

CHAPTER I

INTRODUCTION

The Zingiberaceae, or ginger family, is a monocotyledonae. About 50 genera and *ca.* 1400 species of Zingiberaceae are represented. So far, 26 genera and *ca.* 300 species, have been recorded from Thailand.

The genus *Hedychium* J. König is one of the ethnobotanically and economically important genera of the family Zingiberaceae. Some crude drugs employed in Thai traditional medicine or ethnomedical prescriptions, e.g. Wan Khing Haeng, Wan Pad Roi Sanom, Wan Chai Dam are the rhizomes of the genus *Hedychium* (Zingiberaceae). Several taxa, especially those with showy and fragrant flowers, have or may have horticultural potential.

The member of the genus can be seen throughout the country, and have been studied by several botanists, i.e. Larsen, 1980; Sirirugsa & Larsen, 1995; Picheansoonthon & Mookamul, 2005; Kittipanangkul & Ngamriabsakul, 2008; and Picheansoonthon & Wongsuwan, 2008. However, several taxonomically unknown and unidentified taxa of this genus employed in folk medicine have challenged the author to work on the genus. Also, bioinformatics and molecular techniques have become one of the most utilized approaches for inferring taxonomic and phylogenetic relationships of plants, and can be applied for plant identification.

Therefore, this study will certainly help establishing the basic knowledge for further research and development on this plant group.

Objectives

- 1) To study morphology and ecology of the genus *Hedychium* in Thailand
- 2) To provide full description, together with an artificial key to the species
- 3) To obtain molecular information on the genus *Hedychium* in Thailand

Scopes of the research

The study was carried out between March 2007 and December 2009. Living specimens from various locations in Thailand were collected and preserved. Information on morphology, ecology and distribution of the genus *Hedychium* in Thailand were compiled. Then, an artificial key to the species and varieties was constructed. The young leaves of each taxon were also collected. Its DNA (ITS1-ITS2 regions) was extracted, amplified, and sequenced, the results of which were analyzed and the phylogenetic relationship was proposed.

Research outcome

- 1) An account on species diversity of the genus *Hedychium* in Thailand is established.
- 2) Morphological, ecological and distribution information of the genus *Hedychium* in Thailand are documented.
- 3) Phylogenetic relationship of all Thai *Hedychium* is proposed.