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RESEARCH PAPER

Study of edible and non-edible oils for protecting of green gram seed during storage against *Callosobruchus maculatus*

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Abstract : The pulse beetle, *Callosobruchus maculatus* Fab. is most injurious to stored pulses having an important position among the stored pests. Considering the importance of the pest, attempt have been made to protect the pulses with edible and non-edible oils *viz*., sesame oil, mahua oil, coconut oil, mustard oil, groundnut oil, soybean oil, castor oil, karanj oil, neem oil and linseed oils. The ten oils of four doses selected for present investigation were also for assessment of these oils to record the per cent grain damage and per cent loss in seed weight at 150 days after treatment. Castor oil was most effective in which no seed damage and per cent loss in seed weight were recorded and it was found significantly superior to the rest of the treatments except neem oil. Whereas maximum seed damage (16.33%) and weight loss (13.56%) were found in coconut oil with the treatments 2.5 ml./kg. seed. Up to 90 days after treatment no loss in seed weight was found in mahua oil, groundnut oil, soybean oil, Castor oil, karanj oil and neem oil treatments.

Key Words : Edible and non-edible oils, Green gram, Storage, *Callosobruchus maculatus*

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INTRODUCTION

The pulse beetle *C. maculatus* is one of the important pest of tropical and sub-tropical region and it attacks wide range of legume (Gita and Smith, 1986). The total damage in terms of weight loss due to pest in storage pulse (5month period) was estimated to 60 per cent (Tenzubil,1991; Credlend and Dick, 1987). In India approximately 50 per cent loss of stored pulse occurred due to a attack by insect pests within a period of three months (Hussain and Abdul Al, 1982).Pulse are more difficult to store than cereals. These suffer great damage due to insect pests. Among insect pests bruchids are known to inflict quantitative and qualitative losses to the store pulses. In insect pest management programme, use of conventional insecticides has caused problems, such as the development of resistance, toxic residues,worker safety and increasing costs. Hence, there is a growing interest among the entomologists the world over search for alternatives which would minimize adverse effects on ecosystem. In this context the use of edible and non-edible oils used as grain protectants against pulse beetle, *C. maculatus* infesting green gram under laboratory condition.

MATERIALS AND METHODS

Present investigations Studies on use of edible and non-edible vegetable oils against pulse beetle, *Callosobruchus maculatus* (Fab.), was conducted under laboratory conditions in department of Zoology, Holkar Science College, Indore (M.P.) in the year 2008.

To work out losses and optimum concentration of the oils, green gram seed were treated with different concentrations of most effective oils *i.e.* sesame oil, mahua oil, coconut oil, mustard oil, groundnut oil, soybean oil, castor

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