

**Fungi Pathogenic on *Paederia* spp. from Northern Thailand as
Potential Biological Control Agents for Skunkvine
Paederia foetida (Rubiaceae)**

M. P. Ko, M. M. Ramadan and N. J. Reimer

Hawaii Department of Agriculture, Plant Pest Control Branch, 1428 S. King Street, Honolulu, HI 96814 USA mann.p.ko@hawaii.gov

Abstract

The skunkvine *Paederia foetida* L. (known locally as Maile Pilau) is one of the major invasive environmental weeds on the Hawaiian Islands. Due to its rapid spread to remote and inaccessible areas, its ability to cause substantial damage to natural ecosystems and the increasing cost of conventional control methods, its management by biological control seems to be the most appropriate means with high success potential. A survey was conducted in its native range in northern Thailand in the fall of 2010, with the aim of locating and identifying potential agents for classical biological control. Diseased tissues of *Paederia* species exhibiting symptoms of necrotic spots/lesions, galls and rusts were imported into the Hawaii Department of Agriculture's Plant Pathogen Containment Facility (HDOA-PPCF) for evaluation. Most of the infected tissues were derived from *Paederia pilifera* Hook.f., from which several fungi were subsequently isolated. Among these fungi were the gall rust (Basidiomycota) *Endophyllum paederiae* (Dietel) F. Stevens & Mendiola, the Hyphomycetes *Pseudocercospora paederiae* Sawada ex Goh & W.H. Hsieh, and two isolates of the Coelomycetes *Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc. Repeated attempts to establish *E. paederiae* on the local skunkvine *P. foetida* failed, indicating that this rust fungus may be too host specific to infect the local species. However, the remaining fungi *P. paederiae* and isolates of *C. gloeosporioides* were amenable to laboratory culture on standard potato dextrose agar. Separate inoculation tests on the local *P. foetida* plants with conidia from each fungal culture showed leaf lesions or necrotic spots, where the respective fungus could subsequently be reisolated. One of the isolates of *C. gloeosporioides* was relatively aggressive, causing leaf chlorosis, defoliation and even shoot tip dieback on the infected *P. foetida* plants. Further studies on the potentials of these fungi as biological control agents on *P. foetida*, such as their effects on other economic plants (host range), culture and pathogenic enhancements by environmental factors etc., are underway inside the HDOA-PPCF.