vitamin,** also called "beauty drips" is a popular new procedure in the USA, supposed to make consumers healthy and beautiful. However, no solid studies can be found in the specialist literature that prove a positive effect of vitamin and nutrient infusions in healthy people. In addition, drops could be **harmful** to cancer patients, diabetics and people with heart disease or kidney problems, among others. There is also a risk of **allergic reaction** to the mixture and a risk of **infection** during infusion. [Zeit Online](#), 3 pages. (26.04.2024). Additional Information: [Le Devoir](#), [NBC News](#).

Fraud / Deception

★★ **Poland fines companies for importing Ukrainian food, falsifying data on their quality:** Poland's Agricultural and Food Quality Inspection fined 1.5 million zloty (about CHF350,000) a company that imported **industrial rapeseed** and **feed wheat** and sold them to local enterprises as agricultural **food products**, according to the inspection's website. [Interfax UKR](#), 1 page. (05.04.2024).

★ **Adulterated dairy products on supermarket shelves in Italy?** The Italian police (Nuclei Antisofisticazioni e Sanità N.A.S., a Carabinieri anti-fraud body) found the evidence that a dairy industry company in the Marche region used to add **sodium hydroxide** and **hydrogen peroxide** to **raw milk**. These adulteration practices – forbidden in the EU – aimed to cover up the acidity of spoiled milk because the raw milk was often not preserved in a correct way by farmers and microorganisms were already growing too much when the milk arrived at the factory. About 90 t of milk and 110 t of adulterated cheese was seized. [Affidia](#), 1 page. (27.04.2024). Original Publication: [Giornale di Puglia](#). Additional Information: [il Resto del Carlino Cronace](#).

★ **Suspected fraud reports rise in Europe:** The number of food and other fraud suspicions discussed by European countries has continued to **rise** from 277 in January and 318 in February to 345 in March 2024. The issues identified are **potential but unconfirmed frauds**. The listed non-compliances may prompt investigations by authorities in EU member states. [FSN](#), 2 pages. (30.04.2024). Original Publication: [European Commission](#).

Close up

New information concerning the [FSVO's early detection system](#) for food safety:

- **Publication in the journal Food Risk Assess Europe (FRAE) of the report "Is food safety in Switzerland impacted by the war in Ukraine?"** (Executive summary in English, German, French and Italian. Report in German) available at <https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/fr.efsa.2024.FR-0028>
- Signal Report **"The impact of social networks on teenage eating habits"** (in French) (29.05.2024)
- Signal Report **"Essential oils in the kitchen: a new trend?"** (in French) (29.05.2024)
- Signal Report **"Microbiological safety of plant-based convenience products"** (in French) (29.05.2024)

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Seismo Info 04/2024



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[FSVO website](#)

★★★★ very important info ★★★ important info ★ interesting info

Microbiology

★★★★ ***Elizabethkingia anophelis* meningitis originating from an automatic infant milk dispenser:** *Elizabethkingia anophelis* (formerly genus *Chryseobacterium*) is a multidrug-resistant pathogen causing **high mortality and morbidity** in neonates and adults with comorbidities. A new study reports a Dutch case of meningitis in a neonate caused by *E. anophelis*, clonally related to samples taken from an automatic **infant milk dispenser** located at the family's residence. The authors inform about the emergence of *E. anophelis* and suggest molecular surveillance in hospitals and other health settings. This is the first case connecting an automatic formula dispenser to an invasive infection in a neonate. [Eurosurveillance](#), 5 pages. (04.04.2024).

★★★ ***Salmonella* Infantis, an emerging human multidrug-resistant pathogen:** *Salmonella enterica* serovar Infantis is a human pathogen of concern due to its widespread presence and high levels of **antimicrobial resistance**. A study analyzing strains from 74 countries found that a high percentage of poultry isolates exhibited multidrug resistance, attributed to the presence of the pESI megaplasmid. This highlights the potential for transmission of multidrug-resistant strains from **poultry to humans**, emphasizing the need for surveillance and control measures. [AMR Insights](#), 1 page. (13.03.2024). Original Publication: [Emerg Infect Dis](#).

★★★ ***Clostridium butyricum* bacteremia associated with probiotic use:** *Clostridium butyricum*, a **probiotic** commonly prescribed in Asia occasionally leads to bacteremia. The prevalence and characteristics of *C. butyricum* bacteremia and its bacteriologic and genetic underpinnings remain unknown. A study retrospectively investigated patients admitted to Osaka University Hospital (Japan) during September 2011–February 2023. Sequencing results confirmed that all identified *C. butyricum* bacteremia strains were probiotic derivatives. The findings underscore the **risk**

for **bacteremia** resulting from probiotic use, especially in **hospitalized patients**, necessitating judicious prescription practices. [Emerg Infect Dis](#), 3 pages. (04.2024).

★★ **Bongkrekkic acid (BA) poisoning:** A toxin believed to be the key to a lethal food poisoning outbreak in a Taipei restaurant has been detected in one of the environmental samples taken from the restaurant's kitchen, confirming the presence of **bongkrekkic acid** in the restaurant. A total of 30 people fell ill after eating. Bongkrekkic acid was found in 22 affected individuals. Of the 30 patients, 2 died, 4 were in critical condition, and 2 remained hospitalized in a regular ward 9 to 14 days after eating. Bongkrekkic acid (BA) poisoning can be caused by eating food contaminated with ***Burkholderia gladioli* pv. *cocovenerans*** (syn. ***Pseudomonas cocovenerans***). [ProMed](#), 5 pages. (03.04.2024). Original Publication: [Focus Taiwan](#).

★★ **Multi-antibiotic resistance in *Arcobacter butzleri*:** *Arcobacter butzleri* is a foodborne pathogen that has been identified in various animal-derived foods, notably in **poultry meat**. The prevalence of this bacterium in poultry underscores the need for comprehensive investigations into its dissemination within poultry meat processing plants. A recent study from **northern Italy** shows that through comprehensive genomic analysis, instances of cross-contamination between various sources and equipment surfaces were conclusively verified, demonstrating the **pervasive dissemination** of this bacterium within a food processing plant and its persistence. [Food Contr](#), 41 pages. (07.04.2024).

★★ ***Salmonella enterica* subsp. *arizonae* emergence:** *Salmonella enterica* subsp. *arizonae* (serotype: 48:z4,z23:-) has been causing an **increase in human cases** without a known cause since 2018, posing a risk to humans, particularly in the **poultry industry**. A project was undertaken to analyse the genomic link between strains isolated from humans and poultry. By comparing strains from human cases and the poultry industry using genome sequencing data, a core genome multilocus sequence typing (cgMLST) analysis via Enterobase confirmed the **emergence of this serotype** in both humans and poultry in **France** and highlighted potential epidemiological links between the strains. [HAL](#), 1 page. (09.04.2024).

★★ ***Helicobacter pylori* infection is associated with a higher risk of colorectal cancer:** A study found that *Helicobacter pylori* infection is associated with a higher risk of **colorectal cancer** (CRC) incidence and mortality, but treating the infection with antibiotics can reduce this risk. The research, conducted on a large **cohort of US veterans**, showed that eliminating *H. pylori* was linked to a lower risk of developing and dying from CRC. The findings suggest that eradicating *H. pylori* could have significant clinical implications for individuals at high risk for gastrointestinal cancers. [Medscape](#), 1 page. (08.04.2024). Original Publication: [JCO](#). Additional Information: [Mol Biol Rep](#).

★★ **Occurrence of *Helicobacter pullorum* in retail chicken meat:** *Helicobacter pullorum* is an emerging foodborne pathogen that commonly colonizes the gastrointestinal tract of **poultry**, causing gastroenteritis. It has been related to several **clinically important infections**, including colitis and hepatitis, inflammatory bowel disease, recurrent diarrhea, and bacteremia in the human population. The bacterium may be transmitted to humans through **undercooked poultry meat**. In a recent study, a total of 35% of the samples analysed (n=240) were positive by microbiological protocol and 45% were positive by PCR. [Foods](#), 10 pages. (10.03.2024).

★ **Growth of *Listeria* in plant-based beverages:** The objective of the present study was to evaluate whether the content of sugar, protein, fat, and fiber in both commercially available and specially formulated plant-based beverages (from **oat, soy** and **pea**) influence the growth rates of ***Listeria***. Beverages were inoculated with a strain cocktail of *Listeria* (approximately 1'000 cfu/mL), and the data demonstrated that *Listeria* could proliferate in all tested beverages. These data suggest that a wide variety of commercial plant-based beverages could serve as an ideal medium for the growth of *Listeria* irrespective of product composition. [Food Microbiol](#), 10 pages. (01.04.2024).

★ **Emergence of poultry-associated human *Salmonella enterica* serovar Abortusovis:** *Salmonella enterica* serovar Abortusovis is a host-adapted pathogen that causes spontaneous abortion. *Salmonella* Abortusovis was reported in **poultry** in 2009 and has since been reported in **human infections** in New South Wales (NSW), Australia. Phylogenomic analysis revealed a clade of 51 closely related isolates from Australia originating in 2004. Evidence suggests that the serotype has become endemic within the NSW poultry industry, where it can move between poultry facilities and to humans. [Emerg Infect Dis](#), 5 pages. (04.2024).

★ **Seafood - transcontinental dissemination of Enterobacterales harboring *bla*_{NDM-1}:** A recent study detected carbapenem-resistant **Enterobacterales** (CRE) harbouring *bla*_{NDM-1} genes encoding the metallo-β-lactamase in non-US frozen shrimp purchased from a grocery store in Ohio, USA. The isolates were identified as ***Providencia* sp.** and ***Citrobacter* sp.**, and both were found to carry *bla*_{NDM-1} genes on IncC plasmids with different antimicrobial resistance island configurations. The study highlights the role of the global food trade in disseminating antimicrobial resistance. [Foodb Path Dis](#), 10 pages. (02.04.2024).

Chemistry

★★ **Metal toxicity on crustaceans in aquatic ecosystems:** A review article discusses the impact of various **heavy metals** and **nanoparticles** on aquatic organisms, particularly crustaceans, and their potential **toxicity**. It covers a wide range of studies on the bioaccumulation and effects of metals such as cadmium, lead, mercury, nickel, arsenic, gallium, cobalt, and thallium, as well as the influence of water chemistry and environmental factors on their toxicity. The article also touches on the use of nanoparticles and radiation in studying their effects on aquatic organisms. [Biol Trace Elem Res](#), 10 pages. (12.03.2024).

★★ **Occurrence of mycotoxins in meat alternatives:** A recent study has shed light on the potential health risks associated with the consumption of **plant-based meat alternatives**. While the benefits of reducing meat consumption have been widely discussed, little attention has been given to the risks posed by the extensive consumption of their plant-based substitutes. The findings of the study revealed that **mycotoxins** were present in varying amounts in the meat alternatives tested. While some mycotoxins had low occurrence levels, others were found in a significant proportion of the samples. The co-occurrence of mycotoxins varied from two to twelve mycotoxins. [Affidia](#), 1 page. (14.03.2024). Original Publication: [Environ Int](#).

★★ **Long-term consumption of reused frying oil - neurodegeneration?** A new study found higher levels of neurodegeneration in rats that consumed **reused frying oils**, compared to rats on a normal diet. Their offspring was affected as well. Deep frying, which involves submerging food completely in hot oil, is a common method of food preparation around the world. [EurekAlert](#), 2 pages. (25.03.2024). Original Publication: [ALAN](#). Additional Information: [AS-BMB](#), [DailyMail](#).

★★ **Prioritization and risk ranking of chemicals in US drinking water:** The study compared over six million measurements of drinking water constituents to prioritize and risk-rank **regulated** and **unregulated chemicals** in US drinking water. Hazard indices were used to assess hazard- and risk-based chemicals, and the top 50 risk-ranked chemicals included **15 unregulated** ones, suggesting that unregulated chemicals may pose higher exposure risk or hazard than regulated ones. [Environ Sci Technol](#), 12 pages. (02.04.2024).

★ ***Penicillium* spp. raise the risk of multiple mycotoxin occurrence in chestnuts:** *Penicillium* spp. produce a great variety of secondary metabolites, including several **mycotoxins**, on food substrates. **Chestnuts** represent a favourable substrate for *Penicillium* spp. development. In a new study, the genomes of ten *Penicillium* species, virulent on chestnuts, were sequenced and annotated. Biosynthetic gene clusters for 10 secondary metabolites were investigated *in silico*, and production of the **metabolites** was evaluated *in vivo* by chromatographic analyses. [Food Microbiol](#), 55 pages. (04.04.2024).

Nutrition

★★ **Switzerland - Junk food on social media:** The Fédération romande des consommateurs (FRC) and 160 students from the canton of Vaud analysed the food presented by the algorithm on **TikTok**. The analysis showed that the overwhelming majority of the food and drink products identified were very fatty, very salty, very sweet and ultra-processed. While it was not possible to assess their nutritional profile, the **fast food** and **sweet desserts** categories were by far the most popular. [20Min](#), 2 pages. (02.04.2024). Original Publication: [FRC](#).

★ **Ultra-processed food and *Helicobacter pylori* infection:** A recent study has found a significant **correlation** between the consumption of **ultra-processed foods** and the risk of ***Helicobacter pylori*** infection. The study included 150 patients with *H. pylori* infection and 302 healthy controls. The study's findings showed that the consumption of UPF, which was associated with a high intake of sweets and cakes, nondairy drinks, dairy drinks, processed meats, and fast foods, was positively associated with the chance of developing *H. pylori* infection. The study suggests several mechanisms through which ultra-processed foods may increase the risk of *H. pylori* infection. [Food Sci Nutr](#), 8 pages. (01.04.2024).

★ **Artificial sweetener neotame negatively regulates the intestinal epithelium:** **Neotame (E961)** is a relatively new sweetener on the global market, however, there is still limited data on the impact of neotame on the intestinal epithelium or the commensal microbiota. A recent study identifies **novel pathogenic effects** of neotame on the intestinal epithelium or bacteria alone, and in co-cultures to mimic the gut microbiome. [Front Nutr](#), 10 pages. (02.04.2024).

Allergy

★ ★ **"Vegan" foods may contain milk and eggs:** An article discusses the potential **risks** for consumers with food allergies when consuming products labeled as "vegan". It highlights the lack of regulatory standards in Canada for the term **"vegan"** and the potential presence of allergens such as milk and eggs in these products. The article also presents findings from a survey of consumers with allergies and an analysis of "vegan" and "plant-based" products, indicating that some products may contain milk proteins, posing a risk to allergic consumers. [Conversation](#), 3 pages. (11.03.2024). Original Publication: [Allergy Asthma Clin Immunol](#).

★ **Evaluation of food allergen information:** A research article aims to evaluate the accuracy and compliance of **information and labelling** of substances or products causing **allergies or intolerances** in prepacked food and drink products imported from **Asia** and purchased online in the UK. A total of 768 randomly selected prepacked products were classified into 16 separate product categories. Out of 77 products analysed for milk and peanut, 24 (31%) showed unintended food allergen presence, ranging from 0.2 to 6780 mg/kg. [Food Contr](#), 10 pages. (19.03.2024).

Fraud / Deception

★ ★ **Food supplements - addition of pharmaceutical drugs:** In recent years, the consumption of **dietary supplements** has grown worldwide, particularly in developed regions. However, this growing market has become a prime target for adulteration practices, with some manufacturers **illegally adding pharmaceuticals** into plant-based food supplements (PFS) to enhance their effects. Recent reports indicate an **increasing** level of adulteration within this group of PFS. [Foods](#), 26 pages. (16.03.2024).

★ **Málaga - wine fraud:** The Guardia Civil, under the direction of the Superior Prosecutor's Office of La Rioja and in collaboration with the Agri-Food Quality Control Service of the Department of Agriculture of La Rioja, have detected food fraud involving more than **18,400 bottles of wine**. Three people are being investigated as responsible for financial fraud exceeding 227,000 €. They used a commercial network that marketed La Rioja white wine as **superior quality** Málaga wine. Analysis showed that the wines in question were not produced exclusively from Muscat of Alexandria grapes, contrary to the requirements of the Málaga designation. Instead, they were made predominantly from lower quality grapes from the La Rioja region. [Euro Weekly News](#), 1 page. (12.03.2024). Original Publication: [Agrodigital.com](#).

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Seismo Info 03/2024



Source: mvcaspe, Fotolia

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★★★★ very important info ★★★ important info ★ interesting info

Microbiology

★★★★ **High genetic diversity and a recurring genomic lineage of *Campylobacter jejuni***: The aim of a new study was to assess **genomic diversity** and to identify antimicrobial resistance and virulence genes of 155 *Campylobacter* isolated from broiler carcasses in a large-scale Swiss poultry abattoir over a three-year period. A high degree of **genetic diversity** was observed. The identification of a **persisting highly clonal *C. jejuni* ST21** subtype suggests that the slaughterhouse may represent an environment in which *C. jejuni* ST21 may survive. [Infect. Genet. Evol.](#), 9 pages. (27.02.2024).

★★★★ **Microbiological and toxicological investigations on bivalve molluscs**: This study aimed to evaluate the hygienic qualities of **bivalves** sampled along the production and distribution chain in Sicily and collect useful data for consumer safety. *Vibrio spp.*, *Arcobacter spp.*, *Aeromonas hydrophila*, *Salmonella spp.*, and *Escherichia coli* were detected in 106/254, 79/254, 12/254, 16/254, and 95/254 molluscs, respectively. A total of 10/96 bivalves tested positive for **algal biotoxins**. [Foods](#), 10 pages. (11.02.2024).

★★ **Cryogenic microorganisms in refrigerators**: Potential threat is posed by **cryogenic microorganisms** in household refrigerators. Diversity, virulence, antibiotic resistance of cryogenic microorganisms is important. Cryogenic microorganisms acquire multiple survival mechanisms at low temperatures. [Trends Food Sci](#), 10 pages. (18.02.2024).

★★ **First isolation and genotyping of pathogenic *Leptospira* spp. from Austria:** This study aimed to isolate circulating *Leptospira* strains from cattle in Austria to enhance the performances of the routine serological test for both humans and animals. Urine and/or kidney tissue were sampled from 410 cattle considered at higher risk of infection. Nine out of 429 samples tested positive by PCR, from which three isolates were successfully cultured and identified as *Leptospira borgpetersenii* serogroup Sejroe serovar Hardjobovis, cgMLST cluster 40. The detection of serovar Hardjobovis on a cattle farm is a notable finding, demonstrating that cattle in Austria may act as carriers of pathogenic *Leptospira*, acting as a **possible source of infection** of other animals and humans while contributing to environmental contamination through their urine. [Sci Rep](#), 10 pages. (26.02.2024).

★★ ***Clostridium perfringens* from aquatic sources:** In a study, *C. perfringens* from aquatic source showed a high isolation rate, notably cooked clams. *C. perfringens* toxin type G in clams was detected for the first time and the toxin genes *cpb*, *cpe*, and *netB* were detected for the first time in cooked clams. The average antibiotic resistance rates of the strains to tetracycline, clindamycin, and ampicillin were 45 %, 20 %, and 16 % respectively. [IntJFoodMicr](#), 2 pages. (28.02.2024).

★ **Enterococci in bovine raw milk and feces:** In this study, a high percentage of enterococci isolated from raw milk (71%) were identified as multidrug resistant. Results indicated that *Enterococcus* biotypes from milk and bovine feces belong to different community and the ability of these microorganisms to transfer anti-resistance genes is strain-dependent. [Food Microbiol.](#), 10 pages. (18.02.2024).

★ **Simulated aging of draught beer line tubing increases biofilm contamination:** A study was conducted to determine if repeated exposure to chemical cleaning of vinyl beer tubing impacted biofilm growth, kill/removal, and subsequent regrowth of a mixed species biofilm. The tubing was conditioned to simulate one, two, and five years of use. The data collected demonstrates a clear trend between simulated age of the tubing and biofilm accumulation on the surface. The biofilm that accumulated in the five-year aged tubing was able to recover more quickly after caustic cleaning, reaching 3.6 Log(CFU/cm²) within 24 h, indicating that the treatment did not fully eradicate the biofilm, suggesting that the strong chemistry used in this study would cease to be as effective over time. [IntJFoodMicr](#), 1 page. (17.02.2024).

★ **Vertical Transmission of *Salmonella*:** An untraditional serotype of *Salmonella*, *S. enterica* serotype Reading (*S. Reading*), recently emerged as a foodborne pathogen following a multi-state outbreak in the U.S. due to the consumption of contaminated turkey products. Findings of a study clearly show the ability of the *S. Reading* to colonize reproductive tissues of breeder hens as well as vertically transfer to eggs. [Feedstuffs](#), 1 page. (20.02.2024). Original Publication: [Mississippi State University](#).

★ **Molecular epidemiology of emerging zoonotic pathogen *Streptococcus suis* in Europe:** *Streptococcus suis*, a zoonotic bacterial pathogen circulated through swine, can cause severe infections in humans. Because human *S. suis* infections are not notifiable in most countries, incidence is underestimated. A recent study surveyed 7 reference laboratories and performed a systematic review of the scientific literature. 236 cases of human *S. suis* infection from those sources were identified and an additional 87 by scanning gray literature. Clonal complex (CC) 1 isolates accounted for 87% of typed human infections. [Emerg Infect Dis](#), 3 pages. (03.2024).

★ ***Staphylococcus succinus* infective endocarditis:** Infective endocarditis is a rare condition in humans and is associated with high illness and death rates. A recent study describes a case of infective endocarditis caused by *Staphylococcus succinus* bacteria in France. Studies have reported the frequent isolation of *S. succinus* bacteria from various sources, such as cheeses, dry or fermented meat products, the Dead Sea, and occasionally human specimens. This study reports a case of *S. succinus* infective endocarditis in a patient in France. [Emerg Infect Dis](#), 2 pages. (03.2024).

★ **Safety of cold brew: Cold brew coffee** is made by steeping coffee grounds in cool or cold water for several hours. Due to the low acidity and lack of boiling water, research shows that it's also the ideal environment for foodborne pathogens such as *Bacillus cereus*, *Listeria monocytogenes*, *E. coli* and *Salmonella*. Results show that all pathogens survive in coffee from 9 to 12 days, and that contamination occurs during the brewing process, through contaminated ingredients or an unhygienic brewing environment. [The Augusta Chronicle](#), 2 pages. (12.02.2024). Original Publication: [CEAS - UGA](#).

★ **Hot-drinks vending machines in Southern Italy:** Vending machines (VMs) are common and convenient sources of various food and beverage items. Due to limited available information, concerns have been raised about the hygiene and safety of products dispensed by VMs. A new study aims to assess the microbiological contamination of VMs in the Campania region (Italy). *Listeria monocytogenes* and *Salmonella* spp. were not detected in any of the samples subjected to analysis. *Bacillus cereus* and *Staphylococcus aureus* were detected in various VMs components. [FoodContr](#), 7 pages. (13.02.2024). Additional Information: [KLBS](#).

Chemistry

★★★ **Cooking-derived possible carcinogens in grilled plant-based patties:** This study for the first time suggests that the **cooking-derived possible carcinogens**, Heterocyclic Aromatic Amines (HAAs) and Polycyclic Aromatic Hydrocarbons (PAHs), can also be found in **grilled plant-based meat patties**. The levels of HAAs in all plant-based (soy, rice, corn)- patties are lower than those of beef patties. In contrast, the levels of PAHs in plant-based patties are generally higher than those of beef patties. Among plant-based patties, soy-based one contains the highest level of HAAs and rice-based one contains the highest level of PAHs. [FoodContr](#), 10 pages. (19.02.2024).

★★ **Food additive E551 could promote coeliac disease:** A study has found that food additive **E551**, also known as **silicon dioxide**, can reduce oral tolerance to **dietary proteins** and could foster the development of **coeliac disease**. This work is the first to highlight the potential toxicity of E551, a nanometric ingredient that is added to a wide range of consumer food products. [EurekAlert](#), 3 pages. (21.02.2024). Original Publication: [ehp](#).

★★ **Mycotoxins in seed hemp varieties:** A small survey on mycotoxin contamination was carried, out from 2018 to 2022, in **hemp seed samples** cultivated in Italy **for food use**. The results showed a limited occurrence of the most common regulated **mycotoxins** (aflatoxins, fumonisins, ochratoxin A, deoxynivalenol and zearalenone), but very high levels of **alternariols**, reaching a maximum value of 24.4, 308, 226 and 288 µg/kg for tenuazonic acid, tentoxin, alternariol and alternariol monoether, respectively. [Food Addit Contam Part A](#), 1 page. (26.02.2024).

★ **Global occurrence of emerging mycotoxins in crops and animal feeds:** A new study investigates the **scale of emerging mycotoxins contamination** of crops and animal feeds globally, and evaluates their impacts on the health and performance of livestock, especially when they co-occur alongside regulated mycotoxins. **Emerging mycotoxins** including nivalenol, enniatins, beauvericin, diacetoxyscirpenol, fusaric acid, patulin, moniliformin and sterigmatocystin were found to be the most prevalent contaminants of cereals and other feed commodities worldwide. [Emerg. Contam.](#), 8 pages. (03.09.2024).

★ **Microcystins in fish:** A rapid risk assessment discusses the detection of **microcystins** in various parts of **fish**, with the highest concentrations found in the intestine and liver samples. The study, conducted by the University of California, San Diego, also highlights the potential health risks associated with microcystin exposure, particularly its impact on the liver. Overall, the authors consider the **severity of illness** that could potentially occur as a result of exposure to microcystins from consuming edible fish flesh from Lough Neagh to be **medium**. [FSA](#), 17 pages. (07.03.2024).

★ **Microplastics contamination affects cell-based food during production:** A recent study has demonstrated the food safety concern of **microplastics** contamination in **cell-based seafood**. It focused on Atlantic mackerel (*Scomber scombrus*) skeletal muscle cell lines to examine the effects of microplastic exposure, represented by fluorescent polyethylene microspheres (10–45 µm) on cell performance including cell proliferation, cell viability, gene expression, and differentiation processes critical for cultivated meat production. The results revealed significant impacts on cell attachment and proliferation at microplastic concentrations of 1 µg/mL, 10 µg/mL, and 50 µg/ml. [FoodSafetyMag](#), 3 pages. (01.03.2024). Original Publication: [Front. Food. Sci. Technol.](#)

★ **Polycyclic aromatic hydrocarbons in sewage-irrigated vegetables:** A new study investigates the presence of **polycyclic aromatic hydrocarbons** (PAHs) in sewage-irrigated **vegetables** from industrial cities in Haryana, India. It found high concentrations of PAHs in spinach, carrot, and cucumber, indicating potential **health risks** for consumers. [Environ Monit Assess](#), 10 pages. (02.03.2024).

Nutrition

★ ★ **Plant-based dairy and fish alternatives: iodine nutrition in the Swiss diet:** A new study assessed the **iodine content** in plant-based dairy and fish alternatives available in the Swiss market. Only four out of 477 plant-based alternative products are iodine fortified in the Swiss market. Thus, the risk for consumers to miss out on the ca. 25% of the RDA for iodine by consuming plant-based alternatives is high, placing them at a risk for inadequate iodine intake. [Eur. J. Nutr.](#), 12 pages. (07.03.2024).

★ ★ **Food additive emulsifiers and cancer risk:** A team of French researchers analyzed data from the French NutriNet-Santé cohort study, which involved 92,000 adults with an average age of 45 years (79% women), over an average follow-up period of 7 years. They observed that a higher consumption of **mono- and diglycerides of fatty acids** (E471) was associated with an overall 15% increased risk of cancer. Moreover, the risks were even more pronounced in specific cancer types, with breast cancer risk rising by 24% and prostate cancer risk by 46%. Additionally, the study revealed that a higher intake of **carrageenan** (E407 and E407a) was linked to a 32% increased risk of breast cancer compared to those with lower consumption levels. [Affidia](#), 2 pages. (16.02.2024). Original Publication: [Plos Med](#).

★ **Excess protein and atherosclerosis:** The study, which combined small human trials with experiments in mice and cells in a Petri dish, showed that consuming over **22% of dietary calories** from protein can lead to increased activation of immune cells that play a role in **atherosclerotic** plaque formation, driving the disease risk. [EurekAlert](#), 2 pages. (19.02.2024). Original Publication: [NatureMetabolism](#).

★ **Too much vitamin B3 contribute to heart disease:** Now, researchers have added to the list of potentially **modifiable risk factors** with a new study reporting high levels of a common **B vitamin called niacin** in the body may contribute to **cardiovascular disease**. This study identifies excess niacin, specifically its breakdown metabolite 4PY, as a risk factor for major adverse cardiovascular events such as heart attack and stroke [MedNewsToday](#), 3 pages. (21.02.2024). Original Publication: [Nat. Med.](#).

★ **Sugary drinks erase the heart health benefits of physical activity:** Researchers examined data from 100,000 adults over a 30-year period. Results showed people who drank sugar-sweetened beverages more than twice a week had an increased risk of **cardiovascular disease despite their level of physical activity**. Even if they engaged in 150 minutes of weekly physical activity, it didn't outweigh the harmful impact of sugar-sweetened beverage consumption. [MedNewsToday](#), 4 pages. (07.03.2024). Original Publication: [AJCN](#).

Allergy

★ ★ **Vegan labelling: use and understanding by consumers with food hypersensitivities:** In December 2023, the Food Standards Agency conducted an online omnibus **survey** with individuals who have, or buy for, those with food hypersensitivities (FHS) to allergens of animal origin. Many respondents did not know that **vegan** products might not be suitable for those with FHS to allergens of animal origin and that they need to check for precautionary **allergen labelling** on vegan products. [FSA](#), 32 pages. (03.2024).

Fraud / Deception

★ ★ **Multi-million Dollar fraud targeting U.S. organic food market:** A Turkish businessman and his associates orchestrated an elaborate scheme to sell fraudulent **organic grain** in the US market through a web of companies, leading to their indictment in a federal criminal complaint and a civil lawsuit in US courts. [MEF](#), 3 pages. (04.03.2024). Original Publication: [Nordic Monitor](#).

★ **Pink cotton candy:** Pink cotton candy, a sugary delight cherished by children worldwide, has sparked health concerns in India. The southern state of Tamil Nadu implemented the ban after lab tests confirmed the presence of a cancer-causing substance, **Rhodamine-B** as well as and an unidentified violet colour, in samples sent for testing. [BBC](#), 1 page. (22.02.2024).

Close up

New information concerning the [FSVO's early detection system](#) for food safety:

- DOI [10.5281/zenodo.10787274](#) obtained for the report : **“Is food safety in Switzerland impacted by the war in Ukraine?”** (Executive summary in English, German, French and Italian. Report in German)
 - DOI [10.5281/zenodo.10630256](#) obtained for the report : **“Impact of mercury released from permafrost on food safety in Switzerland”** (Executive summary in English, German and French. Report in English)
 - Signal Report **“Citrus Greening disease”** (in French) (21.03.2024)
-

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Seismo Info 02/2024



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The FSVO compiles the most important food safety information every month:

[FSVO website](#)

★★★★ very important info ★★★ important info ★ interesting info

Microbiology

★★★★ **A small increase in temperature could reduce CO2 emissions:** The international standard for freezing food is **-18°C**, a temperature that carries huge emissions costs. What if, asks a report published for COP28 by a large team of international cold chain experts, we raised this to **-15°C**? In fact, they find that raising the global target by just three degrees could avoid emissions equivalent to those produced by 4 million cars every year. It has been explained that this higher temperature poses no risk to food. However, the challenge of **parasite inactivation** linked to rising temperatures was not addressed in the report. [Anth](#), 2 pages. (12.01.2024). Original Publication: [IIR](#). Additional Information: [Unilever](#).

★★★★ **Zoonotic potential of foodborne isolates of *Klebsiella pneumoniae*:** Results of a study suggest that a similar risk of **zoonosis transmission** from potentially virulent **foodborne strains** previously observed in *E. coli* is also present in *K. pneumoniae*. According to the study, foodborne isolates of *K. pneumoniae* pose a risk to consumers and therefore this pathogen should be included in the surveillance of foodborne pathogens with high risk of **multi-drug-resistant infections** and therapeutic failure. [IntJFoodMicr](#), 35 pages. (23.01.2024).

★★ **The impact of weather on *campylobacteriosis*:** Researchers investigated the impact of **weather** on the **transmission of *campylobacteriosis***. Analysis of data from around one million cases of *campylobacteriosis* in England and Wales showed that the incidence rose sharply for every five degrees Celsius rise in **temperature**, when temperatures were between eight and 15 degrees Celsius. A link to **humidity** was also identified, especially when levels of water vapour in the air were between 75- 80 percent. Interestingly, researchers observed strong associations between **day length** (longer than 10 hours) and increased cases of the illness. [EurekAlert](#), 2 pages. (18.01.2023). Original Publication: [PLoS Comput. Biol.](#)

★★ ***Vibrio metschnikovii* as an emergent pathogen:** This study provides an enhanced understanding of the genomic evolution, O-antigen biosynthesis gene clusters diversity, and **potential pathogenic features** of *Vibrio metschnikovii*. The whole-genome features of 103 *Vibrio metschnikovii* strains isolated from different sources are described. Nineteen virulence-associated factors involving 161 genes were identified. *V. metschnikovii* was also found to promote a high level of cytotoxicity. [FoodWorld](#), 1 page. (20.01.2024). Original Publication: [Emerg Microbes Infect.](#)

★★ **Impacts of surface defects on the efficacy of sanitizers against *Listeria monocytogenes* biofilms:** A study has demonstrated the extent to which **defects on food contact surfaces** in tree fruit packinghouses lowers the efficacy of sanitizers against *Listeria monocytogenes* biofilms. Results showed that surface defects significantly increased the population of *L. monocytogenes* in biofilms on non-stainless-steel surfaces, and compromised the efficacies of **sanitizers** against *L. monocytogenes* biofilms across various surface types. [FoodSafetyMag](#), 3 pages. (01.02.2024). Original Publication: [JFoodProt](#).

★ **Persistence of microbiological hazards in food and feed production and processing environments:** *Listeria monocytogenes*, *Salmonella enterica* and *Cronobacter sakazakii* were identified as the bacterial food safety hazards most relevant to public health that are associated with persistence in the **food and feed processing environment** (FFPE). In this report, knowledge gaps related to bacterial food safety hazards associated with persistence in FFPE and priorities for future research are provided. [FoodWorld](#), 1 page. (19.01.2024). Original Publication: [EFSA](#)

★ **Global emergence of a hypervirulent carbapenem-resistant *Escherichia coli*:** A new study reports the emergence of a **hypervirulent carbapenem-resistant *Escherichia coli*** (CREC) ST410 clone, B5/H24RxC, which has become the most commonly isolated sequence type in Chinese hospitals between 2017 and 2021. Genomic analysis reveals that this clone caused two separate outbreaks in a children's hospital and has been isolated in **ten other countries** from 2015 to 2021. [NatureComm](#), 15 pages. (12.01.2024).

★ ***Escherichia coli* O157:H7 contamination in indoor farming:** Bacterial contamination of produce is a concern in **indoor farming** due to close plant spacing, recycling irrigation, warm temperatures, and high relative humidity during production. **Lettuce** (*Lactuca sativa*) cultivars with varying plant architectures grown in a custom-built indoor farm exhibited differences in *E. coli* O157:H7 survival after inoculation. Contamination of **E. coli O157:H7** on lettuce plants can be reduced and the food safety levels in indoor farms can be increased by selecting cultivars with an open leaf architecture coupled with photo-sanitization using low and frequent exposure to UV A + C radiation. [J Sci Food Agric.](#), 10 pages. (31.01.2024).

★ **Transfer of pathogens from contaminated soilless substrate and seeds to microgreens:** Microgreens can be contaminated from several pre-harvest sources, including soilless substrate, plant nutrient solution, water and seeds. The aim of a recent study was to determine the **transfer of *Salmonella*, Shiga toxin-producing *Escherichia coli* O157:H7 and *Listeria monocytogenes*** to the edible part of different types of **microgreens** from plant nutrient solution-soaked perlite as soilless substrate or seeds. This study suggests that there is a **high risk of transfer** of the pathogen population to microgreens in the case of seed or soilless substrate contamination if the growth or survival of the pathogen is supported in the plant nutrient solution. [IntJFoodMicr](#), 10 pages. (01.02.2024).

★ **Colonization of radish by human pathogenic microorganisms:** Vegetables are known to be potential vehicles for **human pathogenic microorganisms** (HPMOs) and sources of disease outbreaks. In a recent study the susceptibility of **radish** (*Raphanus sativus*) to be colonization by different HPMOs, including *Escherichia coli* PCM 2561, *Salmonella enterica subsp. enterica* PCM 2565, *Listeria monocytogenes* PCM 2191 and *Bacillus cereus* PCM 1948 was tested. The results suggest that *E. coli* and *L. monocytogenes* show a higher ability to colonize and move across the plant than *B. cereus* and *S. enterica*. [FrontMicr](#), 10 pages. (15.01.2024).

★ **Emergence of *tet*(X4)-positive *Enterobacteriales* in retail eggs:** The proliferation of **antimicrobial-resistant** microbes and resistance genes in various foods poses a serious hazard to public health. The plasmid-mediated tigeicycline resistance gene *tet*(X4) has been detected in ***Enterobacteriales*** from various niches but has not yet been reported in **eggs**. A recent study from **China** aimed to investigate the occurrence and characteristics of tigeicycline-resistant strains from retail eggs. The contamination of *tet*(X4)-positive bacteria internally and externally in retail eggs poses a prospective food safety threat. [IntJFoodMicr](#), 10 pages. (25.01.2024).

★ ***V. cholerae* and *A. salmonicida* two zoonotic “pathogens”?**: *Aeromonas salmonicida* is pathogenic for fish, mainly for salmonids, and its opportunistic pathogen status is discussed. Human infections caused by *Aeromonas salmonicida* have been reported. Recently mesophilic strains of *A. salmonicida* have been described and involved in humane infection. *Vibrio cholerae* non-O1/non-O139 is an opportunistic human pathogen. Reports of animal infections, not only in aquatic animals, raise the question of its zoonotic potential. [BfR](#), 1 page. (17.11.2023). Original Publication: [anses](#).

★ **Common food preservative has unexpected effects on the gut microbiome**: A study from the University of Chicago found that one of the most common classes of **lantibiotics** has potent effects both against pathogens and against the commensal gut bacteria that keep us healthy. **Nisin** is a popular lantibiotic used in everything from beer and sausage to cheese and dipping sauces. The researchers found that while the different nisin-like lantibiotics had varying effects, they killed pathogens and commensal bacteria alike. [UChicago](#), 3 pages. (02.02.2024). Original Publication: [ACS Chem. Biol.](#)

Chemistry

★★★ **Analysis of emerging food safety and fraud risks of novel insect proteins**: Research and development has been directed towards alternative proteins, with **edible insects** being promising sources. The main potential points of food safety and fraud along the edible insect supply chain were identified in a new study. Feed substrate was identified as the main area of concern regarding **microbiological** and **chemical** food safety and **novel processing techniques** were forecast to be of most concern for **future fraudulent activity**. [npj Sci Food](#), 12 pages. (20.01.2024).

★★ **Pesticide residues, elemental composition and mycotoxin levels in ciders**: Knowledge about the toxicological profile of ciders is rather scarce. In a Spanish study, 68 ciders were analyzed for pesticides, mycotoxins, POPs and elemental composition. The concentrations of pesticides, POPs and mycotoxins can be considered as safe. However, certain elements, notably **bromine** (br) and **lead** (Pb) in traditional ciders, raised potential concerns. [FoodContr](#), 10 pages. (23.01.2024).

★ **Trade in pesticides**: The European Union has declared certain **pesticides** to be hazardous to human health and to the environment, and outlawed or severely limited their use within Europe. However, the very same outlawed or restricted compounds are finding their way into the global south, exported by EU agrochemical companies. In 2018 alone, more than 81,000 tonnes of pesticides containing **41 different hazardous chemicals** banned for agricultural use in the EU were exported by European corporations. [Elephant](#), 6 pages. (17.01.2024).

★ **Mycotoxins in plant-based meat alternatives**: In a recent study, the role of **microwave cooking** in reducing mycotoxin contamination in **plant-based** food matrices was investigated, with a focus on veggie burgers (purchased and home-made) and their ingredients (soybean, potatoes, zucchini, carrots). The degradation patterns of **aflatoxins** (AFB1, AFB2, AFG1, AFG2), **fumonisin** (FB1, FB2, FB3), **trichothecenes** (T2, HT2, ZEA), and **ochratoxin A** (OTA) were studied. Principal component analysis (PCA) showed that degradation under microwave cooking varies considerably across different food matrices and cooking conditions. [Foods](#), 17 pages. (21.01.2024).

★ **Heavy metals exposure may lead to earlier menopause**: Middle-aged women with elevated levels of heavy metals, such as **arsenic, cadmium, and mercury**, are more likely to have depleted ovarian function and egg reserves, which may lead to **earlier arrival of menopause** and its negative health effects. Arsenic, cadmium, mercury and lead are commonly found in drinking water, air pollution and some foods, notably seafood and rice. [UniMichigan](#), 2 pages. (26.01.2024). Original Publication: [JCEM](#).

★ **Weight loss shakes**: A recent test of 17 **weight loss shakes** revealed that 11 of them failed due to contamination with mineral oil residues and controversial sweeteners. Only two shakes were rated as "good" and recommended. The shakes are intended to replace one or two main meals daily and are composed of milk and/or soy protein, vitamins, minerals, sweeteners, and other additives. [Öko](#), 2 pages. (25.01.2024).

Nutrition

★★ **Switching diet rapidly impacts immune system:** Researchers observed rapid and distinct immune system changes in a small study of people who switched to a **vegan** or a **ketogenic** diet. They found that the vegan diet prompted responses linked to innate immunity while the keto diet prompted responses associated with adaptive immunity. Metabolic changes and shifts in the participants' microbiomes were also observed. More research is needed to determine if these changes are beneficial or detrimental. [ScienceDaily](#), 2 pages. (30.01.2024). Original Publication: [Nat. Med.](#)

★ **Consumption of 100% fruit juice and body weight in children:** Based on the available evidence from prospective cohort studies, in this systematic review and meta-analysis, **1 serving per day of 100% fruit juice** was associated with **Body Mass Index (BMI) gain** among children. [MedNewsToday](#), 5 pages. (19.01.2024). Original Publication: [JAMA Pediatr.](#)

★ **40 years of adding more fructose to high fructose corn syrup:** The article discusses the excessive consumption of unpaired **fructose**, particularly from **high fructose corn syrup** and **apple juice**, and its potential health consequences. It highlights the **association** between excess-free-fructose intake and conditions such as fructose malabsorption, gut dysbiosis, asthma, coronary heart disease, and irritable bowel syndrome. The article also mentions the variability in individuals' absorption capacity and the need for more accurate intake estimates. Additionally, it touches on gene variants related to fructose absorption and the potential health risks posed by high-fructose corn syrup. [Nutr. J.](#), 19 pages. (02.02.2024).

★ **Global nutrition threatened by climate change-related wheat disease:** A fungal blast disease could reduce global **wheat production** by 13% before 2050, equating to 60 million tons lost annually, according to a new study. The fungus *Magnaporthe oryzae* is thriving under conditions created by climate change in tropical regions. The pathogen is predicted to have devastating effects on **human nutrition** in parts of South America, Southern Africa and Asia. [food ingredients 1st](#), 2 pages. (05.02.2024). Original Publication: [Nat. Clim. Chang.](#)

★ **The future of food:** The global **food systems** face significant challenges driven by population growth, climate change, geopolitical conflicts, crises, and evolving consumer preferences. A new review explores the complex aspects of the future of food, encompassing sustainable food production, food security, climate-resilient and digitalized food supply chain, alternative protein sources, food processing, and food technology, the impact of biotechnology, cultural diversity and culinary trends, consumer health and personalized nutrition, and food production within the circular bioeconomy. [Foods](#), 10 pages. (06.02.2024).

Fraud / Deception

★★ **Food fraud records: summary of data from 1980-2022:** Food fraud prevention and detection remains a challenging problem, despite recent developments in regulatory and auditing requirements. In 2012, the United States Pharmacopeial Convention created a database of **food ingredient fraud**. The objective of this research was to report on updates made to the database structure and to provide an updated **analysis of food fraud records**. Dairy, seafood, meat, herbs and spices are particularly prone to fraud. [JFoodProt](#), 34 pages. (16.02.2024).

Close up

New reports published by the [FSVO's early detection system](#) for food safety:

- **Is food safety in Switzerland impacted by the war in Ukraine?** (in German)
 - **Impact of mercury released from permafrost on food safety in Switzerland**
 - Signal Report: **Microbiological safety of plant-based convenience products** (Part 1) (in French)
 - Signal Report: **Too high protein diet** (in French)
 - Signal Report: **Human gut microbiome and food additives** (in French)
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Seismo Info 01/2024



Source: mvcaspel, Fotolia

The FSVO compiles the most important food safety information every month:

[FSVO website](#)

★★★★ very important info ★★★ important info ★ interesting info

★★★★ **Survey:** In November 2023, we asked for your opinion as part of our survey on early detection for food safety. We warmly thank you for the numerous responses! The results of the survey are summarised in a [report](#) available on the FSVO website.

Microbiology

★★★★ **Disinfectant residues stimulate *Vibrio* biofilm formation:** Results revealed that exposure to **benzalkonium chloride** (BAC) residues induced physiological changes in ***Vibrio* biofilms**, leading to an increase in the number of injured and alive cells within the biofilm. The exact nature of the "injured" bacteria remains unclear, but it is postulated that BAC might heighten the risk of viable but non-culturable (VBNC) bacteria development. These VBNC bacteria pose a significant threat, especially since they cannot be detected using the standard culture-based methods commonly employed for microbiological risk assessment in aquaculture and seafood industries. [FrontMicr](#), 1 page. (18.12.2023).

★★★ **Temperature status of domestic refrigerators and risk of listeriosis:** This study provides insight into the **temperature profiles of domestic refrigerators** in the Netherlands and the impact on the number of **listeriosis** cases related to ready-to-eat (RTE) cooked meat products. **Elderly people** (65 years and older) had refrigerators with temperatures that were on average 0.6 °C higher than those of younger people (35 years or younger). Among all illness cases, the elderly represented nearly 90 %. [IntJFoodMicr](#), 1 page. (08.12.2023).

★★★ **Campylobacter species in Finnish beef liver:** 90 Finnish **retail beef livers** were studied to estimate the concentration of **Campylobacter species**. Overall, 44 (49 %) of the samples were positive for *Campylobacter* species, *C. jejuni*, *C. fetus* and *C. lari* being identified in 42 %, 8.9 % and 1.1 % of the samples, respectively. [IntJFood-Micr](#), 30 pages. (14.12.2023).

★★★ **Yersinia enterocolitica biovar 1A in the food chain:** *Yersinia enterocolitica* is an **underreported cause of foodborne gastroenteritis**. Little is known of the diversity of *Y. enterocolitica* isolated from food and which food commodities contribute to human disease. In this study, *Y. enterocolitica* was isolated from 37/50 **raw chicken**, 8/10 **pork**, 8/10 **salmon** and 1/10 **leafy green** samples collected at retail in the UK. Almost all (99%) food *Y. enterocolitica* isolates were **biotype 1A**. Around half (51%) of food samples contained an ST previously isolated from UK **human sources**. [IntJFoodMicr](#), 37 pages. (21.12.2023).

★ **Helicobacter pylori infection and the risk of incident Alzheimer's disease:** The study, investigated whether a clinically apparent *Helicobacter pylori* (*H. pylori*) infection increased the risk of Alzheimer's disease in people aged 50 and older. A team of McGill University researchers analyzed health data of over 4 million people in the United Kingdom aged 50 and above between 1988 and 2019. It found that people with **symptomatic *H. pylori*** infection had an 11% higher risk of developing **Alzheimer's disease**. [EurekAlert](#), 1 page. (22.12.2023). Original Publication: [Alzheimer's Dement](#).

★ **Resistance of Listeria monocytogenes isolates recovered from food-processing facilities:** Sanitisers are widely used in cleaning food-processing facilities, but their continued use may cause an increased **resistance** of pathogenic bacteria. Several genes have been attributed to the increased sanitiser resistance ability of *L. monocytogenes*. A new study determined the presence of sanitiser resistance genes in Irish-sourced *L. monocytogenes* isolates and explored the association with phenotypic sanitiser resistance. In summary, this investigation highlights the **prevalence of specific sanitiser resistance genes** in *L. monocytogenes* isolates from Irish food-processing settings. [Microorganisms](#), 12 pages. (15.12.2023).

★ **Hypervirulent Clonal Complex (CC) of Listeria monocytogenes in fresh produce:** A recent study aimed to determine the **prevalence** and virulome of *Listeria* in **fresh produce** distributed in urban communities. A total of 432 fresh produce samples were collected from farmer's markets in Michigan and West Virginia, USA, resulting in 109 pooled samples. Forty-eight of 109 samples (44.0%) were contaminated with *Listeria spp.* *L. monocytogenes* serotype 1/2a and 4b were recovered from **radishes**, **potatoes**, and **romaine lettuce**. Four clonal complexes (CC) were identified and included hypervirulent CC1 (ST1) and CC4 (ST219) of lineage I. [FrontMicr](#), 10 pages. (08.01.2024).

Chemistry

★★★ **More plastic in bottled water than previously known:** Using a new microscopic technique that can detect minute particles of **plastic in bottled water**, researchers have discovered that, on average, one liter of water contains approximately 240,000 detectable plastic fragments, which is **10–100 times greater than previous estimates** based on larger sizes of plastic. The researchers warn that these nanoplastics can pass into human blood, cells, and placenta with unknown health effects. [FoodSafetyMag](#), 3 pages. (09.01.2024). Original Publication: [PNAS](#).

★★★ **Isolation and identification of microplastics in infant formulas:** A new study aimed to determine the degree of **contamination of infant formula** with microplastics (MPs). A total of **30 products** were subjected to analysis. Microplastics were **detected in all tested samples**. The most frequently identified polymers were polyamide, polyethylene, polypropylene, and poly(ethylene terephthalate). The **daily intake of MPs** by children fed exclusively infant formula was estimated to be approximately **49 ± 32 MPs**. [FoodChem](#), 10 pages. (15.05.2024).

★ **PFAS alternatives:** Due to increasing regulations on the production and consumption of legacy per- and polyfluoroalkyl substances (PFAS), the global use of **PFAS substitutes** increased tremendously, posing serious environmental risks owing to their **bioaccumulation**, **toxicity**, and **lack of removal strategies**. A recent review summarized the spatial distribution of alternative PFAS and their ecological risks in global **freshwater** and marine ecosystems. [WaterRes](#), 10 pages. (15.02.2024).

★ **Arsenic and adipose tissue:** Arsenic-contaminated **drinking water** can induce various disorders by disrupting lipid and glucose metabolism in adipose tissue, leading to **insulin resistance**. It inhibits adipocyte development and exacerbates insulin resistance, though the precise impact on lipid synthesis and lipolysis remains unclear. A recent review aims to explore the processes and pathways involved in adipogenesis and lipolysis within adipose tissue concerning **arsenic-induced diabetes** [Environ Sci Pollut Res Int.](#), 10 pages. (02.01.2024).

★ **High levels of chromium in applesauce traced to lead poisoning outbreak:** In addition to extremely high levels of lead, the FDA has found elevated levels of **chromium** in cinnamon applesauce products marketed for children. [FSN](#), 1 page. (06.01.2024).

★ **Cardiovascular adverse effects and mechanistic insights of arsenic exposure:** A recent review discusses the cardiovascular adverse effects of **arsenic exposure**, focusing on the **toxicological and cardiovascular impacts** of arsenic in in vitro cardiac and vascular models. The mechanisms of arsenic-induced cardiovascular impairments include oxidative stress, epigenetic modifications, chromatin instability, subcellular damage, and premature aging. The review also highlights the distinct responses of different types of cardiac and vascular cells to arsenic exposure, and the specific mechanisms involved in causing arrhythmias and vascular lesions. [Environ Chem Lett](#), 10 pages. (09.01.2024).

Nutrition

★★ **US adults consume a meal of calories a day from snacking:** Researchers analyzing data from surveys of over 20,000 people found that Americans averaged about **400 to 500 calories in snacks a day** – often more than what they consumed at breakfast – that offered little nutritional value. [EurekAlert](#), 3 pages. (15.12.2023). Original Publication: [PLOS glob. public health](#).

★★ **Artificial intelligence and nutrition:** The results of a new study suggest that **artificial intelligence** (AI) can be a useful and convenient tool for people who want to know the energy and macronutrient information of their foods. Although AI chatbots cannot replace nutritionists, they may provide **real-time analysis of foods**, and the capacity to harness AI technology in a **supportive role** may fundamentally transform the way nutritionists communicate with patient. [EurekAlert](#), 1 page. (27.12.2023). Original Publication: [JAMA Netw Open](#).

★ **Psychological impact of the widespread availability of palatable foods:** A recent study aimed to investigate the role of the **psychological impact of environments** rich in palatable foods on three aspects of eating behavior: **cognitive restraint** (CR), **uncontrolled eating** (UE), and **emotional eating** (EE). This study had a cross-sectional design in which data were collected online from 413 subjects. CR, UE, and EE were positively predicted by the motivation to consume palatable foods in varying proximity, suggesting that the presence of food and, more importantly, its general availability may be important determinants of eating behavior, particularly UE and EE. [Foods](#), 15 pages. (22.12.2023).

★ **High fat diets - dysregulation of genes:** High-fat diets (HFDs) have been linked to several diseases, including **obesity, diabetes, fatty liver, inflammatory bowel disease** (IBD) and **colon cancer**. In this study, researchers examined the effects on intestinal gene expression of three isocaloric HFDs that differed only in their fatty acid composition - **coconut oil** (saturated fats), conventional **soybean oil** (polyunsaturated fats) and a **genetically modified soybean oil** (monounsaturated fats). Network analysis shows that genes involved in metabolism tend to be **upregulated** by the HFDs while genes related to the immune system are **downregulated**; neurotransmitter signaling was also **dysregulated** by the HFDs. [EurekAlert](#), 2 pages. (03.01.2023). Original Publication: [Sci Rep](#).

★ **'Veganuary' cuts fat and cholesterol but also reduces vitamins and minerals:** A study analysed omnivores and vegetarians aged 18 to 60 who signed up for "Veganuary", comparing them to vegans, vegetarians and meat-eaters who kept eating as normal. Their findings show that there are positive and negative effects on the diet for people who take part. **Omnivores** who take part in "Veganuary" could cut their **saturated fat** and **cholesterol** intake but may also miss out on vital **micronutrients**, such as iodine and vitamin B12. [MedicalXpress](#), 2 pages. (02.01.2024). Original Publication: [Nutrients](#).

★ **Association of plant-based diets with total and cause-specific mortality:** A new study investigated the association between **plant-based diet indices** (PDIs) and **mortality**, considering **socioeconomic deprivation levels**. The research, which included 189,003 UK Biobank participants, found that higher overall PDI and healthful PDI were associated with reduced all-cause mortality, while the unhealthful PDI was linked to an increased risk of death. [Eur. J. Nutr.](#), 10 pages. (09.01.2024).

Allergy

★ **Allergenicity of alternative proteins:** A **review article** discusses the current research status of allergenicity studies on alternative proteins, analyzing research keywords, hotspots, and trends using a mixed-method approach of **bibliometric analysis** and **literature review**. The study highlights the significant variations in the type and amount of allergens found in alternative proteins, with a focus on **plant-based proteins** and cross-reactivity of **insect proteins**. [CritRevFoodSciNutr](#), 10 pages. (08.01.2024).

Fraud / Deception

★ **International adulterated olive oil scandal uncovered:** The investigation, carried out by the Guardia Civil in conjunction with Italy's carabinieri and Europol, led to raids in both countries. Suspicions were first raised when Guardia Civil officers discovered "a series of anomalies" while inspecting a lorry that was transporting **olive oil** in Ciudad Real region. They soon uncovered a two-pronged operation in Spain and Italy that was designed to distribute adulterated olive oil on the global market. It led to 11 arrests and the seizure of over 260 000 litres of olive oil unfit for consumption. [TheGuardian](#), 3 pages. (04.12.2023). Original Publication: [Europol](#).

Close up

Summary of [FSVO's early detection reports](#) for food safety in 2023:

- Signal Report: **Vibrio spp.** (non-cholera vibrios) (PDF, 284 kB, 18.10.2023)
 - Signal Report: **Release of mercury from permafrost** (PDF, 292 kB, 18.10.2023)
 - Signal Report: **Escherichia albertii** (PDF, 360 kB, 22.06.2023)
 - Signal Report: **Meat analogues** (PDF, 257 kB, 22.06.2023)
 - Signal Report: **Clostridioides difficile** (PDF, 192 kB, 22.06.2023)
 - Signal Report: **Arcobacter spp. in food** (PDF, 136 kB, 07.02.2023)
 - Signal Report: **Bacillus thuringiensis** (PDF, 116 kB, 07.02.2023)
 - Signal Report: **Tick-borne encephalitis virus (TBEV)** (PDF, 127 kB, 07.02.2023)
 - Signal Report: **Salmonella Napoli** (PDF, 307 kB, 07.02.2023)
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