EVALUATION OF VARIOUS INSECTICIDES AS SEED PROTECTANTS AGAINST PULSE BEETLE, CALLOSOBRUCHUS CHINENSIS L. CHRYSOMELIDAE ON PIGEONPEA CAJANUS CAJAN L. SEED UNDER AMBIENT STORAGE

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Abstract: Eight common insecticides were used as seed protectants Emamectin benzoate (Proclaim 5SG) @2ppm (40.0mg/kg seed), Spinosad (Tracer 45SC) @2ppm (4.4mg/kg seed), Indoxacarb (Avaunt14.5SC) @2ppm (13.8mg/kg seed), Rynaxypyr (Coragen20SC) @2ppm (0.01ml/kg seed), Chlorfenapyr (Intrepid 10EC) @2ppm (0.02ml/kg seed), Profenofos (Curacron50EC) @2ppm (0.004ml/kg seed), Novaluron (Rimon10EC) @5ppm0.05ml/kg seed), Delltamethrin2.8EC @1.0 ppm (0.04 ml/kg seed) along with one untreated control. All the chemicals were tested for their effectiveness in term of seed moisture, damage by test insect, weight loss, germination and vigour against *C. chinensis* under ambient condition for a period of 9 months. After 9 months of storage the results revealed that insecticides namely Novaluron 10 EC@ 0.05ml/kg with 1.33 per cent infestation, 7.08 per cent weight loss and other measuring traits followed by Emamectin Benzoate 5 SG@ 40mg/kg with 1.67 per cent infestation and 8.16 per cent weight loss showed best results. Infestation, weight loss increased significantly along with the increase in moisture per cent.

Keywords: Seed, Germination, Vigour, Infestation, Pulse beetle, Chrysomelidae

REFERENCES

Abdul, B. and Anderson, N. (1973). The effect of insecticides and airtight storage on the storability of cowpea in Maiduguri, Nigeria. J. General Agril. 6 (1):31-37.

Adhikary, P. and Barik, A. (2012).Effect of temperature on biology of bruchid.*Indian J. Ent.* 74 (3):261-266.

Anonymous (2019-20). Annual report, AICRP-NSP (crops), Directorate of Seed Research, ICAR, Kushmaur, Mau pp. 433-478.

Dash,Lipsa, Rout, Sandeep, Ramalakshmi, V., Padhy, Deepayan, Nihal, R. and Nayak, S. (2021).Studies on Biology of Red Pumpkin Beetle (*Aulacophorafoveicollis*Lucas) Under Odisha Condition, India.Journal of Plant Development Sciences.13(6): 381-384.

Dash,Lipsa,Rout,Sandeep,Mishra,UditNandan,Sahoo,GyanaranjanandPrusty,AjayKumar(2021).Insecticidal genes inPest Management.Annals of the Romanian Societyfor Cell Biology.25(6):5601 - 5608

Daware, P.V. (2008). Studied on biology and management of pulse beetle

(CallasobruchuschinensisL) on stored pigeonpea.

MSc. (Ag) thesis, NDUATKumarganjFaizabad India. **Kumar, Ravindra** (2008). Determination of storability index genotype against R. dominica Fab. And its management under laboratory condition. M.Sc. (Ag) thesis submitted to NDUAT, Kumarganj, Faizabad India. Longnathan, M., Jayas, D.S., Field, P.G. and White, N.D.G. (2011). Low and high temperature for the control of cowpea beetle in chickpea. *J. stored Product Res.* 47 (3):244-248.

Mandeep, P. and Thakur, A.K. (2012).Efficiency of insecticide against pulse beetle on black gram. *Indian J. Ent.* 74 (4):402-403.

Mathure, Y. K. and Upadhyay K. D. (1997). A text book of Entomology, pests of crops pp.156.

Patil, S. K., Kadam, U. K. and Dumbre, A. D. (2006).Varietal susceptibility of deltamethrin-treated chickpea seeds against *C. maculatus* under ambient condition. *Seed Res.* 34 (1):113-115.

Raheem, Amtul and Sridevi, D. (2011).Evaluation of selected insecticides as seed protectants against the pulse beetle.*CAB Abstracts J. Res. ANGRAU*, 39 (4):94-100.

Rathore Y.S. and Sharma, V. (2002).Management of bruchid infestation in pulses. Indian Institute of pulses Research, Kanpur, U.P., India, 136.

Sinha, S. N. and Singh, P. B. (1998). Efficiency of container and joint action of insecticides and fungicide on insect infestation and viability of seeds. *Seed Res.* 26 (2):161-167.

Swaminathan, M.S. (1937). The relative value of certain food stats.*Indian J. Med. Res.* 25:381-387.

Thambhare, D. B. (2007). Modern Entomology vol. II, pest of other crops and stored grains pp. 337.

Tripathy, Barsha, Tripathy, P., M. Sai, Sindhu., Pradhan, K., Sahu, B., Bhagyarekha, B. And Sandeep, Rout (2020). Variability studies in Cucumber (*Cucumissativus* L.)- A Review. Journal of Plant Development Sciences. 12(6): 327-333.

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