Indian Journal of Experimental Biology
Vol. 62, April 2024, pp. 273-280
DOI: 10.56042/ijeb.v62i04.3010

Acute toxicity of bee venom from *Apis mellifera* L. in mice: A histopathological study

Miaomiao Liu, Li Huang, Shuguo Zhao, Jianhua Lv & Huiting Zhao*

College of Life Science, Shanxi Agricultural University, Taigu 030801, Shanxi, China

Received 08 March 2023; revised 26 June 2023

Although the toxic effects of bee venom (BV) in humans are known, there are only a few systematic studies are available in literature. Here, we have evaluated the potential toxicity of BV from *Apis mellifera* L. (Hymenoptera: Apidae) by studying acute toxicity in mice receiving subcutaneous injections of high (120 mg/kg), medium (60 mg/kg) and low (8 mg/kg) doses of BV. General toxicity symptoms and histopathological changes were recorded for 14 days. The results indicated that high-dose BV could be fatal. The mental state, appetite, and respiration of mice in the medium- and high-dose groups changed in varying degrees; higher doses led to more prominent symptoms (LD_{50}, 119.7 mg/kg). BV in medium- and high-dose groups significantly inhibited weight gain in mice within 2 days, which did not significantly differ between the dose groups and control at the later stage. The hemolysis rate was significantly higher in the low-dose, while in the medium- and high-dose groups, the coagulation time significantly prolonged in male mice. Histopathological changes showed that medium- and high-dose groups exhibited toxicity to tested organs. Our study showed that BV exhibited strong toxicity at higher concentration and is relatively safe when the BV concentration is lower than 8 mg/kg.

Keywords: Acute toxicity, Coagulation, Hemolysis