



Research Highlight

Assessment of the Life History and Larval Morphology of *Acanthoscelides macrophthalmus*

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Pulse beetles are small-sized insects ranges from 1.0-6.0 mm that belong to family Bruchidae. Bruchids are widely known pests of stored grains and field legumes all around the world. Approximately, 30 species of bruchids are serious pests and nine of them are cosmopolitan in distribution globally¹.

Adults of pulse beetles lay eggs on the seed of a host plant. Accordingly, larvae are regarded as voracious feeders and feed entirely within a seed. As they are present inside the seed, therefore are not visible which makes their detection and control a difficult task. Whereas, adults live free and feed on pollen as well as nectar². The internal mode of life plays a key role in protecting them from temperature fluctuations and humidity makes them be carried unnoticed during trade³.

Acanthoscelides macrophthalmus is a species of leaf beetle that belongs to genera "Acanthoscelides Schilsky" and family "Bruchidae" that has been reported so far from the Indian subcontinent. In India, no investigation has been performed yet on the biology, life cycle as well as other aspects of

A. macrophthalmus apart from taxonomy, distribution, and pest status³.

Therefore, new research was conducted to investigate the life history as well as larval morphology of *A. macrophthalmus* on its natural host plant, *L. leucocephala* to control *A. macrophthalmus* as well as to control the plant production in other countries where it creates a weed problem⁴.

This study showed that *A. macrophthalmus* uses aphagously developing and developed seeds for oviposition and larval development. Females can lay an average of 38.3 ± 8.01 eggs and produce 27.4 ± 6.77 offsprings. However, larvae were found to grow and molt within the host seed and adult bruchid emerged out after cutting a circular window in testa of the seed as well as the pod. It was also noticed that total development gets completed in 41.6 ± 7.18 days and insects become sexually mature after one hour of emergence.

In this research, scientists examined all the 4 larval instars via Scanning Electron Microscopically (SEM). Moreover, head, antenna, clypeolabial complex, leg etc., were

described separately and taxonomically vital structure such as setae, sensillae trichodea, microtrichia etc., beared by the integumentary system was projected accordingly.

In a nutshell, *L. leucocephala* is considered as a weed in many regions of the world and *A. macrophthalmus* is a serious pest of *L. leucocephala*. *A. macrophthalmus* works as a biocontrol agent and plays a pivotal role in suppressing the widespread growth of plants. Conclusively, the present research can provide valuable information for propagation or bio-control of plants by the use of this bruchid species.

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