# Side effects of ethanolic extract of *Pistacia atlantica* and *Calotropis procera* on *Schizaphis graminum* Rondani (Hemiptera: Aphididae)


## Abstract

greenbug aphid (*Schizaphis graminum*) *is* of the most important pests in wheat that causes damage with feeding on plant sap and transmission of viral diseases. Nowadays considering the importance of human health and the environmental protection, reduction of pesticide use in the pest control program is essential. In this study, toxicity and sublethal effects of leaf ethanolic extract from *Pistacia atlantica* and *Calotropis procera* on greenbug aphid were studied on the adults of greenbug aphid in laboratory conditions. The results showed that the mortality rate of test insects increased significantly with rising essential oil concentration 24 hours after treatment. $LC_{50}$ value for the Calotropis procera and Pistacia atlantica, obtained 10.76, 12.40 mg/ ml. leaf ethanol extract of *Calotropis procera* showed more toxic than the ethanol extract of *Pistacia atlantica on* greenbug aphid. Also, For studying sublethal effects of leaf ethanolic extract *Calotropis procera*, *Pistacia atlantica*, Control and treatment with ethanol and the survival and birth rate of greenbug aphid was recorded under laboratory conditions and fertility life table parameters were estimated. Based on the results, the net reproductive rate ($R_0$) of control and treatment with ethanol, were 73.41 and 72.20 female/female, respectively. While in $LC_{20}$ of *Calotropis procera* and *Pistacia atlantica* ethanolic extract, the $R_0$ were 47.12 and 64.31 female/female, respectively. as well as the intrinsic rate of population increase ($r_m$) at sublethal concentration of 20%, *Calotropis procera*, *Pistacia atlantica* leaf ethanolic extract to,Control and treatment control with ethanol 0.4134, 0.4180, 0.4574 and 0/4264 female/female /day and the finite rate of population increase ($\lambda$) equal to 1.32, 1.33, 1.39 and 1/38 female/female /day was calculated. Mean generation time (T) is equal to 9.53, 9.49, 9.40 and 9.47 day. The parameters of the population growth reviews in sublethal concentrations 40% *Calotropis procera*, *Pistacia atlantica* leaf ethanolic extract net reproductive rates ($R_0$) to arrange 37.31 and 55.66 female/female the intrinsic rate of population increase ($r_m$) against 0.3347 and 0.4080 female/female/day, the finite rate of increase ($\lambda$) equal to 1.31 and 1.33 female/female/day and the mean generation time (T) is equal to 9.84 and 9.80 days. The results of this study showed that view the significant reduction in population growth parameters greenbug aphid in sublethal ethanolic extract concentrations in for two plant in comparision of control.



Keywords: Milkweed, Wild pistachio, Bioassay, Greenbug, Intrinsic rate of increase

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