

BOEHMERIA PILOSIUSCULA VAR. SUFFRUTICOSA ACHARYA, FRIIS & WILMOT-DEAR (URTICACEAE), A NEW RECORD FOR THE FLORA OF VIETNAM

Vu Anh Thuong¹, Bui Hong Quang¹, Do Van Hai¹, Duong Thi Hoan¹, Le Ngoc Han¹, Doan Hoang Son², Tran Thi Ngoc Diep³, Nguyen Thi Tuyet Nhung³, Tran Duc Binh^{1*}

¹Institute of Ecology and Biological Resources – VAST,

²Institute of Forest Tree Improvement and Biotechnology, ³Hung Vuong University

ARTICLE INFO	ABSTRACT
Received: 02/9/2022	<i>Boehmeria pilosiuscula</i> has two varieties, including <i>Boehmeria pilosiuscula</i> var. <i>pilosiuscula</i> distributed in north-eastern and south-eastern India, Sri Lanka, Burma, Philippines, Indonesia and <i>Boehmeria pilosiuscula</i> var. <i>suffruticosa</i> distributed in China (Hainan, Taiwan), Myanmar, and Thailand. These varieties can be differentiated by length of female flower-bearing (≤ 2 cm with 3–10 cm long) and number of marginal teeth (up to 30 either side with more than 35 either side). <i>Boehmeria pilosiuscula</i> var. <i>suffruticosa</i> Acharya, Friis & Wilmot-Dear (Urticaceae) undetermined from the literature of Vietnam. It's reported here for the first time. It was discovered during the botanical surveys in Muong Nhe Nature Reserve of Dien Bien province of Northwestern Vietnam. The taxon is morphologically similar to <i>Boehmeria japonica</i> and <i>B. virgata</i> subsp. <i>macrophylla</i> in its leaf shape and margin, and spikes usually less than 26 cm. This paper provides a detailed morphological description, distribution map, ecological information, and a color photoplate of this taxon.
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BOEHMERIA PILOSIUSCULA VAR. SUFFRUTICOSA ACHARYA, FRIIS & WILMOT-DEAR (URTICACEAE), LOÀI BỎ SUNG MỚI CHO HỆ THỰC VẬT VIỆT NAM

Vũ Anh Thương¹, Bùi Hồng Quang¹, Đỗ Văn Hải¹, Dương Thị Hoàn¹, Lê Ngọc Hân¹, Doãn Hoàng Sơn², Trần Thị Ngọc Diệp³, Nguyễn Thị Tuyết Nhung³, Trần Đức Bình^{1*}

¹Viện Sinh thái và Tài nguyên sinh vật - Viện Hàn lâm Khoa học và Công nghệ Việt Nam

²Viện Nghiên cứu Giống và Công nghệ sinh học Lâm nghiệp, ³Trường Đại học Hùng Vương

THÔNG TIN BÀI BÁO	TÓM TẮT
Ngày nhận bài: 02/9/2022	<i>Boehmeria pilosiuscula</i> gồm có 2 thứ: <i>Boehmeria pilosiuscula</i> var. <i>pilosiuscula</i> có phân bố ở Đông Bắc và Đông Nam Ấn Độ, Srilanka, Bruma, Philippin, Indonexia và <i>Boehmeria pilosiuscula</i> var. <i>suffruticosa</i> có phân bố ở Trung Quốc (Hải Nam, Đài Loan), Myanmar, và Thái Lan. 2 thứ này khác nhau bởi đặc điểm độ dài của hoa cái (nhỏ hơn 2 cm với 3-10 cm) và số lượng răng ở mép lá (không đến 30 cái mỗi bên và nhiều hơn 35 cái mỗi bên). <i>Boehmeria pilosiuscula</i> var. <i>suffruticosa</i> Acharya, Friis & Wilmot-Dear (Urticaceae) chưa được biết đến ở Việt Nam qua các tài liệu, nó được ghi nhận mới lần đầu tiên ở đây. Loài được tìm thấy trong chuyến đi khảo sát thực vật ở khu Bảo tồn thiên nhiên Mường Nhé của tỉnh Điện Biên, phía Tây Bắc của Việt Nam. Loài này có đặc điểm hình thái gần giống với loài <i>Boehmeria japonica</i> và <i>B. virgata</i> subsp. <i>macrophylla</i> bởi hình dạng lá và mép và gai thường ít hơn 26 cm. Bài báo này cung cấp các đặc điểm về hình thái học, bản đồ phân bố, thông tin về sinh học sinh thái và ảnh màu của loài.
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TỪ KHÓA	
Boehmeria	
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* Corresponding author. Email: tranbinha4@gmail.com

1. Introduction

The genus *Boehmeria* Jacq. belongs to the family Urticaceae consisting of over 65 species, distributed mostly in tropical, subtropical, and sometimes in temperate regions [1]. The genus is known by 33 species in the old world including 31 varieties (a new taxa *Boehmeria pilosiuscula* var. *suffruticosa* was described) [2]. In Vietnam, they are represented by 9 species and 2 varieties [3]-[5].

During our regular fieldwork in Dien Bien province of Northwestern Vietnam, we collected several specimens of *Boehmeria*. Based on the scrutiny of the available literature [1], [3], [4], [6] and herbarium specimens of *Boehmeria* in multiple herbaria, we found *Boehmeria pilosiuscula* var. *suffruticosa* Acharya, Friis & Wilmot-Dear as a new record for the flora of Vietnam. The taxonomic description, photographs, habitat details, and distribution data are provided for easy identification of this taxon.

2. Materials and Methods

A detailed morphological comparison was made [1], [2], [4], [6]-[9] between the newly recorded taxon with their allies based on literature [3], [6], Internet resources [10]-[12], as well as herbarium specimens housed at the herbaria of the Institute of Ecology and Biological Resource (HN), Guangxi Institute of Botany (IBK), South China Botanical Garden (IBSC), Institute of Botany, Chinese Academy of Sciences (PE), South China Normal University (SN), Aarhus University (AAU), and Naturalis Biodiversity Center (L).

Specimens were collected from the Muong Nhe Nature Reserve, of Dien Bien province during 2021. All specimens were thoroughly processed using standard herbarium methods [13] and deposited in HN.

3. Result and Discussions

3.1. Taxonomic treatment

Boehmeria pilosiuscula var. *suffruticosa* Acharya, Friis & Wilmot-Dear, Blumea 58: 203, 2013 (Fig.2)

Subshrubs or herbs, perennial, 0.4-0.6 m tall; upper stems densely strigose or velutinous. Leaves opposite, unequal in size; stipules subulate-lanceolate, 5-10 mm; petiole 0.3-6.5 cm, velutinous; leaf blade obliquely ovate or obovate-elliptic, 3-11 × 1.5-6.2 cm, herbaceous, slightly rugulose, secondary veins 3 pairs along midvein, abaxial surface pubescent or velutinous along veins, adaxial surface strigose, base obliquely rounded or obtuse, margin serrulate (25-35 each side), broader rather than more numerous in larger leaves, 1(-1.5) × 2-3(-4) mm, apex acuminate or shortly acuminate, serrulate. Glomerules unisexual, in short congested, often unbranched bisexual spikelike shoots, 0.8-2 cm; male glomerules distal. Male flowers 4-merous, sessile or subsessile. Female and bisexual axes 0.8-2 cm long but lower 0.5-1 cm of axis often naked; perianth lobes ca. 1 mm, sparsely puberulent, connate at base. Fruiting perianth narrowly obovoid, compressed, ca. 1 mm, smooth, strigose on shoulder, smooth, apex 2-toothed. Seed ca. 0.5-0.8 mm.

Type: THAILAND, Nan Province, Sapan falls, 600 m, *Larsen et al.* 44502 (holotype K, Photo!; Isotype AAU, Photo!).

Vietnamese name: Gai thấp, Gai bụi thấp. Flowering and fruiting: September- March.

Ecology and habitat: This taxon grow in the secondary forest, often near streams; roadside banks; 500-1200 m altitude.

Distribution: Myanmar, Southern China (including Hainan and Taiwan), Thailand, and Vietnam (Dien Bien province, Muong Nhe district) (Fig. 1).

Conservation status: *Boehmeria pilosiuscula* var. *suffruticosa* grows on slopes, secondary forest at elevation of about 600 m a.s.l., in association with *Clerodendron* sp., *Pittosporopsis*

kerrii, *Saprosma ternata*, *Curculigo* sp., *Microtropis discolor*, *Staphylea indochinensis*, *Ophiopogon* sp. This taxon may have been well studied for biological properties, but precise data on the abundance and geographic range are lacking [14]. We found its distribution only in Dien Bien province to date, consisting of at least twenty mature individuals. Consequently, it is assessed here as Data Deficient (DD) because there is insufficient data available to directly or indirectly evaluate its extinction risk based on the distribution and population status.

Additional specimens examined:

CHINA, Hainan: 08 January 1934, C.W. Wang 36186 (IBK: IBK00089604, Photo!; IBSC: IBSC0357261, Photo!; PE: PE00495349, Photo!; SN: SN006714 Photo!); 20 December 1933, C.W. Wang 35670 (PE: PE 00495350, Photo!).

Taiwan: Miaoli Hsien: Taian Hsiang: en route from Hushan. Mineral Spring to Taian Mineral Spring, alt. 500-600 m, 29 September 1990, Lin C.H. 555 (Barcode 03507952 Photo!).

THAILAND, Nan Province, Sapan (Spun) waterfall, few km N of Ban Bo Kluei, E. of Road 1081, alt. 600 m, 17 November 1993, Larsen, K. et al. 44502 (AAU), Doi Phu Kha NP., Nature trail, alt. 1430 m, 18 September 2003, Phonsena P. et al. 3942 (L0738029 Photo!); Chiang Mai province, South of Pang Faen km 5 along road 1252, a side-road to 118 (formerly 1019), alt. 1000 m, 25 March 1993, Larsen, K. et al. 44804 (AAU), Doi Saket, 31 October 1930, Put 3273 (L1624490); Chiang Rai, Doi Pa Hom Park, NW of Phan, alt. 600-1300 m, 15 September 1967, Iwastuki K. T-9728 (L1624491 Photo!); Lampang province, Wahng Nua, Doi Luang National Park, Wahng Gayo Falls, alt. 600 m, 07 September 1997, Maxwell J.F. 97-962 (L0390873, Photo!).

MYANMAR, Valley of the Meh Len, between Muang Hpyak and Pang Sop Lao, alt. 525-690 m, 27 January 1922, Rock, J.F. 2126 (Barcode 00652325, Photo!).

VIETNAM, Dien Bien province, Muong Nhe district, Leng Su Sin commune, Muong Nhe Nature Reserve, N 22° 19' 40.5"; E 102° 22' 44.1"; alt. 584 m, 11 March 2021, Tran The Bach, Do Van Hai, Bui Hong Quang, Doan Hoang Son, Vu Anh Thuong, Tran Duc Binh, MOST 394 (HN) (Fig. 1).

3.2. Discussion

Boehmeria pilosiuscula is distinctive in its female and bisexual inflorescence-bearing axes short. However, two regional varieties var. *pilosiuscula* and var. *suffruticosa* are recognized. The former is distributed in north-eastern and south-eastern India, Sri Lanka, Burma, Philippines, Indonesia and later in China, Myanmar, and Thailand. These varieties can be differentiated by female flower-bearing part ≤ 2 cm; marginal teeth 1(-1.5) mm long, usually up to 30 either side (var. *suffruticosa*) vs female flower-bearing part 3-10 cm long, marginal teeth either more than 35 either side or ≥ 2 mm long (var. *pilosiuscula*).

Key to the known allied taxa of *Boehmeria pilosiuscula* var. *pilosiuscula*

Branches strigose; leaf blade ovate or narrowly ovate, margin dentate, denticulate, or serrulate, with entire tip; spikes usually less than 26 cm.

1. Female spikes 0.8-2 cm; plants 0.4-0.6 m tall *Boehmeria pilosiuscula* var. *suffruticosa*

1. Female spikes 7-20 cm; plants 0.7-2 m tall

2. Leaf teeth 6-20 mm, gradually larger distally *Boehmeria japonica*

2. Leaf teeth 2-5 mm, regular *Boehmeria virgata* subsp. *macrophylla*

Boehmeria pilosiuscula var. *suffruticosa* is also morphologically allied to *B. japonica* and *B. virgata* subsp. *macrophylla* in leaf shape and other features (Table 1).

Table 1. Morphological comparisons of *Boehmeria pilosiuscula* var. *suffruticosa* with *B. japonica* [1] and *B. virgata* subsp. *macrophylla* [2]

Characters	<i>B. pilosiuscula</i> var. <i>suffruticosa</i>	<i>B. japonica</i>	<i>B. virgata</i> subsp. <i>macrophylla</i>
Habit	0.4-0.6 m tall	0.6-1.5 m tall	0.5-2 m tall
Leaves	unequal in size	subequal in size	unequal in size
Stipules	subulate-lanceolate, 5-10 mm long	lanceolate, 0.8-1.2 mm long	lanceolate, 4-11 mm long
Petiole length	0.3-6.5 cm	6-8 cm	0.8-8 cm
Blade	3-11 cm long	7-17 cm long	6-18 cm long
Secondary veins	3 pairs along midvein	1-3 pairs along midvein	2 or 3 pairs along midvein
No of tooth in leaf margin	25-35	7-14	10-60
Abaxial surface of leaf	pubescent or velutinous along veins	pubescent or sericeous along veins and veinlets	rugulose
Adaxial surface of leaf	strigose	strigose	strigose
Female spikes	0.8-2 cm long	7-20 cm long	7-20 cm long
Perianth lobes	1 mm	1 mm	1.5 mm
Fruiting perianth	1 mm	1.8 mm	0.7-1.5 mm

4. Conclusion

Our research for the first time reports occurrence of *Boehmeria pilosiuscula* var. *suffruticosa* in Vietnam. We believe that this report will help to understand the Vietnam flora in a better way.

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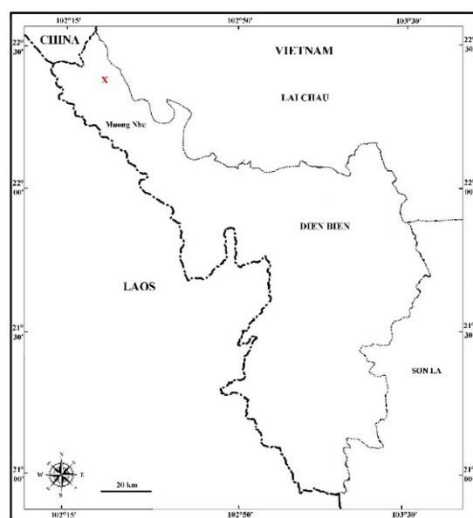


Figure 1. Distribution map of *Boehmeria pilosiuscula* var. *suffruticosa* Acharya, Friis & Wilmot-Dear. in Dien Bien Province, Vietnam (location indicated by X)

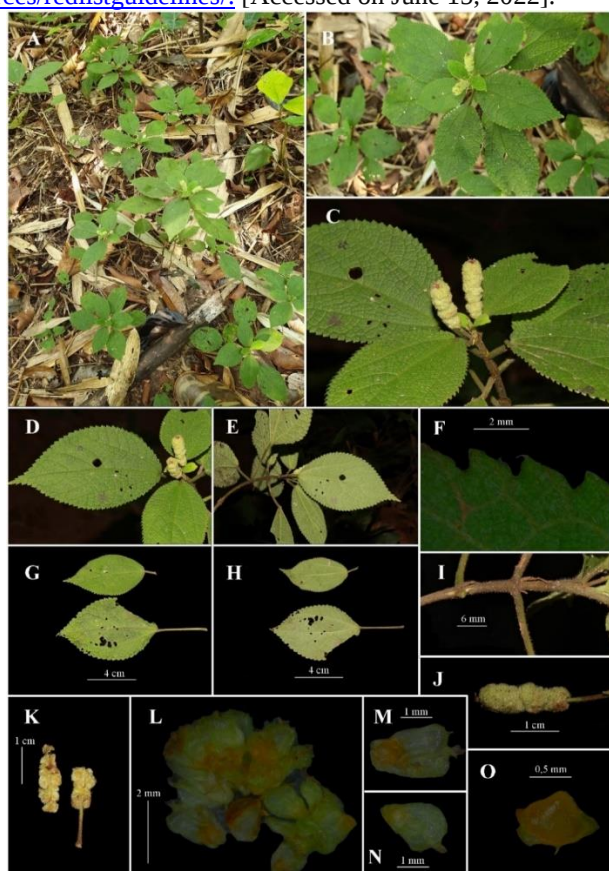


Figure 2. *Boehmeria pilosiuscula* var. *suffruticosa* Acharya, Friis & Wilmot-Dear.

A, B. Habitat; C, D. Flowering branch with female inflorescence shown in front; E. Flowering branch showing female inflorescence on lower side; F. Serrated leaf margin; G. Adaxial side of leaf; H. Abaxial side of leaf; I. Stem and stipule; J, K. Female inflorescence; L. Part of female inflorescence; M, N. Fruiting perianth; O. Seed. (Photo by V.A. Thuong and T.D. Binh)