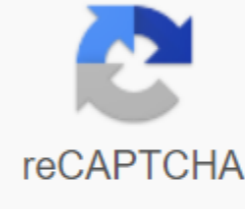




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Aflatoxin in peanuts pdf

Not to be confused with alpha toxin. The chemical structure of aflatosin B1 Aflatoxins are poisonous carcinogens and mutagen, which are produced by certain forms (Aspergillus flavus and Aspergillus parasiticus), which grow in soil, decaying vegetation, hay and grains. They are regularly found in improperly stored staples such as cassava, chilli, cotton seed, millet, peanuts, rice, sesame seeds, sorghum, sunflower seeds, sweet corn, tree nuts, wheat, and various spices. In the processing of contaminated food, aflatoxins enter the general food supply, where they have been found in both animal and human products, as well as raw materials for farm animals. Animals fed with contaminated food can transfer products converting aflatoxin into eggs, dairy products and meat. For example, contaminated poultry feed is suspected of receiving high percentages of samples of aflatoxin-infested chicken meat and eggs in the Indian subcontinent. Children are particularly affected by aflatoxin, which is associated with stunted growth, developmental delay, liver damage and liver cancer. The link between childhood stunting and exposure to aflatoxin has been reported in some studies, but could not be found in all. In addition, the causal link between stunting in childhood and exposure to aflatoxin has not yet been definitively proven by epidemiological studies, although such studies are ongoing. Adults have a higher tolerance for exposure, but are also at risk. No species of animal is insured. Aflatoxins are among the most carcinogenic substances known. Once ingested, aflatoxins can be metabolized by the liver into reactive epoxy intermediate or hydroxylated to become less harmful to M1 aflatoxin. Aflatoxins are most often ingested. However, the most toxic type of aflatoxin, B1, can permeate the skin. The U.S. Food and Drug Administration(FDA) action levels for aflatoxin, present in food or feed, range from 20 to 300 ppb. The FDA has had the ability to announce both human and pet food recalls as a precautionary measure to prevent exposure. The term aflatoxin comes from the name of one of the forms that produce it, Aspergillus flavus. It was invented around 1960 after it was discovered as the source of Turkey's Disease X. Aflatoxins form one of the main groups of mycotoxins. The main types and their metabolites Aflatoxin B1 is considered the most toxic and produced by both Aspergillus flavus and Aspergillus parasiticus. Aflatoxin M1 is present in the aspergillus parasite fermentation broth, but it and aflatoxin M2 are also produced when infected liver aflatoxin B1 and B2. Aflatoxin B1 and B2 (AFB), produced by Aspergillus flavus and A. parasiticus Aflatoxin G1 and G2 (AFG), produced by some groups II A. flavus and Aspergillus parasiticus parasiticus M1 (AFM1), metabolite aflatoxin B1 in humans and animals (exposure in ng levels may come from breast milk) Aflatoxin M2, B2 agratost in cattle milk fed by contaminated food (AFL): metabolite produced by the destruction of the lactose ring of Aflatoxin No.1 (AFS1), the main AFB1 metabolite in liver preparations in the test tube of other higher vertebrates. However, they seem far less capable of causing mutagenes than an unsatisfied toxin. Contamination of aflatoxin conditions are produced by both Aspergillus flavus and Aspergillus parasiticus, which are common forms of weedy forms common in nature. The presence of these forms does not always indicate harmful levels of aflatoxin, but indicates a significant risk. Forms can colonize and contaminate food before harvest or during storage, especially after prolonged exposure to high environmental humidity, or stressful conditions such as drought. Aspergillus' local habitat is found in soil, decomposing vegetation, hay and grains undergoing microbiological degradation, but it invades all kinds of organic substrates whenever conditions are favorable for its growth. Favorable conditions include high moisture content (at least 7%) and high temperature. Aflatoxins were isolated from all major crops, as well as from sources as diverse as peanut butter and cannabis. The main commodities regularly contaminated with aflatoxins are cassava, chili, corn, cotton seeds, millet, peanuts, rice, sorghum, sunflower seeds, tree nuts, wheat and various spices intended for human or animal consumption. The products of aflatoxin conversion are sometimes found in eggs, dairy products and meat when animals are fed contaminated grains. A study in Kenya and Mali showed that the prevailing practice of drying and storing maize was insufficient to minimize the effects of aflatoxins. Organic crops that are not treated with fungicides may be more susceptible to contamination by aflatoxins. Prevention There is very limited evidence that agricultural and nutritional education can reduce the effects of aflatoxin in low- and middle-income countries. Pathology No species of animal is immune from acute toxic effects of aflatoxins. Adults have a high tolerance for the effects of aflatoxin and rarely succumb to acute aflatoxicosis, but children are particularly affected, and their effects can lead to stunted growth and developmental delay, in addition to all the symptoms mentioned below. High-level exposure to aflatoxin causes acute liver necrosis (acute aflatoxicosis), which subsequently leads to cirrhosis or liver carcinoma. Acute hepatic manifested by bleeding, swelling, changes in digestion, changes in absorption and/or and/or nutrients as well as mental changes and/or comas. Chronic subclinical exposure does not lead to dramatic symptoms such as acute afratoxic. Chronic exposure increases the risk of liver and gallbladder cancer, as phlatoxin metabolites can be intercalated into the DNA and alkylate base through moiety epoxy. It is believed that this causes mutations in the p53 gene, an important gene in preventing the progression of the cell cycle when there is a DNA mutation, or signaling apoptosis (programmed cell death). These mutations seem to affect some places of the base pair more than others, such as the third base of the coden 249 gene p53, appearing to be more susceptible to aflatoxin-mediated mutation than nearby bases. As with other DNA alkylation, B1 aflatoxin can cause immune suppression, and exposure to it is associated with increased viral load in HIV-positive people. The expression of aflatoxin-related diseases depends on factors such as species, age, nutrition, gender and the possibility of simultaneous exposure to other toxins. The main target organ in mammals is the liver, so afratoxicosis is primarily a liver disease. Conditions that increase the likelihood of aflatoxicosis in humans include limited food availability, environmental conditions conducive to the growth of mold in food, and the lack of regulatory systems to monitor and control aflatoxin. A regular diet, including apiary vegetables such as carrots, parsnips, celery and parsley, can reduce the carcinogenic effects of aflatoxin. There is no specific antidote to aflatoxicosis. Symptomatic and supportive care given the severity of liver disease may include intravenous fluids with dextrose, active vitamin K, B vitamins and a limited but high-quality protein diet with sufficient carbohydrate content. In other animals in dogs, aflatoxin can lead to liver disease. Low levels of exposure to aflatoxin require continuous consumption for weeks to several months in order for signs of liver dysfunction to appear. Some articles suggest that the toxic level of dog food is 100-300 ppb and requires continuous exposure or consumption for several weeks to several months to develop aflatoxicosis. There is no information that the recovered dogs will later succumb to the disease caused by aflatoxin. Turkeys are extremely susceptible to afratoxicosis. Recent studies have shown that this is due to the effective cytochrome P450 mediated metabolism of aflatoxin B1 in the liver of the indians and the deficiency of glutathione-S-transferase mediated detoxification. Some studies on pregnant women have shown a significant link between aflatoxin B1 (4 mg/kg, single dose) and the appearance of developmental abnormalities in their offspring. In 2005, Diamond Pet Foods discovered aflatoxin in a product, a product, in Gaston, North Carolina. In 23 states, Diamond has voluntarily recalled 19 products developed from corn and manufactured at Gaston. Testing of more than 2,700 samples of finished products conducted by laboratories confirmed that only two code dates of two formulas for adult dogs can be toxic. Detection in humans there are two main methods that have been used most often to detect levels of aflatoxin in humans. The first method of measuring AFB1-guanine adukuk in the urine of subjects. The presence of this decay product indicates exposure to B1 aflatoxin during the last 24 hours. This method only measures recent impacts, however. Because of the semi-raw matter of this metabolite, the level of AFB1-guanine measured can vary from day to day, based on diet, it is not ideal for assessing long-term effects. Another method that has been used is to measure the adduct level of AFB1-albumin in serum. This approach provides a more comprehensive measure of exposure within weeks or months. The list of flashes This section needs to be expanded. You can help by adding to it. (December 2014) International sources of commercial peanut butter, cooking oils (e.g. olive, peanut and sesame oil) and cosmetics have been identified as contaminated with aflatoxin. In some cases, liquid chromatography-tandem mass spectrometry (LC-MS/MS) and other analytical methods have revealed a range of 48% to 80% of selected product samples as containing detectable amounts of aflatoxin. In many of these contaminated foods, aflatoxin exceeded the safe limits of the U.S. Food and Drug Administration (FDA), or other regulatory agencies. 2003 Kenya: acute poisoning, 120 confirmed deaths. February-March 2013: Romania, Serbia, Croatia imported to Western Europe - 2013 aflatoxin pollution. February 2013: Pollution of Iowa, 2014 (continued): Nepal and Bangladesh, neonatal effects found in umbilical cord blood, 2019 Kenya: Five brands of cornflour recalled due to contamination. 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Detailed list and information about all mycotoxins Aspergillus Aflatoxin, ICRISAT Aspergillusflavus.org Diamond Pet Food Recall Aflatoxin B1 Received from 974608532Strage 2 3-MCPD Names IUPAC Name 3-Chlororppan-1,2-Diol Other Titles 3-Monoopropoane-1,2-Diol K-Chlorogridin; Glycerol and monochlorohydrin; chlorodoxyglycylol; 3-Chloro-1,2-propanediol Identifiers CAS Number 96-24-2 Y 3D model (JSmol) Interactive image ChEBI CHEBI:18721 Y ChemSpider 7018 Y ECHA InfoCard 100.002.267 EC Number 202-492-4 KEGG C18676 N PubChem CID 7290 UNII QGS78A3T6P Y CompTox Dashboard (EPA) DTXSID4020664 InChI InChI=1S/C3H7ClO2/c4-1-3(6)2-5/h3,5-6H,1-2H2Key: SSZWWUDQMAHNAQ-UHFFFAOYSA-N YInChI=1/C3H7ClO2/c4-1-3(6)2-5/h3,5-6H,1-2H2Key: SSZWWUDQMAHNAQ-UHFFFAOYAR SMILES ClCC(O)CO Properties Chemical formula C3H7ClO2 Molar mass 110.54 g·mol−1 Appearance Viscous, colorless liquid Density 1.32 g·cm−3 Melting point −40 °C (−40 °F; 233 K) Boiling point 213 °C (415 °F; 486 K) Hazards Safety data sheet External MSDS R-phrases (outdated) R26/27/28-R36/37/38 S-phrases (outdated) S24-S45 Except where otherwise noted, data are given for materials in their standard state (at 25 °C [77 °F] , 100 kPa), N check (what is YN?) Infobox links 3-

MCPD (3-monochloropropan-1,2-diol or 3-chloropropane-1,2-diol) is an organic chemical compound with the HOCH₂CH(OH)CH₂Cl formula. It is a versatile multifunctional building block. The compound has attracted attention as the most common member of a chemical food pollutant known as chloropropanols. He is suspected of human carcinogenicity. It is produced in foods treated at high temperatures with hydroic acid to accelerate hydrolysis protein. As a by-product of this process, chloride can react with glycerol spine lipids to produce 3-MCPD. 3-MCPD can also occur in foods that have been in contact with materials containing epichlorohydrin-based wet resin strength, which are used in the production of some tea bags and sausage enclosures. In 2009, 3-MCPD was found in some East Asian and Southeast Asian sauces, such as oyster sauce, Hoysin and soy sauce. The use of salt acid occurs much faster than traditional slow fermentation. A 2013 2013 The food safety authority's report lists margarine, vegetable oils (except walnut oil), canned food, meat, bread and small baked goods as the main sources in Europe. 3-MCPD can also be found in many paper products treated with polyamidoamine-epichlorohydrine wet resin. The International Agency for Cancer Research classified 3-MCPD as a group of 2B, possibly carcinogenic to humans. 3-MCPD is carcinogenic in rodents using a non-enotoxic mechanism. It is able to cross the hem analysis barrier and the hem-brain barrier. Oral LD50 of 3-chloro-1,2-propanediol is 152 mg/kg of body weight in rats. 3-MCPD also has male antifertil effects and can be used as a rat chemosteriant. The Legal Restrictions of the Joint Food Standards of Australia (SIS) set a limit for 3-MCPD in soy sauce of 0.02 mg/kg, in accordance with European Commission standards, which came into force in the EU in April 2002. History In 2000, a survey of soy sauces and similar products available in the UK was conducted by the Joint Ministry of Agriculture, Fisheries and Food/Department of Food Safety and Health Standards Group (JFSSG) and reported that more than half of the samples collected from retail outlets contained different levels of 3-MCPD. In 2001, the Food Standards Agency of the United Kingdom (FSA) found in tests of various oyster sauces and soy sauces that 22% of samples contained 3-MCPD at levels significantly higher than those considered safe by the European Union. About two-thirds of these samples also contained a second chloropropanol called 1,3-dichloropropan-2-ol (1,3-DCP), which experts advise should not be present at any level in food. Both chemicals can cause cancer, and the Agency has recommended removing affected foods from shelves and avoiding them. In 2001, the FSA and Food Standards Australia New ealand (FSAN) identified brands and products imported from Thailand, China, Hong Kong and Taiwan. Brands named in the British warning include Golden Mountain, King Imperial, Pearl River Bridge, Golden Sign, Kimlan, Golden Swan, Sinsin, Tung Chung, and Wanjasham soy sauce. Knorr soy sauce was also implicated, as well as Uni-President Enterprises Corporation creamy soy sauce from Taiwan, Silver Swan soy sauce from the Philippines, Ta Tun soybean sauce from Taiwan, tau Ui Ou seasoning sauce and soybean sauce from Vietnam, zu Miao Fo Shan soy sauce and mushroom soy sauce from China and gold soybean sauce from China and Marina Between 2002 and 2004, relatively high levels of 3-MCPD and other chloropropanols were found in soy sauce and other foods in China. In 2007 in Vietnam, 3-MCPD detected in toxic levels. In 2004, the City Institute of Hygiene and Public Health HCM found 33 of 41 samples of soy sauce with high 3-MCPD rates, including six samples with 11,000 to 18,000 times more 3-MPCD than allowed, increase over 23 to 5,644 times in 2001, 20 The Newspaper Thanh Nien daily commented, Health agencies knew that Vietnamese soy sauce, the country's second most popular sauce after fish sauce, chock full cancer agents since at least 2001. In March 2008 in Australia in soy sauces were detected carcinogens, and Australians were advised to avoid sauces. In November 2008, the British Food Standards Agency reported a wide range of household foods, from sliced bread to crackers, biburgers and cheese with 3-MCPD above safe limits. Relatively high levels of the chemical have been found in popular brands such as Mother's Pride, Jacobs Crackers, John West, Kraft Dairylea and McVitie's Krackawheat. The same study also found relatively high levels in a number of supermarkets' own brands, including Tesco char-grill beefburgers, Sainsbury's Hot 'n Spicy Chicken Drumsticks and Digestive Biscuits from Asda. The highest level of 3-MCPD found in a soy-free sauce product, crackers, was 134 micrograms per kg. The highest level of 3-MCPD in soy sauce was 93,000 micrograms per kg, 700 times higher. The legal limit for 3-MCPD coming in next year, when? will be 20 micrograms per kg, but the guide to the safety of daily consumption is 120 micrograms per 60 kg per person per day. In 2016, 3-MCPDs were found in selected paper products (coffee filters, tea bags, disposable paper hot drinks cups, milk cardboard containers, paper towels) sold in the Canadian and German markets, and the transfer of 3-MCPD from these products to beverages was investigated. Exposure to 3-MCPD from packaging material is likely to account for only a small percentage of the total dietary impact compared to the consumption of processed oils/fats containing the equivalent of 3-MCPD (in the form of essentials of fatty acids), which are often present at levels of about 0.2-2 micrograms/g Links - Fernandez-Megia, Eduardo; Correa, Juan; Rodriguez-Meisoso, Irene; Riguera, Ricardo (2006). Click the approach to unprotected glycodendrimers. *Macromolecules*. 39 (6): 2113–2120. Bibkod:2006MaMol. 39.2113F. doi:10.1021/ma052448w. Philip H. Howard; Muir, Derek K.G. (2010). Identification of new persistent and bioaccumulated organic substances among chemicals in the trade. *Environmental science and technology*. 44 (7): 2277–2285. Bibkod:2010EnST... 44.2277H. doi:10.1021/es903383a. PMID 20163179. - IFST issues a statement on 3-MCPD - Food Standards Agency - 3-MCPD in soy sauce and related products - As. Archive from the original 2014-02-22. 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