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تأثير المادة اللبنية لنبات العشر على الجراد الصحراوي شيستوسيركا جريجيريا *Schistocerca gregaria*

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Abstract : The aim of this research is to study the effect of the purified latex of usher (Calotropis procera (Ait.)) on Schistocerca gregaria Forskal. The LD50, symptoms of toxicity were determined as well the effect on digestive system tissues and flight muscle. Schistocerca gregaria Forskal (male and female) were obtained originally from the research station of the agriculture ministry branch (Jeddah) and maintained in the department of Biological Science (Faculty of Science - King Abdulaziz University) in a similar condition. Crude usher latex was collected from about two meter height plant from university campus by partly broken stem tip. The latex was collected in conical flasks surrounded by crushed ice. In order to remove inert coagulum, latex was partly purified by centrifuge before injection to insect haemocoel. Sixty insects (male and female) were used in each experiment. They were divided into six groups, and five groups were injected by purified latex (10, 20, 30, 40, and 50 µl) into the haemocoel by Hamilton microsyringe between the second and the third abdominal sterna. Group six was injected by distilled water and used as control. The treated insects were observed for two hours to determine the symptoms of toxicity and scrutinize after 24 and 48 hours to compute the mortality rate. The symptoms of toxicity appear within 5 minutes after injection and were as follow: restlessness, slow motion, attempt to jump and fluttering their wing. After 15 minutes the symptoms were paralysis of the hind legs, lost the ability to walk and followed by death. The result showed that the Calotropis procera latex is very toxic to Schistocerca gregaria as indicated by the relationship between dose volume as well as the time after injection and mortality rate. The mortality rate were 10% and 30% in insects injected with 10 µl purified latex after 24 and 48 hours after treatment, while the mortality rate of those injected with 50 µl were 90% and 100%, respectively. Estimated lethal doses (LD50) were 8.3 ± 5 and 5.1 ± 3 microleters of purified latex after 24 an 48 hours of injection, respectively. Histological study showed severs damages in epithelial cells of digestive system as well as abnormal particles precipitate in muscle, which were highly contracted. The normal flight muscle striations were disturbed and some myofilaments also fragmented. It can be concluded that the latex of usher plant is highly toxic to Schistocerca gregaria and further study is needed on practical aspect of extraction, purification and application of usher latex on insect control.

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