



Seismo Info 03/2024



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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

★★★★ **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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