Agric. Res. J. Kerala, 1983, 21 (2) 79—80

USE OF BEL *(AEGLE MARMELOS)* LEAF POWDER AS A PROTECTANT AGAINST STORAGE PESTS OF PADDY

Certain plant products viz., neem kernel powder and oil (Girish and Jain, 1974; Jotwani and Sircar, 1965; Saradamma and Nair, 1977); leaves and drupes of dharek (Teotia and Tewari, 1977); leaves of begunia (Prakash *et al.*, 1981) and extract of *Eclipta alba* (Prakash *et al.*, 1979) have been reported to possess inhibitory properties with insect pests attacking stored grains. In this study leaves of bel, *Aegle marmelos* (Rutaceae) were evaluated as paddy grain protectant and the results are presented in this communication.

Unhusked grains of rice cultivar CR 1014 (highly susceptible to storage insects) were mixed with the powder of dried leaves of bel at the rate of 0.5, 1.0, 1.5 and 2.0 per cent w/w. The seeds were packed in 5 kg capacity gunny bags in three replications. These bags were kept for a period of six months under natural conditions of storage in a godown. Observations were made on insect infestation and grain moisture content of grains at intervals of 45 days, taking six samples of 1000 grains each randomly from different parts of each gunny bag. Method B-3 (Adams and Schulten, 1978) was used in calculating the percent infested grains. In this method, the number of bored grains was counted and expressed in per cent damaged grain incorporating a conversion factor.

The results showed significant reduction in pest infestation at all the rates of treatment and in all the four observations. The insect pests that mainly infested grains were angoumois grain moth, *Sitotroga cerealella*; lesser grain borer, *Rhizopertha dominica* and rice weevil *Sitophilus oryzae*. The paddy grains when mixed with bel leaf powder at the rate of 2 percent w/w had 2.16 percent infestation as compared to 10.16 percentin control whereas at 0.5, 1.0, 1.5 percent w/w rates infestation was 6.64, 4.82 and 3.56 percent. respectively after six months of storage. The grain moisture content varied from 15.5 to 17.8% in a godown having relative humidity from 82 to 95% and temperature 23 to 39°C during the period of storage. No significant loss in moisture content and seed viability was observed in treated grains when compared to untreated grains. The results indicate that bel leaf powder reduces infestation of storage insects and protects paddy grain. This is the first report of such an action of bel leaf.

സംഗ്രഹം

നെല്ല് ചാക്കുകളിൽ soil ശേഖരിച്ചു വെയ്ക്കുമ്പോഴുണ്ടാകുന്ന കീടപ്രാണി ശല്യത്തിനെതിരെ കൂവള *(Aegle marmelos)* ഇലയുടെ ചൂർണ്ണത്തിനുള്ള പ്രതിരോധ ഗുണങ്ങൾ നിർണ്ണയിക്കുകയുണ്ടായി. ഇത് (CR 1014) ഇനം നെല്ലിനൊകൂടെ കലർത്തി പരീക്ഷിച്ചപ്പോൾ അത് നെല്ലിനെ മുഖ്യ കീടപ്രാണിശല്യങ്ങളിൽനിന്നും കാര്യമായി സംരക്ഷിക്കുന്നതായി കണ്ടു. അത് നെല്ലിന്റെ ഭാരത്തിന്റെ രണ്ടുശതമാനം എന്ന കണക്കിൽ കലർത്തി

ആറുമാസം സൂക്ഷിച്ചു വെച്ചപ്പോൾ, സാധാരണ ഉണ്ടാകാറുള്ള 10.16 ശതമാനം കീടപ്രാണിബാധ വെറും 2.16 ശതമാനമായി കുറഞ്ഞതായി കണ്ടു. മാത്രമല്ല, നെല്ലിന് ആവശ്യമായ ഈർപ്പഗുണവും വിത്തുഗുണവും നിലനിൽക്കുന്നതായും മനസ്സിലാക്കാൻ കഴിഞ്ഞു.

Division of Entomology
Cental Rice Research Institute
Cuttack 753006, India

Anand Prakash
1. C. Pasalu
K. C. Mathur

References

Adams. J. M. and Schulten, G. G. M. 1978. *Post Harvest Grain Loss Assessment Methods.* Am. Assoc. Cereal Chemists, p. 193

Girish, G. K. and Jain, S. K. 1974. Studies on the efficacy of neem kernel powder against stored grain pests. *Bull. Grain Tech.* 12: 226-228

Jotwani, M. G. and Sircar, P. 1965. Neem seed as a protectant against stored grain pests infesting wheat seed. *Indian J. Ent.* ***27:*** 160-164

Prakash, A , Pasalu, I, C. and Mathur, K. C. 1979. Ovicidal activity of *Eclipto alba* Hassk. (Compositae). *Curr. Sci.* **48** (24): 1090

Prakash, A., Pasalu, I, C. and Mathur, K. C. 1931. Begunia leaves: a grain protectant in daddy storage. *Bull. Grain Technol.* 19 (1): 59-61

Saradamma, D. D. and Nair, M, R. G. K. 1977. On the use of neem seed kernel powder as a protectant for stored paddy. *Agric. Res, J Kerala* **15:** 102-103

Teotia, T. P. S. and Tewari, G. C. 1977. Insecticidal properties of drupes of dharek *(Melia azerdarach)* and rhizome of sweet flag *(Acorus calamus)* against adults of *Sitotroga cerealella* Oliv. *Indian J Ent* 39 222-227