

TAXONOMY & ECOLOGY

Beyond Classical Approaches

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SECTIONS APPRAISAL OF SELECTED BEGONIA SPECIES FROM SARAWAK BASED ON THE SEED CHARACTERISTICS

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ABSTRACT

There are about 60 species of begonias recorded in Sarawak and divided into five sections accordingly on the morphological characteristics. The used of seeds characteristics approaches never been conducted for the Sarawak species, therefore the main objective of this study is to provide baseline information on the sectional of begonias based on the seeds characters. The seeds of 25 taxa of *Begonia* were used in this study and their micro morphological was observed *via* Scanning Electron Microscopic. The results showed a significant different among the sections, therefore the used of seed micro morphology was desirable in the sectional studies.

Keywords: *Begonia*, Begoniaceae, Sections of *Begonia*, seeds micro morphology, Sarawak,

INTRODUCTION

The genus *Begonia* L. is one of the larger genera of flowering plants with approximately 1,400 species have been described (Kiew, 2005) and has a complicated taxonomic history. Generic concepts in the family Begoniaceae have been changed much with more than 50 genus names have been put into synonym with *Begonia* (de Lange and Bouman, 1999). However, today only two genera were recognized; *Begonia* and *Hillebrandia*. The genus *Begonia* comprises almost 1,400 species that arranged into 78 sections (Doorenbos *et al.*, 1998; Smith *et al.*, 1986). While, *Hillebrandia* is a monotypic genus that represent by single species, a Hawaiian endemic, *Hillebrandia sandwicensis* Oliver. Each section in the genus *Begonia* are restricted to a single continent except section *Begonia* and *Knesebeckia* which are wide distribution, American-Asian (de Lange and Bouman, 1992; 1999).

The seeds of Begoniaceae are characterized at the family level by the presence of a transverse ring that so-called collar cells. The seeds of *Begonia* are also showed an appreciable diversity in size, shape and micro morphology (de Lange and Bouman, 1999). Since the seeds of begonias showed significant characteristics, therefore it's being used for taxonomical studies,

particularly for sectional approaches. Others multidisciplinary approaches that been used in order to clearer the sectional problematic in the genus *Begonia* were including karyology, pollen morphology, stigma morphology (Panda and de Willde, 1995; de Lange and Bouman, 1999), placentation, seed morphology and leaf anatomy (Sosef, 1994; de Lange and Bouman, 1999).

Irmscher (1929) recognized 17 sections of the genus *Begonia* as occurring in Southeast Asia with section *Diploclinium* and section *Petermannia* are the two most specious. However, Doorenbos *et al.* (1998) listed only five sections occurred in Sarawak and Sands (1998) proposed few new sections to accommodate the species that unable to place into the existing sections. However, the deviations of the sections followed by Doorenbos *et al.* (1998) are based on morphological characteristics. Therefore, this project is aimed to improving the sectional information and value added with information on the seed characteristics

MATERIALS AND METHODS

Materials

Twenty five selected taxa of *Begonia* were used in this study. Most of the seed