

Research Paper :

## Bio-efficacy of certain grain protectants against groundnut bruchid, *Caryedon serratus* (Olivier)

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### SUMMARY

Effect of certain grain protectants against groundnut bruchid *Caryedon serratus* was studied in the laboratory. It indicated that the treatment with sweet flag rhizome powder (10 g/kg) was found to be effective in disrupting the bruchid development by recording pods with no eggs, no pod damage and no adult emergence for the first two months. The pods treated with neem seed kernel powder (10 g/kg) protected the pods effectively against *C. serratus* for the first two months by recording 1.69 and 2.06% pod damage. Spinosad and deltamethrin proved their merit throughout experimental period by achieving zero per cent pods with egg, pod damage for first two months and adult emergence for first three months after treatment.

### Key words :

Neem, Sweet flag, Spinosad, Deltamethrine, *Caryedon serratus*

Groundnut (*Arachis hypogaea* L.) is an important oilseed crop in many parts of the tropics, particularly in semi-arid areas. It is the world's fourth most important source of edible oil and third most important source of vegetable protein. The high oil (50 per cent) and protein (35 per cent) contents of groundnut serve the world's need for food, energy and industrial uses and is rich source of minerals (calcium, magnesium etc.) and vitamins (E, K and B group). It is highly difficult to store the oilseeds as they suffer a great damage during storage due to insect pests and micro-organisms. It is truly said that "a grain saved is a grain produced". At present, the only solution for stabilizing per capita availability is to reduce storage losses. Groundnut is stored as both pods and kernels and, both of these are susceptible to insects, fungi and mites in storage. One hundred insect species are reported to attack the stored groundnuts (Redlinger and Davis, 1982). Of these, eight insect species are of major importance and six are of minor importance. Among them, the groundnut borer/groundnut bruchid, *Caryedon serratus* (Olivier) is a well known pest of economic importance. It has been reported as a pest of international importance in stored groundnut and is wide spread in various groundnut growing areas of the world (Davey, 1958).

*C. serratus* causes heavy loss in quality

and quantity of stored groundnut. The extent of damage of bruchid was recorded as 77 per cent in pods by Kumari *et al.* (2002) and 50 to 70 per cent by Devi and Rao (2000). Indiscriminate use of toxic pesticides for preventing storage losses in groundnut may lead to human and animal health problems due to residual hazards. Therefore, usage of botanicals and less residual insecticides is of great importance.

### MATERIALS AND METHODS

Studies on the management of groundnut bruchid, *C. serratus* was conducted in the Department of Entomology, College of Agriculture, Rajendranagar, Hyderabad during November, 2007 to June, 2008. Twenty five pairs of freshly emerged adult beetles were released into glass jar (20 x 10 cm) containing 250 g of groundnut pods. The mouth of the jar was covered with muslin cloth and held tight with rubber bands. Ten such jars were maintained for mass culturing of the bruchids. The adult beetles were removed after ten days and the jars were kept undisturbed till the emergence of adults. The freshly emerged adults were used in the experiment (Sandeep, 2005). The potential efficacy of grain protectants *viz.*, neem seed kernel powder, sweet flag rhizome powder, deltamethrin and spinosad was evaluated against groundnut

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