

# Pighealth BYTES

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## Mycotoxins V

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## Ochratoxin and citrinin

Ochratoxin is a fungal nephrotoxin and citrinin is a related nephrotoxin. Both can be found on maize, wheat, rye, oats and barley and so tend to be in temperate grass regions. Toxicoses have been encountered in pigs fed contaminated maize in the USA.

## Toxicity

Toxicity is related to the binding of ochratoxin A in specific renal organic ion transporters and this results in the inhibition of phenylalanine metabolising enzymes, adenosine triphosphate production and lipid peroxidation. Ochratoxin is also a genotoxic carcinogen via oxidative DNA lesions.

The immunosuppressive effects of ochratoxin are the result of a combination of suppressed lymphocyte proliferation and interference with the complement system.

## Pathology

The primary effects of ochratoxin are in the proximal renal tubules and ochratoxin fed to pigs at a level of 1.0ppm in the diet for three months is associated with polydipsia (excessive drinking), polyuria, depressed growth and a deterioration of FCR.

Levels as low as 200ppb can produce detectable kidney lesions.

Sometimes additional clinical signs are seen, such as diarrhoea, anorexia and dehydration and the only effect of the ochratoxin at meat inspection are pale, firm kidneys.

## Immunosuppression

Ochratoxin can cause a dose related spontaneous occurrence of Salmonella cholera infection in piglets fed the mycotoxin at 1.0 or 3.0ppm. Other diseases seen concomitantly with ochratoxin induced immunosuppression are those caused by Campylobacter coli and Serpulina hyodysenteriae (swine dysentery).

## Diagnosis

Diagnosis of ochratoxin related problems in pigs requires the confirmation of ochratoxin and/or its metabolites in feed or fresh kidney samples combined with a typical history and appropriate post mortem findings.

## Control

In countries/areas where ochratoxin contamination of the feed occurs, appropriate anti-mycotoxin products can be used.