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ORIGINAL ARTICLE

Seed-Specific Dynamics: Unraveling Progeny Emergence Patterns in *Tribolium castaneum* (Herbst) (Coleoptera: Tenebrionidae) Infestations

P.A.P.I. Premathilaka, W.C.P. Egodawatta and L.K.W. Wijayaratne

Department of Plant Sciences,
Faculty of Agriculture,
Rajarata University of Sri Lanka,
Anuradhapura (50000),
Sri Lanka.

Correspondence:
pasinduishara1025@gmail.com

***ORCID**:*
0009-0004-7323-5684

Abstract

Edible seeded crops are important nutrient source for both human and animals. Among the various causes of grain losses before consumption, stored-product pests claim an important place. *Tribolium castaneum* (Herbst) damages a wide array of food commodities including grains, during storage, but the information on progeny emergence on certain commodities still remains unexplored. A laboratory experiment was conducted to evaluate the progeny development of *T. castaneum* in commonly used edible seeds during storage. Twenty, one-month-old *T. castaneum* adults were introduced to 30 g samples of each seed type, with four replicates tested. Except for dhal and groundnut, all the other edible seed types were used only as whole seeds. Test samples of dhal and groundnut were used in their whole form as well as 50% broken seeds. Samples were maintained at 30±1°C and 65±1% relative humidity. After 7 days, adults were removed, and samples were kept for progeny development. Progeny adults and larvae were counted at 30 and 60 days. The adult progeny emergence was highest in oats, sesame and proso millet (*Meneri*). Larval emergence was higher in dhal (50% broken), groundnut (50% broken), barley and proso millet (*Meneri*). These findings provide important insights into the infestation of edible seeds by *T. castaneum* and opens-up avenues for adopting suitable methods to protect these during storage. As the presence of broken seed enhances the progeny development of *T. castaneum,* preventing such occurrences during grain processing and maintaining cleanliness are important practices during postharvest operations.

Keywords: *50% broken seeds, Larval emergence, Progeny Development, Red Flour Beetle, Storage*

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