

Host suitability testing of a gall forming fly *Polymorphomyia basilica* Snow (Diptera: Tephritidae), a potential biological control agent of Siam weed *Chromolaena odorata* (L.) R.M.King & H.Rob. (Asteraceae) in South Africa

Nontembeko Dube¹ and Costas Zachariades^{1,2}

¹ Agricultural Research Council Plant-Protection Research Institute, Private Bag X 6006, Hilton 3245, South Africa

² School of Life Sciences, University of KwaZulu-Natal, Private Bag X01, Scottsville 3209, South Africa (duben@arc.agric.za)

Summary *Chromolaena odorata* (L.) R.M.King & H.Rob., commonly known as Siam weed or devilweed, is a widely distributed tropical shrub native to the Neotropics, from the southern USA to northern Argentina, and is among the world's worst weeds. A stem-galling tephritid fly, *Polymorphomyia basilica* Snow, from the northern Caribbean islands, was considered as a potential biological control agent for the invasive alien weed *Chromolaena odorata* in South Africa. The tephritid *Cecidochares connexa* Macquart causes similar damage and has been used to good effect on the Asian/West African biotype of *C. odorata*, but does not develop on the different, southern African *C. odorata* biotype. Positive biological characteristics of *P. basilica* include a high rate of increase, long-lived and mobile adults, the ability of females to produce viable offspring without repeated mating, the ability of adults to eclose from galls on

dry stems and the production of several generations per year. Host range was investigated in single-choice adult tests and in no-choice tests using single pairs of adults, under laboratory conditions. Oviposition and larval development through to adulthood occurred on three other South American and on one South African species in the same tribe as *C. odorata*, but at a lower and slower rate. The ability of *P. basilica* to develop on indigenous species triggers concern; nevertheless, false positive results are common under quarantine conditions and further trials will be conducted. The poor offspring survival on non-target plants tested so far forecasts the suitability of *P. basilica* for release in South Africa. Its ability to develop on the Asian/West African biotype will also be determined.

Keywords *Chromolaena odorata*, *Polymorphomyia basilica*, biology, host range.