

The effects of cantharidin analogues on xanthine oxidase.

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Abstract

Norcantharidin[3], the demethylated product of cantharidin[1] has been used for the treatment of hepatoma, carcinomas of esophagus and gastric cardia, leukopenia and hepatitis. Since the enzyme xanthine oxidase is involved in the diseases mentioned above, and the reactive oxygen species produced by the enzyme induces DNA damage and oxidative damage of tissues, fourteen cantharidin analogues and cantharidimide derivatives were tested for their effects on xanthine oxidase. The results showed that these compounds, listed in Figure 1, displayed very weak inhibitory effects on xanthine oxidase. Contrary to expectation, disodium cantharidate [2], Norcantharidin [3], dehydronorcantharidin [4], disodium dehydronorcantharidate [5], N-(2-pyridyl) cantharidimide [12], N-(3pyridyl) cantharidimide [13] and N-(4-pyridyl) cantharidimide [14] showed a slight stimulating effect on xanthine oxidase at several concentrations.