Ochratoxin A

CAS*:* 303-47-9
MF: $C_{20}H_{18}ClNO_6$
MW: 403.82
log Kow= 4.74
Solubility: the sodium salt of ochratoxin A is soluble in water. As acid, moderately soluble in organic solvents (e.g. chloroform, ethanol, methanol, xylene).

Major use
Ochratoxin A is a mycotoxin derived primarily from *Aspergillus ochraceus* and *Penicillium viridicatum*. Ochratoxin A is commonly found on grains and corn [2]. It also has been found in human food and blood, as well as in animal feed [2]. It is not produced commercially, but used as research chemical.

Human toxicity
Ochratoxin A is a nephrotoxic agent associated with Balkan endemic nephropathy in humans. It also causes adverse renal and liver effects and enteritis in some animals studied. There is limited evidence of possible pulmonary effects in humans and animals [2]. The effects in humans are mostly unknown [2]. A rough estimation of toxicity based on a very sensitive species (beagles) was done.

Lethal symptoms: renal failure [1].

Carcinogenicity: ochratoxin A is possibly carcinogenic to humans [2].

Kinetic data
The human data on kinetics are not available.

Protein binding: 100% [1].

Metabolism and excretion
The biotransformation of ochratoxin A has not yet been elucidated; however, recent studies *in vitro* have shown that ochratoxin A is converted into DNA-reactive metabolites.

Toxicological mechanisms
Ochratoxin A causes an early accumulation of glycogen in the cytoplasm of rat liver cells, which decreases rapidly (within 4 hours of an administered dose). It also causes an inhibition (site unknown) of the phosphorylase enzyme system. Toxicity of ochratoxin is related to the acid dissociation constant of the phenolic hydroxyl group [2].

Target organs: kidney.

References

1. HSDB, TOXNET (2005).
2. Poisindex, Thomson Micromedex (2006).

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