

# The role of bugs in contamination of pistachio nuts to aflatoxin

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## Abstract

Aflatoxin contamination of pistachio is one of the most important problems in pistachio orchards. In general, mycotoxins occur in a wide variety of foods and feeds and have been implicated in a range of human and animal diseases. Exposure to mycotoxins can produce both acute and chronic toxicities ranging from death to deleterious effects upon the central nervous, cardiovascular and pulmonary systems, and upon the alimentary tract. Mycotoxins may also be carcinogenic, mutagenic, teratogenic and immunosuppressive. Insects and mites (arthropods) can also make a significant contribution towards the biodeterioration of plant products because of the physical damage and nutrient losses caused by their activity, and also because of their complex interaction with moulds and mycotoxins. The metabolic activity of insects and mites causes an increase in both the moisture content and temperature of the infested plants. Arthropods also act as carriers of mould spores and their fecal material can be utilized as a food source by moulds. Furthermore, moulds can provide food for insects and mites but, in some cases, may also act as pathogens. So, in this research the role of bugs in contamination of pistachio nuts to aflatoxin was evaluated. In order to, in the 'Ohadi' cultivar different kinds of pistachio nuts were sampled that contained damaged and undamaged closed pistachio nuts, damaged and undamaged intact pistachio nuts, damaged and undamaged pistachio nuts with irregular cracked hull and damaged and undamaged early splitting pistachio nuts. The amounts of aflatoxin of samples were measured with HPLC method. The results showed damaged closed nuts do not have any contamination and damaged ripping nuts with intact hull do not either. But damaged early splitting pistachio nuts have more contamination than the same intact ones. Irregular cracked pistachio nuts in comparison with undamaged the same have more contamination. The most contamination was observed in damaged early splitting pistachio nuts. These results revealed bugs have a role in contamination of pistachio nuts to aflatoxin especially in early splitting pistachio nuts are attacked by bugs.