

Inventarization of Pteridophytes Plants Species in Sriwijaya University Campus Area, Indralaya, South Sumatera

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Abstract

A taxonomic survey had been done for inventarization of Pteridophytes plants species at The University of Sriwijaya campus area, at April 2011. It was found 30 species that categorized in 11 family, where 24 of those species are herb life-form and 6 of them were bush fern; 27 species were life as terrestrial plants and 3 of them were swampy fern. Gleichenia linearis is the common species found as terrestrial fern, Davalia denticulate common for epiphyte, and Salvinia natans was often found as hydrophytes.

Keywords: pteridophytes, species, family, terrestrial, swampy, epiphytes, hydrophytes

Introduction

Ferns diversity species on the world was estimated about 12,000 species, in 225 genera (Prosea, 2003). Malesia region, that almost consisted by Indonesian islands, Philippines, New Guinea and Northern Australia, estimated consist about 4,000 species (Whitten and Whitten, 1995 cit. Rahmah, 2009). According to Sastrapradja et al. , (1979), total of ferns species number over the world is 10,000. In Indonesia, ferns species richness about 1,250 species (Mnistry of Developing Planning, 1993 cit. Dayat 2008). It means 10 % of all world species of ferns located in Indonesia.

Sastrapradja *et al.* (1979) wrote role and usage of ferns in human life:

- a. Entertainment (eg: Adiantum caudatum)
- b. Medicinal plant (eg: Equisetum debile)
- c. Vegetable(eg:Diplazium esculentum)
- d. Fertilizer(eg: Azolla pinnata)
- e. Weed (eg; Salvinia natans)

Bhattarai et al., (2004) found the relationship between elevation gradient habitat and moisture condition to species richness of ferns in central Himalayan and Nepal. While Aldasoro et al., (2004) reported that not only elevation should determinate the species richness of ferns, but also distance between refuges. Furthermore, Kluge and Kessler (2011) found that under stressful environmental conditions (drought at low elevations and frost at high elevations), epiphytic fern assemblages tended to be clustered with respect to trait characteristics, which suggests environmental filtering. Conversely, under less extreme environmental conditions (middle of the transect), the sorting was biased towards high differentiation (overdispersion), presumably because of interspecific competition and trait shifts among closely related species (character displacement). They done the research at Braulio Carrillo National Park and Cerro de la Muerte, Costa Rica, Central America.

In New Zealand, Lehmann et al., (2002) found 43 species of fern. Using the spatial model, they indicated that out of 122 spp of ferns exist in the area.

The University of Sriwijaya campus area is located in Indralaya, District Ogan Ilir, South Sumatera Province. The broad size of campus territory is 712 hectare, and at 5 m on the sea level altitude; consist of two type of land; terrestrial and swampy (Universitas Sriwijaya, 2010). Many plant species are living here, and most of them were fern. The kind of fern, certainly, should have to known.

Material and Methods

By using herbarium kits, descriptive research method was applicated with explorative And documentative sampling techniques (Sunarmi & Sarwono 2004). Area of

documentation was determined after survey. Terrestrial and swampy area were categorized than (Feriarsita 2001). Herbarium collection and identification had done after it.

Result and Discussion

It was found 30 spesies in 11 family of fern in the campus area, as could be seen at below table:

Table 1. Family, Species and Habit of ferns living in The University of Sriwijaya campus area, Indralaya, km 32, Ogan Ilir District, the province of South Sumatera, April 2011.

No.	Famili	Spesies	Habitus
1.	Aspleniaceae	<i>Asplenium caudatum</i> Forst.	herb
		<i>Asplenium cuneatum</i> Lam.	herb
		<i>Asplenium nidus</i> L.	herb
2.	Blechnaceae	<i>Blechnum orientale</i> L.	herb
		<i>Stenochlaena palustris</i> (Burm.) Bedd.	herb
3.	Davalliaceae	<i>Davallia denticulata</i> (Brum.) Mett.	shrub
4.	Dennstaedtiaceae	<i>Athyrium sorzogonense</i> (Presl.) Milde.	herb
		<i>Odontosoria chinensis</i> (L.) J. Smith.	herb
		<i>Pteridium aquilinum</i> (L.) Kuhn.	shrub
5.	Gleicheniaceae	<i>Gleichenia linearis</i> (Burm.) Clarke.	shrub
6.	Lygodiaceae	<i>Lygodium flexuosum</i> (L.) Sw.	herb
		<i>Lygodium scandens</i> (L.) Sw.	shrub
7.	Nephrolepidaceae	<i>Nephrolepis biserrata</i> (Sw.) Schott.	semak
		<i>Nephrolepis exaltata</i> (L.) Schott.	herb
8.	Polypodiaceae	<i>Drymoglossum piloselloides</i> (L.) Pr.	herb
		<i>Drynaria sparsisora</i> Moore.	herb
		<i>Microsorium scolopendria</i> (Burm.) Copel.	herb
		<i>Polypodium verrucosum</i> (Hook.) Wall.	herb
9.	Pteridaceae	<i>Adiantum tenerum</i> Sw.	herb
		<i>Cheilanthes tenuifolia</i> (Burm.f.) Sw.	herb
		<i>Pityrogramma calomelanos</i> (L.) Link.	herb
		<i>Pteris biaurita</i> L.	herb
		<i>Pteris ensiformis</i> Burm.	herb
		<i>Pteris multifida</i> Poir.	herb
		<i>Pteris vittata</i> L.	shrub
10.	Salviniaceae	<i>Azolla pinnata</i> R. Br.	herb
		<i>Salvinia cucullata</i> Roxb.	herb
		<i>Salvinia molesta</i> Hoffm.	herb
11.	Thelypteridaceae	<i>Christella dentata</i> (Forssk.) Br.	herb

As could be seen at table 1 above; those are 30 species were found in study area; more than species number of Feriarsita (2001) that studied the same subject years ago. But these number less than fern species that live in Coban Rondo, Malang State University area; 50 species (Sunarmi and Sarwono, 2004). Even if be compared with Kobe University fern number species, these are the less number; because Kobe University has 45 species (Nozaki et al., 2006). Manickam et al., (1970) found more

richness species in western Ghats, India; their paper records of 51 species of Pteridophytes (47 ferns and 4 fern allies) belonging to 32 genera under 27 families collected from the hill ranges.

All 30 species are categorized as class Pteropsida. Pteridaceae was the family with the richest . Inventarization of Sunarmi and Sarwono (2004) shows that Pteridaceae family had more species number than the others. Pteridaceae found in 15 kind of species. Nozaki et al., (2006) reported family Pteridaceae has many species richness than other families. Holtum (1966) cit. Feriarsita (2001) said that some species of Pteridaceae could grow better at open space but also at under canopy.

Pictures below show common species that found as terrestrial fern (left), epiphytes fern (middle) and hydrophyte/swampy (right).



Picture 1. *Gleichenia linearis*



Pic 2. *Davalia denticulata*



Pic 3. *Salvinia molesta*

Gleichenia linearis is a common fern distributed wherever. Indonesian peoples call these plant as Resam. Darus et al., (2004) reported that use of plant biomass such as fern tree (*Gleichenia linearis*) as metal sorbent offers a potential alternative to existing treatment technologies.

Schmitt and Windisch (2010) reported that in Rio Grande do Sul, Brazil, the greatest richness of epiphytic species occurred in Polypodiaceae (39%) and in the genus *Asplenium* L. (22%). Even this study find out *Davalia denticulata*, it may be caused by existing of palm trees in campus area. *Elaia guinensis* is the common habitat of *Davallia denticulata*.

Conclusion

30 species was founded that categorized in 11 family, where 24 of those species are herb life-form and 6 of them were bush fern; 27 species were life as terrestrial plants and 3 of them were swampy fern. *Gleichenia linearis* is the the common species found as terrestrial fern, *Davalia denticulate* common for epiphyte, and *Salvinia natans* was often found as hydrophytes.

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