Seismo Info 04/2024

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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

★★★ ***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).

★★ **Bongkrekic 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 **bongkrekic acid** in the restaurant. A total of 30 people fell ill after eating. Bongkrekic 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. Bongkrekic 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: ASBMB, 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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