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Research Note

Field release and establishment of *Cecidochares connexa* (Macquart) (Diptera: Tephritidae) on *Chromolaena odorata* (L.) King and Robinson in Kerala

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ABSTRACT: A stem gall fly, *Cecidochares connexa* (Macquart) was released in 2007 and 2008 at Kerala Agricultural University Campus for the biological control of *Chromolaena odorata* (L.) King and Robinson and the releases made during 2008 resulted in its establishment. There ws a significant reduction in plant height on the galled plants at 30 and 60 days after gall formation. The gall fly could spread up to 500m, 100m, 50m and 100m from release points towards north, south, east and west, respectively. The gall fly could successfully overcome the dry season from January to May at Thrissur.

KEY WORDS: *Cecidochares connexa*, *Chromolaena odorata*, Kerala

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Siam weed, *Chromolaena odorata* (L.) King and Robinson, is a native of South America from where it has spread to other parts of the tropics. It is one of the major weeds in Kerala, which has a remarkable capacity for rapid dissemination through seed. Chemical weedicides are expensive and hazardous, while mechanical removal requires more labour and is expensive. In earlier attempts, two exotic insect species, *Apion brunneonigrum* Beguin-Billecocq (Coleoptera: Apionidae) and *Pareuchaetes pseudoinsulata* Rego Barros (Lepidoptera: Arctiidae) were released for the biological control of *C. odorata* in Kerala. However, the former failed to establish (Satheesan *et al*., 1987) and the latter though established, has failed to give desirable suppression of the weed (Lyla, 1995). In an attempt to introduce alternative insects, the stem gall fly, *Cecidochares connexa* (Macquart) (Diptera: Tephritidae) was introduced in India and a culture was received from National Bureau of Agriculturally Important Insects, Bangalore, India, during October, 2007. The mated adults were released in the Kerala Agricultural University Campus on *C. odorata* stands. No galls were noticed on the plants and subsequent releases were made in August, 2008 from another shipment received from NBAII. The galled plants were tagged and observations on plant height, number of branches, number of inflorescence, etc. were recorded (Table 1). There was significant reduction in plant height 30 and 60 days after gall formation. However, number of branches, number of

Table 1. Impact of stem gall fly on *C. odorata*

Growth parameter	Control plants	Plants with galls	Per cent decrease over control
Plant height 30 days after oviposition (m)	2.3	1.6	30.4*
Plant height 60 days after oviposition (m)	2.9	2.4	18.0*
Mean no. of branches per plant	8.6	8.1	5.8
Mean no. of panicles per palnt	14.7	12.8	12.9
Mean no. of capitula per panicle	23.6	22.4	5.1
Mean no. of seeds per capitula	26.1	24.4	6.5

*Students' *t*-test significant between two means at $P = 0.001$

panicles per plant, number of capitula per panicle and number of seeds per capitula were on par both on galled and non-galled plants (Table 1).

Galls were formed on the fresh growth during May–June, 2010. The galls were found at a distance of 500m in the north, 100m in the south and west and 50m in the east from the released point. The gall fly has established and is spreading in Kerala. Similar observations were recorded in Karnataka, Java and Indonesia (Bhumannavar *et al*., 2007; Tjitrosemito, 2000; Wilson and Widayanto, 2004).

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