

Mycotoxins

Description

Mycotoxins are secondary metabolites of fungi. The most important mycotoxicosis in fish is caused by aflatoxins, which is produced by *Aspergillus flavus* and *Aspergillus parasiticus*. Aflatoxins appear fluorescent under U.V. light and are named aflatoxins B or aflatoxins G when the colour is blue or green, respectively. Aflatoxin B1 is the most potent one (Guillaume *et al.*, 1999). Their chemical characteristics and biological activities are very wide and able to cause different pathology and pathohistological changes in fish (Jakic-Dimic *et al.*, 2005). Aflatoxins are also very potent carcinogenic (Guillaume *et al.*, 1999).

Aflatoxicosis signs include pale gills, impaired blood clotting, anaemia, poor growth rates or lack of weight gain, liver tumours, and increased mortality. Moreover, aflatoxins can depress the immune system by destroying some essential nutrients in the diet (e.g., vitamins A & C, and thiamine) (Royes & Yanong, 2002).

Occurrences

Moulds are common contaminants of oilseeds and associated by-products (particularly groundnut), but they can also be found in cereals and complete feeds. Ingredients become contaminated with fungi in the field, during processing, storage, transport and usage. Moisture levels in the feed (above 14%), temperature (above 27° C), humidity (above 62%), aeration and presence of other microorganisms are important factors influencing the presence of mycotoxins (Royes & Yanong, 2002; Jakic-Dimic *et al.*, 2005).

Treatment

Prevention is the recommended measure to avoid mycotoxins. Feeds should be stored in a cool and dry area. Regular testing is possible by inspecting visually the feed (with or without black light), or by the mean of commercial detection kits. When moulds are detected in small quantities, a commercial inactivator can be purchased. However, heavily contaminated feeds and ingredients should be discarded (Royes & Yanong, 2002).