

## Bionomics and effectiveness of Aak fruit fly: A potential biocontrol candidate for calotrope in Australia

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**Summary** Calotrope, *Calotropis procera* (Aiton) W.T.Aiton (Apocynaceae) is a serious weed of rangelands in northern Australia. Calotrope is a target weed approved for biological control in Australia. The native range of this weed is south Asia, the Middle East and North Africa, where several natural enemies of the weed have been reported. Among them, pre-dispersal seed feeding Aak fruit fly *Dacus persicus* Hendel (Diptera: Tephritidae) has been identified as a prospective biological control agent for calotrope in Australia. Pre-dispersal seed predators are regarded as effective biological control agents that could potentially reduce the future recruitment and spread of the weed. Life history and damage potential of the Aak fruit fly was studied under both laboratory and field conditions in its native range in Lahore, Pakistan. The duration

of life cycle of *D. persicus* (egg to adult) was  $42.2 \pm 0.38$  days (mean  $\pm$  se) with a range of 38 to 50 days. The females start laying eggs  $5.2 \pm 0.2$  days after emergence and a typical female infests on average  $4.5 \pm 0.2$  fruits during its life-span. The average life span of an adult fly was  $16.4 \pm 0.68$  days. The Aak fruit fly larvae destroyed (100%) all immature seeds and internal tissue of infested pods of the host plant. The field host specificity, high reproductive capacity and damage potential of the fruit fly indicate that this agent hold promise to be considered as a potential candidate agent for biological control of *C. procera* in Australia.

**Keywords** *Dacus persicus*, native range, effectiveness, classical biological control, rubber bush, co-evolved natural enemy, Pakistan.