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I  
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# UNIFood Conference

Predavanje i usmene prezentacije u okviru sekcija/Lecture and oral presentation within sections  
BEZBEDNOST I KVALITET HRANE / FOOD SAFETY AND QUALITY



BKH23 / FQS23 U/O

## Faktori hazarda u proizvodnji bezbedne hrane za životinje i ljude

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Hrana za životinje predstavlja materiju koja uneta peroralnim putem u organizam, a posle resorpcije oslobođenih sastojaka iz digestivnog trakta, obezbeđuje energiju, gradivni materijal i pomaže odvijanje fizioloških i biohemijskih procesa. U oblasti proizvodnje hrane kako za životinje, tako i za ljude dominantna su dva kriterijuma, ekonomičnost i proizvodnja visoko vrednih, ali i bezbednih namirnica animalnog porekla. Bezbednost hrane za životinje uključuje aspekt neškodljivosti za ljude i životinje. Postoje biološke, hemijske i fizičke opasnosti značajne za bezbednost hrane za životinje koje mogu da se prenesu preko hrane za životinje i samih životinja do hrane za ljude (meso, mleko, jaja). Dioksin i jedinjenja slična dioksinu su sporedni produkti različitih industrijskih procesa. Spadaju u najtoksičnije ekološke zagađivače i kancerogene supstance. Najopasniji dioksin je tetrahlordibenzo-*p*-dioxin-TCDD. Dioksini se raznose vazduhom i talože u vodi i zemljištu odakle ulaze u lanac ishrane, kao i u tkiva svih živih bića. Čovek u svoj organizam unosi oko 80% dioksina preko hrane animalnog porekla. Zakonska regulativa u Srbiji ne dozvoljava prisustvo dioksina u hrani bez obzira da li je namenjena ishrani ljudi ili životinja. Pored dioksina, veliku pažnju stručne i naučne javnosti privlače i mikotoksini. To su ekstracelularni metaboliti plesni koji imaju kancerogeno, teratogeno i hepatotoksično dejstvo na ljude i životinje. Glavni put unošenja mikotoksina je ingestijom kontaminirane hrane, a poseban problem predstavlja mogućnost da se u organizmu životinje koja je uzimala kontaminiranu hranu mogu naći rezidue (mikotoksini i njihovi metaboliti) u različitim koncentracijama, tako da može doći do ispoljavanja štetnih efekata i kod ljudi. Aflatoksini su produkti sekundarnog metabolizma plesni *Aspergillus flavus* i *Aspergillus parasiticus*. Opasnost predstavlja činjenica da se aflatoksini biotransformišu u jetri, a da se jedan od njegovih metabolita aflatoksin M izlučuje putem mleka.

### Hazards in production of safe feed and food

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Feed are substances that, when being ingested and absorbed in gastrointestinal tract of the animal, provide energy and building material for the body and help physiological and biochemical processes to be carried out. Two criteria are crucial in the field of feed and food production: cost effectiveness and the production of safe product with high biological value. Feed safety includes the aspect of harmlessness for humans and animals. There are biological, chemical and physical hazards that are important for the feed safety. Those hazards can be indirectly transferred to humans through the feed and food-producing animals to food of animal origin (meat and meat products, milk and dairy products, eggs). Dioxin and dioxin-like substances are byproducts of different industrial processes. They are one of the most poisonous pollutants and carcinogenic substances. The most poisonous dioxin is tetrahlordibenzo-*p*-dioxin-TCDD. Dioxins are being transferred throughout air and precipitate in the soil and bodies of water, from where they can enter either feed and food chain, and consequentially the tissues of animals and humans. About 80% of dioxins are resorbed in human body from the food. Serbian legislative does not allow presence of dioxins nor in the feed or food. In addition to dioxin, mycotoxins also attract attention of the expert and scientific public. Mycotoxins are extracellular metabolites of molds which are cancerogenic, teratogenic and hepatotoxic. Mycotoxins are mainly ingested with the contaminated food. Moreover, residues of mycotoxins in different concentrations can be found in the food produced from animals that were fed with the contaminated feed. Aflatoxins are secondary metabolism's products of *Aspergillus flavus* and *Aspergillus parasiticus*. Aflatoxins are being biotransformed in the liver and one of the byproducts of biotransformation, aflatoxin M, is being excreted with milk.