Toxicological features of T-2 toxin and related trichothecenes.

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Abstract

Toxicological characteristics of T-2 toxin and related trichothecenes, mycotoxins produced by Fusarium, Trichoderma, Verrucaria, and others, were investigated in regard to LD50 values, dermal toxicity, hematological changes, and tumorigenicity. The LD50 values (mg/kg) of T-2 toxin in adult male mice were po 10.5, ip 5.2, sc 2.1, and iv 4.2, and those of nivalenol were ip 4.1 and iv 6.3. These data showed that the lethal toxicity of T-2 toxin and nivalenol was about 10 times higher than deoxynivalenol. Newborn and immature animals were much more susceptible than adults. Inhalation experiments with T-2 toxin revealed that 33 ppb T-2 toxin for 160-min and 140 ppb T-2 toxin for 30-min exposure were enough to cause death in mice within several days. The dermal toxicity of T-2 toxin and macrocyclic trichothecenes ( verrucarin A and roridin A) was significantly higher than the other trichothecenes, and the induction of edema and other dermal toxicities is caused by direct attack of the trichothecenes on the capillary vessels. No tumorigenicity of fusarenon-X to dermal tissues was shown in mice. Pretreatments of mice with SH-compounds, prednisolon, phenobarbital, and 3-methylcholanthrene did not change the LD50 value of T-2 toxin.

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