4) (a) **Penemuan Projek/Abstrak**

*(Perlu disediakan makluman di antara 100 - 200 perkataan di dalam **Bahasa Malaysia dan Bahasa Inggeris** Ini kemudiannya akan dimuatkan ke dalam Laporan Tahunan Bahagian Penyelidikan & Pembangunan sebagai satu cara untuk menyampaikan dapatan projek tuan/puan kepada pihak Universiti).*

Abstract

The survery was conducted from most rivers in Peninsular Malaysia. Intensive works were done in Pondok Tanjung Forest Reserve (PTFR), Perak and also Belum/Temenggor Forest Reserve (BFR), Perak. Both of the areas are not disturbed and plant species composition from Family Araceae was high (appendix). Sixteen species were collected from PT. Endemic species which have a commercial value as ornamental plants like *Alocasia denudata, Aglaonema oblongifolium* and *Aglaonema Schottium* were recorded. Aquatic plant which can be used as an aqurium plant like *Cryptocoryne minima* and Cryptocoryne *elliptica* were found here. In BFR, 14 endemik spesies were recorded.

Preliminary test on the species by RAPD from the genera Homalomena and Shismatoglottis showed that a close association between species in these two genera. It proved that the species have similar fundamental genetic structures. Evidently, it indicated that classifications 'either' by classical taxonomy or molecular taxonomy (RAPD), the readings obtained are similar.

Abstrak

Survei telah dijalan dikebanyakan sungai Semenanjung Malaysia dan tumpuan diberikan di kawasan Hutan Simpan Pondok Tanjung (HSPT), Perak, dan juga kawasan Hutan Simpan Belum/Temenggor (HSB), Perak. Di kedua kawasan ini tidak terdapat gangguan dan komposisi spesies tumbuhan terutama sekali tumbuhan dari famili Araceae tinggi (lampiran). Di kawasan HSPT, 16 spesies telah dikutip. Spesies yang endemik dan mempunyai nilai komesial sebagai tumbuhan hiasan seperti *Alocasia denudata*, *Aglaonema oblongifolium* dan *Aglaonema schottianum* telah direkod. Spesies tumbuhan akuatik yang boleh dijadikan tumbuhan akuarium seperti *Cryptocoryne minima* dan *Cryptocoryne elliptica* juga dijumpa di sini. Di kawasan HSB, 14 spesies yang endemik telah direkod.

Ujian awal daripada kajian RAPD terhadap spesies-spesies daripada genera Homalomena dan Shismatoglottis menunjukkan bahawa terdapat pertalian yang rapat di antara spesies-spesies di dalam dua genera tersebut. Ini membuktikan bahawa spesies-spesies tersebut mempunyai asas struktur genetik yang sama. Bukti ini juga menunjukkan bahawa pengkelasan secara taksonomi klasik dengan kajian taksonomi molekul, hasil yang diperolehi sama.

(b) **Senaraikan Kata Kunci yang digunakan di dalam abstrak:**

Bahasa Malaysia	Bahasa Inggeris
Semananjung Malaysia	Peninsular Malaysia
Hutan Simpan	Forest Reserve
Endemik (asal)	Endemic
tumbuhan akuarium	aquarium plant
rekod	record
survei	survey
spesies	species
taksonomi molekul	molecule taxonomy
asas	fundamental

5) **Output Dan Faedah Projek**

(a) Penerbitan *(termasuk laporan/kertas seminar)*
(Sila nyatakan jenis, tajuk, pengarang, tahun terbitan dan di mana telah diterbit/dibentangkan).

1) Internation Wetlands Conference (Perth, Australia) "The threatened endemic riverine plants of peninsular Malaysia with special reference to the genus Cryptocoryne" - Mansor M. and Jacobsen,N. (1996) - abstract

2) Malayan Nature Journal 1996, 50:19-20 "Note on the ecology of Cryptocoryne ciliata" - Kartini, S. and Mansor M.

3) Buku Proceeding Biodiversity and Management of Genetic Resources "The distribution and survival of an endemic riverine plant; Cryptocoryne affinis - Mansor, M.

4) International Symposium on Conservation Biology,(Sarawak) "The distributio of an endemic plant species, Cryptocoryne ciliata - Mansor,M. and Kartini - abstract

(b) Faedah-Faedah Lain Seperti Perkembangan Produk, Prospek Komersialisasi Dan Pendaftaran Paten.
(Jika ada dan jika perlu, sila gunakan kertas berasingan)

1) Beberapa spesies boleh dijadikan tumbuhan hiasan. Contohnya Abcasia denudata dan Aglaonema oblongifolium.

2) Kebanyakan spesies di dalam genus Cryptocoryne merupakan tumbuhan akuarium yang mempunyai nilai komersial.

(c) Latihan Gunatenaga Manusia

i) Pelajar Siswazah dua orang pelajar ijazah M.Sc. (Masnadi M. dan Kartini Saibeh)

ii) Pelajar Prasiswazah: tiga orang pelajar B.Sc.

iii) Lain-Lain : Pembantu Makmal

6. **Peralatan Yang Telah Dibeli:**

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UNTUK KEGUNAAN JAWATANKUASA PENYELIDIKAN UNIVERSITI

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NOTES ON ARACEAE OF THE PONDOK TANJONG FOREST RESERVE, PENINSULAR MALAYSIA.

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ABSTRACT

The Pondok Tanjong Forest Reserve is in the state of Perak, Peninsular Malaysia. The 7,240 hectare forest is drained by several small rivers including the Jelutong River. Comparatively the flora composition of the forest is high in Araceae species and from the initial collections, 16 species from eleven genera were obtained. Fifteen species excluding *Colocasia esculenta* (L.) Schott are observed only in the shaded sites, are endemic to Indo-Malayan area. The recorded genera are *Aglaonema*, *Alocasia*, *Amorphophallus*, *Colocasia*, *Cryptocoryne*, *Cyrtosperma*, *Homalomena*, *Lasia*, *Piptospatha*, *Raphidophora* and *Scindapsus*. Two species of the Araceae collected belong to the genus *Cryptocoryne* and they are either aquatic or amphibious plants. The *Cryptocoryne* species are *C. elliptica* Hook. fil. and *C. minima* Ridl., are widely distributed in the swamp forest. The other semi-aquatic Araceae included *Aglaonema oblongifolium* Schott., *A. schottianum* Miq. Fl., *Alocasia denudata* Engl., *Amorphophallus campanulatus* Blume, *Cyrtosperma lasioides* Griff., *Homalomena coerulescens* Jungh., *H. lancifolia* Hook. fil., *H. sagittaefolia* Jungh., *Lasia eculeata* Lour., *Piptospatha ridleyi* Hook. fil., and these

species are generally found at the inundated sites. In addition, *Raphidophora beccarii* Engl., *Scindapsus perakensis* Hook. fil. and *S. hederaceus* Schott. are climbers which are collected from trees along the riverbanks.

Key Words: Araceae, Pondok Tanjung Forest Reserve, distribution, Peninsular Malaysia.

INTRODUCTION

Out of 329,807sq. km of Peninsular Malaysia, only 4,060sq. km is made up of a freshwater swamp and this does not include 1,200sq. km of mangrove forest. According to Collins et al. (1991) only about 20% the swamp areas are gazetted as forest reserve. The rest do not have legal proctection.

Swamp forests are generally considered as low value lands and are likely to be reclaimed for agriculture and other purposes. Hotta (1987) and Okada (1992) have indicated that swamp forests are rich in plant diversity, particularly the species from the family Araceae. According to Ridley (1925) in Peninsular Malaysia, the family of Araceae consist of 123 species which belong to 23 genera. Many botanists including Soepadmo (1977) have pointed out that most of the Araceae species are endemic to Indo-Malayan area and thrive well in swamp areas. In addition, several species could be found at various aquatic habitats ranging from brakish water to the freshwater particularly in a pristine stream and river (Mansor, 1991).

Due to its unhospitable and unapproachable habitat, seemingly the flora diversity of a swamp forest is generally less studied. Therefore, this study was initiated mainly to record the number of Araceae species found in a swamp forest.

METHOD

The floral survey of the of the 7,240 hectare Pondok Tanjong swamp forest was conducted from May 1992 till February 1994. The forest is situated 5°0.5'N 100°45'E in the state of Perak, North Peninsular Malaysia (Figure 1).

The surveys were also conducted along the rivers including Jelutong and Merah Rivers. Eighteen quadrats (1m x 1m) were employed, almost all plants were recorded. Most species, particularly from the genera *Cryptocoryne* which generally found at the inundated sites, were collected and subsequently cultured in the plant house at the Universiti Sains Malaysia (USM). In addition to this, all Araceae species were identified based on Ridley (1925) , Henderson (1954) and Brown (1988), and the specimens are kept in the School of Biological Sciences herbarium for future references.

A species areal curve was established based on the method by Gilbertson et al. (1985). With a gradually increased in the quadrat size from 1m x 1m to 9m x 9m. The number of species recorded seems to be constant at 5m x 5m. Therefore 5m x 5m was used as a