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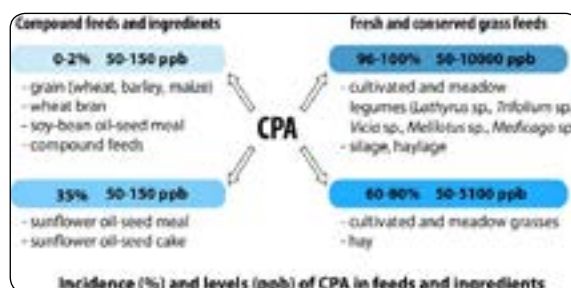
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## Mycotoxological monitoring: Occurrence of cyclopiazonic acid in a wide variety of feeds

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Cyclo-Piazonic acid (CPA) is a well-known mycotoxin, which is toxic to animals and also has been implicated in human poisoning. Researchers have reported that this toxin can be produced by the ubiquitous genera of molds *Aspergillus* and *Penicillium* and can participate in contamination of agricultural commodities and feeds. However, the occurrence of the toxin in a wide variety of feeds has not been previously studied. The purpose of this study is to describe the incidence and levels of CPA in feed grain, processed feedstuffs, full-ration compound feeds, as well as in fresh and conserved grass feeds. The study using indirect ELISA was conducted for the samples collected at the farms located in the European Russia in 2008–2017. Total incidence of CPA in compound feeds used for pigs and poultry was calculated for 1038 specimens and amounted to 0.7% but ingredients differed in frequency of contamination. The toxin was absent in barley grain ( $n=135$ ) and wheat bran ( $n=19$ ) and rarely detected in wheat grain (0.5%,  $n=228$ ), maize grain (1.5%,  $n=64$ ) and soy-bean oil-seed meal (2.0%,  $n=41$ ). The incidence in sunflower oil-seed meal was much higher (35%,  $n=89$ ). CPA levels in compound feeds and all analyzed ingredients were the same with the maximum content 150 ppb. In contrast, incidence in wild meadow and cultivated grasses ( $n=238$ ) and hay ( $n=133$ ) was quite high (60–80%) and reached maximum (96–100%) in leguminous grasses ( $n=812$ ), haylage ( $n=99$ ) and silage ( $n=94$ ). Amounts of CPA in haylage and silage attained 5000 and 10,000 ppb respectively. So, the highest incidence and levels of CPA are observed in fresh and conserve grass feeds however until now, no specific regulations exist for the toxin. Recommendations are made for further toxicological evaluations of CPA especially for pigs which appear to be quite sensitive to CPA as well as ruminants.



### Recent Publications

1. Chang P K, Ehrlich K C and Fujii I (2009) Cyclopyazonic acid biosynthesis of *Aspergillus flavus* and *Aspergillus oryzae*. *Toxins* 1:74–99.
2. Frisvad J C, Smedsgaard J, Larsen T O, Samson R A (2004) Mycotoxins, drugs and other extrolites produced by species in *Penicillium* subgenus *Penicillium*. *Studies in Mycology* 49:201–241.
3. Hayashi Y and Yoshizawa T (2005) Survey of cyclopiazonic acid contamination in corn from China and Southeast Asian countries. *Mycotoxins* 55:3–8.
4. Oliveira C A F, Sebastiao L S, Fagundes H, Rosim R E and Fernandes A M (2008) Aflatoxins and cyclopiazonic acid in feed and milk from dairy farms in San Paulo, Brazil. *Food Additives & Contaminants. Part B, Surveillance* 1:147–152.

### Biography

Alexey A Burkin is a Principal Investigator of Mycotoxicology Laboratory at All-Russian Research Institute for Veterinary Sanitation, Hygiene and Ecology, Moscow from 1995. He is a specialist in the field of analytical immunochemistry and author of more than 50 international scientific publications. His scientific work is devoted to monitoring of the mycotoxins in agricultural commodities and development of ELISA methods for mycotoxins, antibiotics and hormones determination.

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