Original Article

ProSaptia Contigua C. Presl (Grammitidaceae),
a New Record for Vietnam

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Received 9 February 2019
Revised 13 March 2019; Accepted 14 March 2019

Abstract: The specimens of genus ProSaptia C. Presl (family Grammitidaceae) stored in the Herbarium of the University of Science under Vietnam National University were studied with the traditional morphological methods. The study provides descriptions, illustrations and comparisons of 6 species of genus ProSaptia, namely ProSaptia alata, ProSaptia bar athrophylla, ProSaptia intermedia, ProSaptia pectinata, ProSaptia obliquata and ProSaptia contigua. ProSaptia contigua (G.Forst.) C.Presl has been identified as a new record for the flora of Vietnam.

Keywords: Genus ProSaptia, ProSaptia contigua, Grammitidaceae, new record for the flora of Vietnam.

1. Introduction

Grammitidaceae is a family of ferns that distributed mainly in Southeast Asia, including Vietnam. In 1941, Tardieu-Blot M.L. and Christensen C. showed that Vietnam has 4 species belonging to the genus ProSaptia, with namely as: ProSaptia stenobasis Baker, ProSaptia obliquatum Mett., ProSaptia urceolare (Hayata) Copel. and ProSaptia khasyana (Hook.) C.Chr. & Tardieu [1]. In 1991, Phạm Hoàng Hố pointed out that Vietnam has only 2 species: ProSaptia stenobasis Baker and ProSaptia urceolare (Hayata) Copel. [2]. In 2010 Phan K.L. showed that Vietnam has only one species, ProSaptia urceolare (Hayata) Copel. [3]. Until recently, the taxonomic concepts of grammitid ferns have been changing considerably under the light of molecular phylogeny. Ctenopteris Blume ex Kunze, Grammitis Sw. s.l. and Xiphopteris Kaulf. formerly widely used names for grammitid ferns, but are now considered to be unsatisfactory artificial genera based on frond dissection. Recent developments in Old World grammitid taxonomy have centred on describing new genera based upon additional morphological characters and two of the three old genera are no longer recognized. The type species of Ctenopteris has been transferred to ProSaptia...
In the genus *Prosaptia* of Vietnam have five-species that were registered now as *Prosaptia alata* (Blume) H.Christ (syn. *Ctenopteris alata* (Blume) Holttum), *Prosaptia barathrophylla* (Baker) M.G.Price (syn. *Ctenopteris barathrophylla* (Baker) Parris, *P. khasyana* auct. non (Hook.) C.Chr. & Tardieu: Tardieu & Christensen, *Prosaptia intermedia* (Ching) Tagawa (syn. *P. urceolaris* auct. non (Hayata) Copel.: Tardieu & Christensen, *Prosaptia obliquata* (Blume) Mett. (syn. *Ctenopteris obliquata* (Blume) Copel.), *Prosaptia pectinata* T.Moore (syn. *P. stenobasis* Baker, *Ctenopteris leysii* (Baker) Holttum) [4]. Specimen HLF5267b stored in the Herbarium HNU of VNU University of Science differs from all of cited species. It is identified by us as *Prosaptia contigua* (G.Forst.) C. Presl. Thus this is a new record for the fern flora of Vietnam.

**Table 1. Comparison of the basic characteristics of the species in the genus Prosaptia encountered in Vietnam**

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<tr>
<td>Stipe</td>
<td>Short, 5-18 mm long</td>
<td>Very short</td>
<td>Very short, 2 mm long</td>
<td>Short, 14-30 mm long</td>
<td>Winged to base or 1-10 mm long</td>
<td>Short, 10-25 mm long</td>
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<tr>
<td>Lamina</td>
<td>Linear-lanceolate, 144-270 x 14-25 mm, pinnately divided to wing 4.4-8 mm wide along rachis</td>
<td>Lanceolate, 120-530 (or more) x 16-30 mm, simply pinnatifid, wing 2.5-3 mm wide.</td>
<td>Narrowly elliptic, 110-180 x 15-21 mm, deeply pinnately divided to wing 0.5-1.3 mm wide along rachis</td>
<td>Narrowly elliptic in outline, pinnate or deeply pinnately divided to wing 0.1-0.2 mm wide along rachis</td>
<td>Narrowly elliptic in outline, 142-380 (or more) x 31-65 mm, deeply pinnately divided to wing 0.2-1 mm wide along rachis</td>
<td>Linear-elliptic, 140-200 x 18-27 mm, pinnate or deeply pinnately divided to narrow wing less than 0.8 mm wide along rachis.</td>
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<td>Pinnae</td>
<td>25-48 (or more) pairs, narrowly triangular to narrowly oblong in outline, obtuse to acute at apex.</td>
<td>36-74 (or more) pairs, very narrowly oblong to very narrowly triangular, entire, obtuse to acute at apex.</td>
<td>14-24 (or more) pairs, narrowly triangular oblong to narrowly oblong, entire, bluntly acute to acute at apex.</td>
<td>40-84 pairs, linear to linear-lanceolate, acute or obtuse at apex.</td>
<td>26-46 pairs, very narrowly triangular to very narrowly oblong, entire in sterile pinnae, crenate-undulate toward apex on margin in fertile ones, obtuse or rounded at apex.</td>
<td>38-52 (or more) pairs, very narrowly oblong to very narrowly triangular-oblong in outline obtuse at apex.</td>
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Sori  | Deeply sunken oblique or parallel to plane of lamina, opening at margin, lamina margin forming part of pits mouth. | Sunk in very distinct round pits, which do not show as papillae on the upper surface of the frond, perpendicular to plane of lamina. | Deeply sunken in cavities perpendicular to lamina surface with rim higher on side nearest costa, entirely on abaxial surface of lamina. | Sunken perpendicular to plane of lamina in steep-sided pits, mouth entirely on abaxial surface of lamina, rim of even height. | Sunken oblique or parallel to plane of lamina in semicircular to semi-elliptic pouches, opening at margin, lamina margin forming part of pits mouth. | Sunken in marginal urceolate cavities opening outward, parallel to plane of lamina, lamina margin forming part of pits mouth.

### Key to the species of Prosaptia in Vietnam

1a Sori perpendicular to plane of lamina .......................................................... 2

2a Sori without a raised rim .......................................................... P. barathrophylla

2b Sori with a rim ......................................................................................... 3

3a Rim higher on side nearest costa .......................................................... P. intermedia

3b Rim of even height .................................................................................. P. obliquata

1b Sori oblique or parallel to plane of lamina .................................................. 4

4a Rachis wing wide, more than 1 mm, up to 8 mm ................................. P. alata

4b Rachis wing narrow, less than 1 mm ...................................................... 5

5a Lamina margin forming part of pit mouth ............................................. P. pectinata

5b Lamina margin forming all of pit mouth ............................................... P. contigua

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Note: It is noteworthy that Prosaptia contigua’s hairs on the stipe in Vietnam is less than lectotype (BM 000036058!), sometimes lamina sudden decrease at apex.
2. Description

*Prosaptia contigua* (G.Forst.) C.Presl, Tent. Pterid. 166, 1836. **Basionym:** *Trichomanes contiguum* G.Forst., Fl. Ins. Austr. 84, 1786. **Type:** French Polynesia, Oceania, Tahiti, Society Islands - Windward, 11 June 1996, David Nelson s.n. (Lectotype BM 000036058!). **Synonym:** *Ctenopteris contigua* (G.Forst.) Holttum, Rev. Fl. Malaysia 2: 230, fig. 130. 1954. **Type:** C. Seram, Manusela National Park, along a trail between Wae (River) Ansela and Wae Huhu, Kecamatan (District) Seram Utara, Indonesia, 03 Jan. 1985, M.Kato, B.Sunarno and H.Akiyama (Isotype L 0700179!).

Stipe short, 1-2.5 cm long with occasional to scattered hairs, simple and tufted 2, sometimes 3, medium to dark reddish brown, less than 0.7 mm long.

**Lamina** linear-elliptic, gradually narrowing towards both ends sometimes sudden decrease at apex, 14-20 × 1.8-2.7 cm, acuminate at apex, gradually shortened downward to form small deltoid or semicircular pinnae; lamina pinnate or deeply pinnately divided to narrow wing less than 0.8 mm wide along rachis, 38-52 (or more) pairs, very narrowly oblong to very narrowly triangular oblong in outline, pinnae ascending, middle pinnae largest, 0.8-1.5 × 0.1-0.2 cm, dilated at base, obtuse at apex; margins of pinnae entire when sterile, lobed to wing less than 1 mm wide along pinna midvein when fertile, 1/3 to the apex of the pinnae; rachis prominent on both surfaces of lamina, medium brown or darker, concolorous to darker on both surfaces, terete at base; costae slightly prominent on both surfaces; veins slightly superficial and short, simple; hairs simple, solitary or sometimes tufted 2-3, medium to dark reddish brown, 0.2-0.7 mm, dense and short hairs on abaxial side of rachis, scattered on adaxial side, occasional to scattered on both sides of costae and margin, sparse on both sides of lamina. Sorus 1 per tooth and/or 1 at apex of pinna, 1-4 on each pinna, sunken in marginal urceolate cavities opening outward, parallel to plane of lamina, lamina margin forming of pit mouth, rim of cavity slightly with some short simple hairs on both sides.


**Distribution - Outside Vietnam:** S India, Sri Lanka, Thailand, S China, Taiwan, Sumatra, Peninsular Malaysia, Borneo (Sabah and Sarawak), Java, Lesser Sunda Islands, the Philippines, Sulawesi, Maluku, New Guinea, NE Australia and the Pacific Island [6]; - In Vietnam: Lam Dong Province, Lac Duong District, Da Chais Community, only one specimen was collected.

**Ecology - Outside Vietnam:** Uncommon epiphyte 0-3 m up on trees 10-30 cm diameter and on rotten logs, sometimes by streams, or lithophyte on granite, in ridge crest and valley lower montane forest and ridge crest upper montane forest from 760 to 1700 m [6]; - In Vietnam: It is occasional an epiphyte on mossy trees in primary mossy wet coniferous forest with the dominance of *Fokienia hodginsii* along main ridge, 2100-2300 m.

**Acknowledgements**

The authors would like to thank the Herbarium HNU of VNU University of Science for enabling us to study the specimens here.

**References**


[3] P.K. Loc, The Updated Checklist of the Fern Flora of Vietnam following the classification scheme of


[12] http://www.nhm.ac.uk/
