Random Amplified Polymorphic DNA Analysis of Galanga (*Alpinia* spp.) Accessions

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ABSTRACT

Thirty-seven galanga (Alpinia spp.) accessions, 31 cultivated and 6 wild landraces from different areas in Thailand were evaluated for genetic diversity, using random amplified polymorphic DNA (RAPD) primers. Out of 22 random primers used in this study, eight primers (OPA20, OPB18, OPC09, OPD02, OPD11, OPG13, OPK12 and OPAX17) produced a total of 73 polymorphic bands. UPGMA cluster analysis of genetic similarity estimates (Jaccard's coefficient) separated the accessions into 5 major clusters. The dendrogram showed no relation with their morphological characters such as type, color of rhizome and collection sites which were indicated by the regions of Thailand. However, this study illustrated that RAPD analysis could be a useful tool to evaluate genetic diversity in galanga accessions. The highly- informative primers identified in this study would be available for further genetic analysis of galanga for plant selection and improvement.

Key words: Galanga, *Alpinia* spp., RAPD, Fingerprint

INTRODUCTION

Galanga (*Alpinia* spp.) is a member of Zingiberaceae family. It has originated in South East Asia, probably southern China and is now cultivated in Indochina, Thailand, Malaysia and Indonesia. Galanga is a very popular spice in South East Asia and especially typical for the cuisine of Thailand. Its rhizome is used not only as a common spice to flavor soups and many other dishes but also as a medicinal and aromatic plant.

Srisornkampol (1996) reported the test of extract from galanga by TLC-bioassay with the fungi *Cladosporium cladosporioides.* The active part was then purified by preparative chromotography and the structural elucidation identified by GC-MS spectroscopy method was confirmed as 1´- acetoxychavicol acetate. The study of Bhasabuttra (1997) found that galanga extracts could inhibit the growth of *Colletotrichum gloeosporioides* (Penz.) Sacc. The extract purified with ethylacetate by column chromatography technique showed the efficiency to control the anthracnose postharvest disease on the surface of mango's fruit (Jariyanusorn, 2002). Itokawa et al., (1987) also revealed that 1´- acetoxychavicol acetate and 1´- acetoxyeugenol acetate from galanga had the power to inhibit cancer Sarcoma 180 ascites in mouse. Consequently, galanga shows potentials for future benefit.