
Short Notes

A preliminary survey of Araceae of Kadamaian-Kinabalu Park, Kota Belud, Sabah, Malaysia.

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Abstract

A preliminary survey on Araceae in Kadamaian - Kinabalu Park, Kota Belud, Sabah was conducted between 14th to 20th October, 2019. Four trails were surveyed namely Malangkap-Nariou Trail (425-670 m asl), Gansurai-Nopunggok Trail (~600m asl), Wasai Waterfall Trail (~425m asl) and Kampung Pinolobu Trail (~220m asl). A total of 25 species in nine genera of Araceae were recorded with at least two undescribed species. This finding shows that Kadamaian - Kinabalu Park indeed possesses unique forest ecology and should be gazetted as a protected area.

Keywords: Aroids, Araceae, Borneo, Kinabalu Park, Kota Belud

Introduction

Araceae family comprises about 144 genera with 6,000 estimated species of which currently 4,000 were formally described (Mayo et al., 1997, Boyce and Croat, 2011). This family can be found mainly at tropical areas but is also distributed worldwide (Cusimano et al., 2011, Croat 1979, 1994). The family is defined by having minute sessile flowers on spadix and covered by a spathe. The spadix may bear either unisexual or bisexual flowers. Most of the climbers have bisexual type of flowers while others have unisexual flowers. Ecologically, aroids can be found in streams, ponds and canals, terrestrial habitats, tidal mud, swamps and wasteland, forest floor, climbers, epiphytes and rheophytes (Mashhor et al., 2012).

The Araceae of Borneo currently stand at 575 species, of which 433 are formally described (Wong, 2016). Most Bornean terrestrial Araceae show marked local endemism, often to a very high degree, and are frequently associated with geological obligation. Fieldtrips in Sabah have resulted in numerous undeterminable species of aroids which on subsequent flowering in cultivation have proved to be taxonomic novelties (Kartini et al., 2017).

A preliminary survey of Araceae of Kadamaian - Kinabalu Park was conducted between 14th to 20th October, 2019 along four existing trails (Figure 1) namely Malangkap-Nariou Trail (425-670m asl; N 06°10.552' E116°30.380'), Gansurai-Nopunggok Trail (~600m asl; N 06°12.544' E116°30.275'), Wasai Waterfall Trail (~425m asl; N 06°13.414' E116°30.284') and Kampung Pinolobu Trail (~220m asl; N 06°15.303' E116°30.249'). A total of 50 plant individuals of Araceae family (with or without flowers) have been collected. The plant samples were brought back to the Institute for Tropical Biology and Conservation (ITBC), Universiti Malaysia Sabah (UMS) for specimen preparation and identification. The specimens are in the process of depositing in BORNEENSIS (BORH).

Morphological identification

Living plant samples were collected and grown at the nursery of ITBC, UMS awaiting flowering for further identification. Identifications are based on Boyce (2004), Boyce et al. (2001), Hay & Yuzammi (2000), Low et al. (2018) and Wong (2016).

Results

Three subfamilies and nine genera comprising 25 species were found in the sites surveyed (Table 1 and Figure 2). Pothoideae which is mostly a climber is represented by two species -- *Pothos scandens* and *Pothos* sp.

Most of the Monsteroideae and Aroideae species were found along riverbanks while *Nabalu corneri* was found abundant at rocky areas. Some of the *Homalomena* sp. was found abundant on mossy stones.

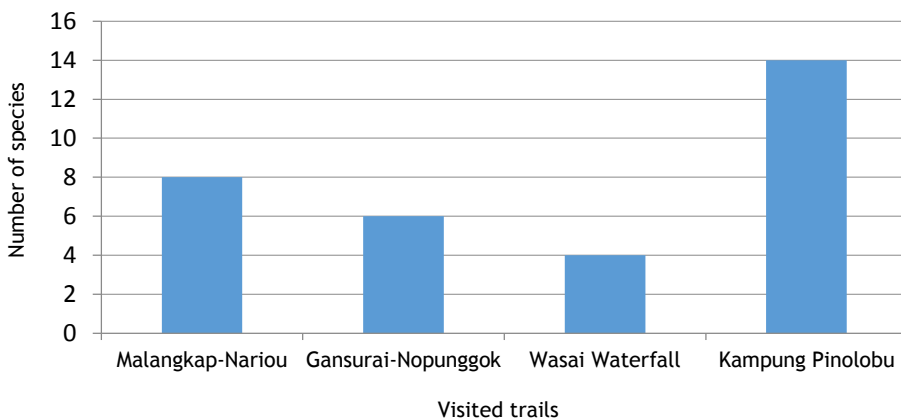


Figure 2. Total number of species in different trails.

Table 1. Araceae species in Kadamaian - Kinabalu Park.

Subfamily	Genus and Species	Malangkap-Nariou Trail (425-670m asl) N 06°10.552' E 116°30.380'	Gansurai-Nupunggok Trail (~600m asl) N 06°12.544' E 116°30.275'	Wasai Waterfall Trail (425m asl) N 06°13.414' E 116°30.284'	Kampung Pinolobu Trail (220m asl) N 06°15.303' E 116°30.249'
Pothoideae	<i>Pothos scandens</i> L.	-	-	-	+
	<i>Photos</i> sp.	-	+	-	+
Monsteroideae	<i>Amydrium medium</i> (Zoll. & Moritz) Nicolson	+	+	-	-
	<i>Rhaphidophora korthalsii</i> Schott	+	+	-	-
	<i>Rhaphidophora latevaginata</i> M. Hotta	-	-	-	+
	<i>Scindapsus curranii</i> Engl. & K. Krause	-	-	-	+
	<i>Scindapsus</i> sp. 1	+	-	-	+
	<i>Scindapsus</i> sp. 2	-	-	-	+
Aroideae	<i>Aglaonema nitidum</i> (Jack) Kunth	-	-	+	-
	<i>Alocasia</i> cf. <i>longiloba</i>	+	-	-	-
	<i>Alocasia</i> cf. <i>scabriuscula</i>	-	-	-	-
	<i>Homalomena marasmiiella</i> Kartini, P. C. Boyce & S. Y. Wong	+	-	-	+
	<i>Homalomena</i> sp.1 - Chamaecladon Clade	-	+	-	+
	<i>Homalomena</i> sp.2	-	+	-	-
	<i>Homalomena</i> sp.3	-	-	+	-
	<i>Homalomena</i> sp.4	+	-	-	+
	<i>Nabalu corneri</i> (A. Hay) S. Y. Wong & P. C. Boyce	+	-	-	-
	<i>Schismatoglottis ahmadii</i> A. Hay	-	-	+	-
	<i>Schismatoglottis</i> sp.1	-	-	-	+
	<i>Schismatoglottis</i> sp.2 - Patentinervia Clade	+	-	-	-
	<i>Schismatoglottis</i> sp.3 - Trifasciata Complex	-	-	-	-
	<i>Schismatoglottis</i> sp.4 - Antu Clade	-	+	-	-
<i>Schismatoglottis</i> sp.5	-	-	-	-	
<i>Schismatoglottis</i> sp.6 - Asperata Clade	-	-	-	+	
<i>Schismatoglottis unifolia</i> A. Hay & P. C. Boyce	-	-	-	+	
		-	-	+	-

Throughout the sampling period, Kampung Pinolobu Trail recorded the most number of species with only four species formally described, followed by Malangkap-Nariou Trail with five out of eight species recorded having been formally described. Wasai Waterfall Trail and Gansurai-Nopunggok Trail only recorded four and six species of Araceae respectively.

Discussion

The preliminary survey of Kadamaian revealed Araceae comprised largely of rather widespread species associated with disturbed habitats. The climbers *Pothos scandens*, *Rhaphidophora korthalsii*, *R. latevaginata* are the most widespread species of the genus in Sabah. *Scindapsus* sp. 1 is a widespread species that occurs throughout northern Borneo but has yet to be formally described.

The taxonomically intractable species complexes, *Alocasia* cf. *longiloba* is common and widespread but has yet to be described (Hay, 1998).

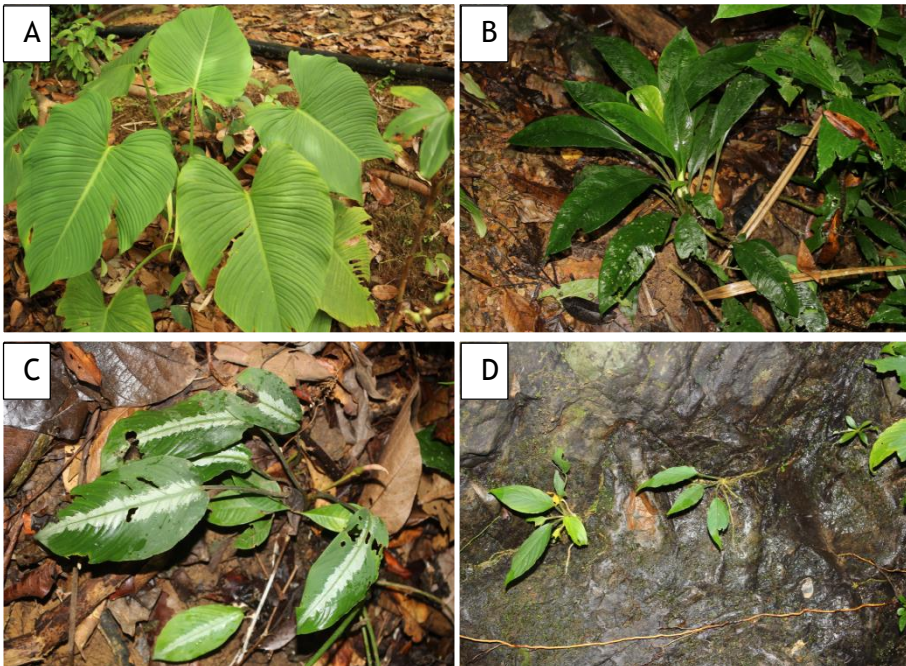


Figure 3. (A) *Nabalua corneri* (A. Hay) S.Y. Wong & P.C. Boyce; (B) *Schismatoglottis* sp. 2 (Patentinervia Clade); (C) *Schismatoglottis* sp. 3 (Trifasciata Complex); (D) *Schismatoglottis* sp. 4 (Antu Clade).

Homalomena is usually an aromatic herb distinguished by its persisting spathe and is mostly an undescribed species in Sabah (Wong, 2016). The *Homalomena* Chamaecladon clade (*Homalomena* sp.1) is the least well known four clades in the genus (Wong et al. 2020a & 2020b).

Nabalu corneri (A. Hay) S.Y. Wong & P.C. Boyce (Figure 3A) is a massive arborescent species frequenting forest gap-phases where it often becomes almost weedy (Low et al. 2018).

Schismatoglottis sp.2 (Figure 3B) in Patentinervia Clade resembles *Schismatoglottis retinervia* Furtado (Wong et al. 2017).

Schismatoglottis sp. 3 (Figure 3C) in the Trifasciata Complex and *Schismatoglottis* sp. 4 (Figure 3D) in the Antu Clade are unquestionably undescribed (Kartini et al. 2017; Wong & Boyce 2015).

Conclusion

Kadamaian - Kinabalu Park proved to be an interesting site for Araceae and should be gazette as a protected area due to the presence of two species of Sabah's endemics namely *Homalomena marasmiella* and *Schismatoglottis unifolia*.

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