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Bio-efficacy of Neemazal-T/S on rice brown planthopper, Nilaparvata lugens (Stal)

Brown Planthopper (BPH) *Nilaparvata lugens* (Stal) is one of the major rice pests in tropical Asia. Most farmers depend heavily on insecticides for the control of this exclusive rice pest. Recent concerns for the effect of synthetic insecticides on the environment and human health have provided the impetus for a reappraisal of the utility of neem (*Azadirachta indica* A. Juss) derivatives as a botanical crop protectant. Neem and its active ingredient, the limonoid azadirachtin have several properties that are highly desirable for a natural insecticide. Neem products have shown diverse biological effects against insects. A laboratory culture of the brown planthopper was maintained on a susceptible rice variety Bg 94-1. Bioassays were carried out using rice plants and 3rd - 5th instar nymphs of BPH. Azadirachtin concentrations were prepared by using neem seed based insecticide Neemazal-T/S.

The present investigation was carried out to evaluate systemic action of feeding, insecticidal and growth activity of five different concentrations of azadirachtin on *N. lugens*. Food intake of *N. lugens* was measured by honeydew excretion. Food intake decreased with the increasing concentration, indicating that there was a distinct antifeedant effect. The five dosages of azadirachtin caused significantly higher level of mortality compared with the control. The highest mortality was observed with 50 ppm azadirachtin solution. Both treatments (Neemazal-T/S systemically treated and sprayed plants) were highly effective causing growth inhibition and moulting disturbances in BPH. The study revealed that the active ingredient, azadirachtin can be used successfully as a potential systemic pest control agent against *N. lugens*.