

The Potential of Using Insecticidal Properties of Medicinal Plant *Gymnema sylvestre* (R.br) Against *Sitophilus oryzae* (L.)

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Abstract

Preservation of herbs in storage is essential for safer consumption. Insect pest damage leads to losses in quantity and quality of herbal products in storage. Hence to manage storage pests, botanicals extracted from the medicinal herb, *Gymnema sylvestre* were tested for their insecticidal activities. Seven different formulations of *G. sylvestre* leaves were studied for their effect on mortality and progeny production against stored product pest, *Sitophilus oryzae*. Adults of *S. oryzae* were exposed to the treated rice and the mortality was assessed after 24h, 72h, 7days, 14days and 21 days of exposure. Then all adults were removed and the treated substrate remained at the same conditions for an additional 30 days, after this interval the commodity was checked for progeny production. Exposed pest showed mortality in all formulations and the average mortality percentages indicated that the extracts used caused significant mortality on the target insect. Observed mortality percentage increased with increase in time intervals after application but the extract concentration had no significant effect. Cumulative mortality (71.1%) and progeny suppression (60.9%) were higher in leaf extract. Separately ethanolic extract was assessed for mortality by residual film assay and the mortality was 100% at 24h at 100mg dosage. LD₅₀ value was found as 25mg and 17.5 mg for 24h and 48h, respectively. Therefore, these results indicate that *G. sylvestre* can be used for protection of stored products from infestations of stored product insect pest *S. oryzae*.