

Oosporein



Oosporein—A mycotoxin belonging to a class of pigment compounds known as quinones and is produced by several genera of fungi that occur on cereal grains and other substrates. The natural occurrence of oosporein has not been sufficiently studied. When isolated in fairly pure form using thin layer chromatographic conditions and viewed under visible light the compound is red on the silica gel plate. Pure crystalline material is red also.

Producing organisms—The original description of this mycotoxin was from its production by the fungus, *Oospora colorans*, but since the original isolation it has been reported to be produced by fungi such as *Acremonium*, *Chaetomium*, *Penicillium*, and *Beauveria*.

Field occurrence—The conditions that might allow for the formation of oosporein in cereal grains is not known and, as stated above, little is known of the natural occurrence of this compound. However, several of the fungi capable of producing oosporein have been isolated from grains and laboratory studies have shown that such grains can support formation of the compound. Corn contaminated with *Chaetomium trilaterale* contained 300 ppm of oosporein but under, more or less, ideal conditions for production. More information is needed as to whether oosporein occurs naturally in a variety of grains or other crops. Concern for the occurrence in crops usually exists only when a problem similar to the type of toxicity caused by oosporein occurs in animals. Unfortunately, the methods of analysis are inadequate to find this mycotoxin in mixed feeds and other complex matrices.

Storage conditions favoring oosporein—Again, no information is available regarding the importance of the initiation of oosporein production in stored grains. However, one would expect that conditions that favor growth of molds in grains would also be applicable to the fungi that produce oosporein. Therefore, storing grain at <14% moisture and keeping it in that state is important to keep oosporein from being formed in storage.

Toxicity impact—The information on the toxicity of oosporein is from experimental studies in animals, most of which have been conducted in poultry. In most studies the levels of dietary oosporein were quite high to get the conditions typical of oosporein toxicity. Oosporein is primarily a nephrotoxic compound affecting the renal tubules of the kidney causing a malfunction of the tubules in the elimination of fluids. This condition then causes the precipitation of urates (uric acids) in the kidneys and on the serosal surfaces of several body organs and in severe cases may occur within the liver and spleen. Similarly, muscle tissue and tendons and joints may be involved in severe cases. The general condition produced by oosporein in poultry is known as visceral gout. This condition may have several different causes in poultry but oosporein may be an important cause and should be suspect in cases of visceral gout. Although high levels of oosporein were required to produce these lesions in poultry it is unknown whether these levels are meaningful since the levels of occurrence in grains is not known.

There are no regulatory actions for oosporein or the producing fungi.