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## Progeny production by *Stegobium paniceum* in different spices

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DOI 10.5073/jka.2018.463.047

## Abstract

Spices have long been an important component in the preparation of food, and some have medicinal properties as well. *Stegobium paniceum*, the drugstore beetle, has been detected in spices but no detailed information is available on its infestation in certain locally-available spices. Objective of this study was to find out the degree of infestation by *S. paniceum* in ten different spices. Twenty adults of *S. paniceum* were introduced into a vial containing a particular spice, maintained for two weeks and shifted out. These were maintained under ambient environmental conditions and the progeny adults emerged in each medium was counted at two week intervals for three months. The progeny produced varied with the food medium; the highest progeny was recorded in coriander whereas the lowest progeny was recorded in cinnamon, clove, dill seeds, cardamom, chilli, pepper corn and turmeric powder. This study reveals that *S. paniceum* infests a wide array of spices at different levels. This information is important for taking necessary steps to protect the spices from the infestation of *S. paniceum*.

**Keywords:** *Stegobium paniceum*, Progeny, Spices, Infestation

## 1. Introduction

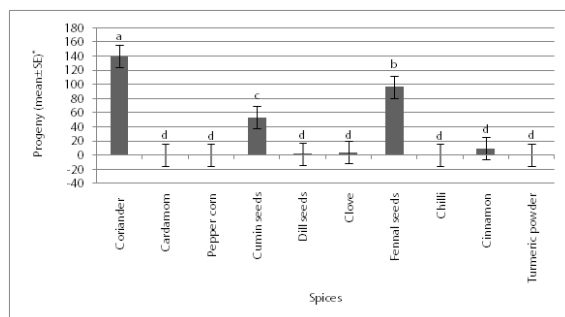
Stored-product losses are more in tropical countries than in temperate regions (Wijayaratne et al., 2018). Sri Lanka has the reputation for producing good quality spices. Drugstore beetle, *Stegobium paniceum* is a pest of stored spices (Cabrera, 2014). Infestation of spices kept in storage by *S. paniceum* is reported but a proper investigation has not yet been performed. Therefore, the objective of this study was to find out the infestation level of *S. paniceum* in ten spices locally available and frequently used as indigenous medicine.

## 2. Materials and Methods

Ten spices were used in this study: coriander, cardamom, pepper corn, cumin seeds, dill seeds, clove, fennel seeds, chilli pieces, cinnamon and turmeric powder. Drugstore beetles were reared in coriander medium inside the incubator at 30°C and 60% RH. The progeny adults aged one month were used in the experiments. Twenty adults of *S. paniceum* were introduced into a vial containing 12 g of a particular spice, maintained for two weeks and sifted out. Four replicates from each treatment were maintained. Progeny adults emerged in each medium was counted at one month intervals for three months.

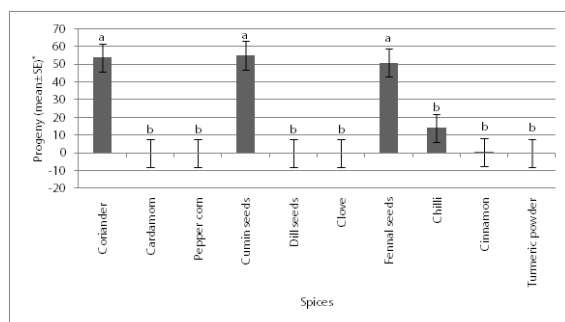
## 3. Results and Discussion

The progeny production differed with the spice and the duration. Highest infestation recorded in coriander. No progeny was produced in cardamom, pepper corn and turmeric powder.



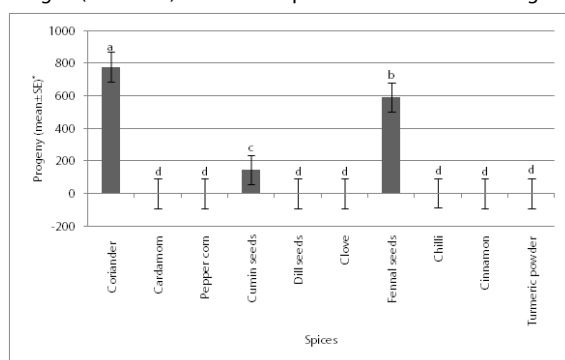
\*Progeny produced in spices followed by the same letter are not significantly different according to Tukey's test.

**Fig.1** Progeny adults emerged (mean±SE) in different spices one month following initial infestation.



\*Progeny produced in spices followed by the same letter are not significantly different according to Tukey's test.

**Fig. 2** Progeny adults emerged (mean±SE) in different spices two months following initial infestation.



\*Progeny produced in spices followed by the same letter are not significantly different according to Tukey's test.

**Fig. 3** Progeny adults emerged (mean±SE) in different spices three months following initial infestation.

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## The developmental parameters of the minute brown scavenger beetle *Dienerella argus* (Coleoptera: Latridiidae)

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DOI 10.5073/jka.2018.463.048

## Abstract

Adults and larvae of *Dienerella argus* (Reitter) (Coleoptera: Latridiidae) feed on fungi and are frequently found in indoor, moldy areas. The basic biology of this species, other than its feeding habits, has not been determined. In this study, the developmental parameters of the beetle were investigated using dried hyphae and conidia from three fungi that are common in living areas. The developmental periods of the beetle on *Cladosporium cladosporioides*, *Penicillium citrinum*, and *P. decumbens* were examined at 16, 20, 24, 28, 32 °C / 70–75 % RH under dark conditions. The low developmental threshold temperatures and thermal constants calculated from egg to adult emergence were 10.5 °C and 526 DD (degree day), 9.0 °C and 500 DD, and 10.9 °C and 370 DD on C.