

A species-specific insect-bromeliad interaction: *Eurytoma* sp., a new wasp-parasite of *Vriesea friburgensis*

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Introduction

In the terrestrial bromeliad *Vriesea friburgensis*, a common species in secondary forest and restinga habitats in the State of Santa Catarina, we observed that several flower buds did not open. The reproductive tissue at the base of the buds was destroyed by a phytophagous insect larva of an eurytomid wasp. The majority of the eurytomid wasps are endophytic, phytophagous plant parasites or parasitoids of insects feeding on plants. So far, only two other *Eurytoma* species are known to be associated with bromeliads.

Materials & Methods

- examined bromeliad species: *Vriesea friburgensis*
- observations between 2005 and 2008
- habitat types: secondary forest and restinga
- branches of fresh and old inflorescences were collected
- mature larvae in fresh buds were stored in Eppendorf cups until emergence of the imagines
- dry buds were stored until emergence of imagines
- wasps were observed in the field



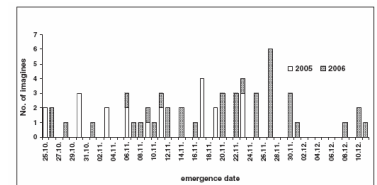
upper row: 3 ovipositing female wasps; lower row (left to right): dry *V. friburgensis* branch with fruits and parasitized buds, a fresh inflorescence, dry inflorescences in the field

Results

- always only one wasp larva per flower bud
- the larva was always located in the base of the bud
- reproductive organs (ovules and anthers) had been eaten
- adult wasps gnawed a hole of ~ 1mm to leave the bud
- sex ratio: 0.93 (M/F)
- wasps emerged between 25 Oct and 11 Dec
- in new inflorescences, emerging holes could be found about 4 weeks after the first flowers had opened
- preliminary observations in two other species, *V. philippocoburgii* and *V. vagans*, revealed no signs of parasitism



intact fruit capsule & parasitized bud with emergence hole



emergence pattern of imagines in *Eurytoma* sp. from flower buds of *V. friburgensis*



wasp larva at the base of a bud

Conclusions

Our results indicate that the larvae of the last generation undergo a prepupal diapause of at least 6 months. Some emergence holes observed in fresh buds right in the beginning of the flowering season suggest that there may be several short cycles of about 4 weeks without diapause during the extended flowering period of about 3-4 months. Such an adaptation to the reproductive cycle of the plant can be regarded as part of an established host-parasite system and a new case of species-specific bromeliad-insect interactions.

Reference:

Grohme, S. et al. [2007] Destruction of Floral Buds in the bromeliad *Vriesea friburgensis* by the phytophagous larvae of the Wasp *Eurytoma* sp in southern Brazil (Hymenoptera: Eurytomidae). *Entomologia Generalis* vol 30(2), p167-172.

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