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ORIGINAL ARTICLE

Bio-efficacy of Various Plant Products on Fecundity and Incubation Period of *Callosobruchus maculatus on Gram Varieties*

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ABSTRACT

The effect on life processes of Callosobruchus maculatus on gram efficacy varieties was recorded in gramvarieties treated with various plant products viz. Mesva ferrea (seed). Leucas linifolia (seed). Saraca asoca (seed). Mentha pipertia (leaves). Eucalyptus dives (leaves). Tarminalia chebula (seed). Aristo lochiabraceata (seed). Beta vulgaris (leaves). Marina laongi folid (seed). Asparagus racemosus (seed). All grain protectants were found to be significantly superior in affecting the life processes of the pest over untreated check. Mesva ferrea seed was found to be the most effective insecticide in reducing number of eggs laid. The incubation period was significantly different in various grain protectants, used in the present investigation.

Key words: *Bio-efficacy, treated plant, Grain protectants*

INTRODUCTION

Amongst the cereals, gram is the most important crop of India grows extensively throughout the world in an area of 22.4 million hectares, with an annual production of 11.57 million tons. out of the total production of food grains,70 percent is stored traditionally by the farmers by their own consumption, seed and wages and rest about 30 percent surplus food grain are handed over to traders and government agencies in our country. The field studies, conducted on the effect of different grain protections on germination of seed revealed that none of the plant product impaired the germination *Callosobruchus maculatus* is the most noxious depredator of gram in storage. The protection of gram from the stored grain pests is one of the most important challenging problems. Even if one third of these losses are saved, we can feed 8 to 9 million people of our country all round the year with these savings.

MATERIAL AND METHODS

Seed and leaves of *Mesuaferrea, Terminalia chebula, Asparagus racemosus, Leucas linidlia, Maeina longifolia, Beta vulgaris, Eucalyptus dives, Mentha pipertia, Aristolochia bracteta, Saracaasoca*.were collected and dried in shad. The fully dried plant materials of each plant were powdered with the help of common domestic grinder and filtered with 60 mesh sieve. The grounded powder was kept into labeled air tight bottles for use in the experiments. The extracts of these were prepared by Soxhlet extraction method using acetone as solvent. 30 grams of leaf powder and 300 ml of solvent was taken for the extraction keeping the ratio of 1:10. After 8 hours of extraction, the extracts were filtered using whattmans filter paper and kept in the refrigerators stock solution. Further dilution was done with the solvent to get the desired doses for the experiments.

RESULT AND DISCASION

The female laid the minimum number of eggs 9.66 on grain treated with *A. bracteata* was at par with *M. pipertia* (10.33). The maximum fecundity of the pest was recorded *S. asoca* (57.00) per cent the grain treated *M. longifoliya*, *T. Chibula, L. linifoliya, B. vulgaris, A. recimosus, M. ferrea* and *E. dives* being 16.33, 19.66, 22.66, 24.23, 31.33, 39.33 and 41.66 percent show thetable and figure respectively. Theses observation is in agreement with the result of Manfuj, *et al.,* (2007) contact and fumigant toxicity of essential oils against *Callosobruchus maculatus*, Pandey and Srivastava

(2008); Alish, *et al.,* (2013); Creadland (1987); Fox and Reed (2010); Fox, and Reed (2011); Singh, *et al*., (2008); Nazar *et al.,* (2009). The *A. bractieata* seed provide the incubation period 11.97 at par with *M. pipertia, M. longifoliya* and *T. chebula* being 11.89, 11.65 and 11.08 days respectively. The maximum incubation period *S.asoca* 8.03 days the incubation period obtain form the grain treated with *L. linifoliya*, *B. vulgaris , A. racimosus, M. ferrea* and *E. dives* having 10.89, 10.45, 10.03, 9.78, and 9.06 days respectively. All the grain protectants manifested their superiority over control (4.02) in incubation period show the table and figure. The similar result are found *Cope* and fox (2003); Jakhmola, *et al.,* (2004); El-Halfawy, *et al.,* (1972); Bootang and Kusi (2008); Ketoh, *et al.,* (2005); Srivastava and singh, (2002); and Lee, (2004).

Table 1: Effect of different safer plant product on fecundity, incubation period of *Callosobruchus maculates*

Plant	fecundity (leg/female)	Incubation (period)
Mesva ferrea	39.33	9.78
Leucas linifolia	22.66	10.89
Saraca asoca	57.00	8.03
Mentha pipertia	10.33	11.89
Eucalyptus dives	41.66	9.06
Terminalia chebula	19.66	11.08
Aristolochia braceata	9.66	11.97
Beta vulgaris	24.33	10.45
Marina laongi folid	16.33	11.65
Asparagus racemosus	31.33	10.03
Control	92.07	402

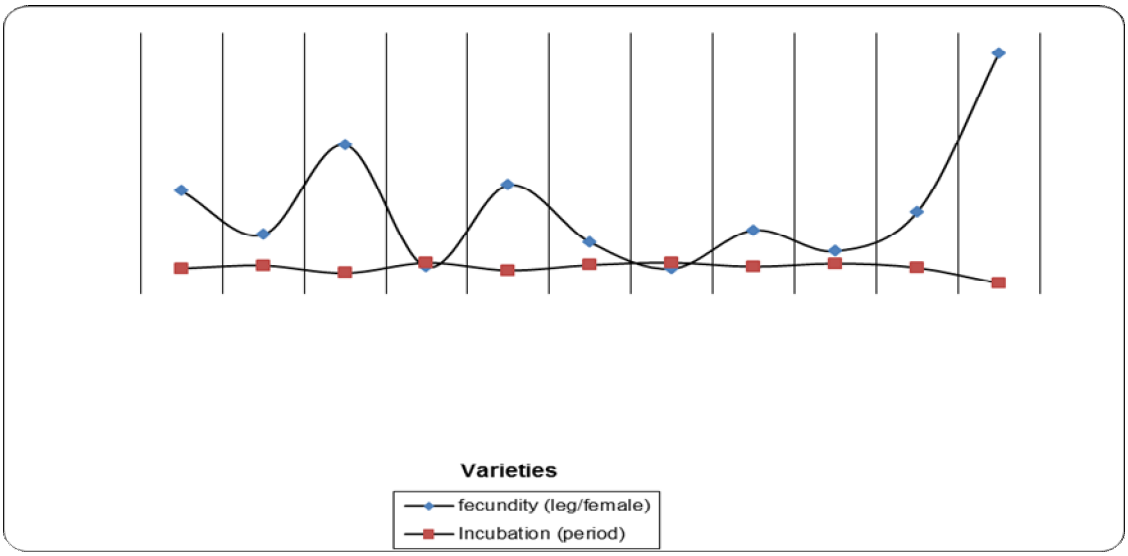

Fig. 1: Effect of different safer plant product on fecundity, incubation period of *Callosobruchus maculatus*

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