International Journal of Agricultural Sciences
Volume 9 | Issue 1| January, 2013 | 39-43 RESEARCH PAPER

Assessment of relative efficacy of different seed treatments in controlling bruchids (*Callosobruchus chinensis*) during storage in cowpea [*Vigna unguiculata* (L.) Walp]

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Abstract : An experiment was conducted in Completely Randomized Design (CRD) with seven treatments replicated three times to evaluate the relative efficacy of different seed treatments in controlling bruchids [*Callosobruchus chinensis* (L.)] and their effect on seed quality parameters during storage of cowpea variety KBC-2. In the storage study of six months, different seed treatments were used *viz.*, Malathion 5 per cent dust, pongamia oil, neem oil, neem leaf powder, sand and ash. Among the different seed treatments it was observed that sand layer of 2.5 cm thick above the seeds stored was found to be effective in maintaining minimum development of bruchid population (3.6 per 100 seeds), 10 per cent seed damage, 3.13 per cent weight loss of seeds, 67.3 per cent seed germination and 20.8 per cent protein content at the end of storage, followed by neem oil treatment.

Key Words : Cowpea, Malathion dust, Pongamia oil, Neem oil, Sand, Ash

View Point Article : Sunitha, B.H., Viswanatha, K.P., Channakeshava, B.C., Devendrappa, J., Ambika, D.S. and Dinesh, H.B. (2013). Assessment of relative efficacy of different seed treatments in controlling bruchids (*Callosobruchus chinensis*) during storage in cowpea [*Vigna unguiculata* (L.) Walp]. *Internat. J. agric. Sci.*, **9**(1): 39-43.

Article History : Received : 28.03.2012**; Revised :** 10.08.2012**; Accepted :** 09.10.2012

INTRODUCTION

Cowpea (*Vigna unguiculata*.L. Walp) is a most important food legume in the semi-arid tropics covering Asia, Africa, Southern Europe, Central America and Southern America. Its desirability reflects the fact that the leaves, immature pods, fresh seeds (southern peas or green pods) and dry grain can be eaten or marketed. The mature grain contain 23-25 per cent protein, 50-67 per cent starch, B vitamins such as folic acid which is important in preventing birth defects, and essential micronutrients such as iron, calcium, and zinc. Cowpea is equally important as nutritious fodder for the livestock. It tolerates low fertility soil due to its high rate of nitrogen fixation.

However, the main problem that farmers face is the conservation of the cowpea crop/seed, because 80 to 100 per cent of grains are destroyed by bruchid species namely [*Callosobruchus chinensis* (L.)] in a period of 2 to 3 months after storage causing both qualitative as well as quantitative losses (Khadim and Semben, 2010). Chemical control methods have proved to be very effective in the control of stored grain insect pests, but leave an array of problems behind. They are known to have residual effects and pose handling problems and health hazards and later insects also may develop resistance to them. More over these chemicals are not locally produced and hence represent additional input cost to the farming community. As a consequence, there has been a

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