STUDY ON THE SECTION Trifoliolata DC. 
(Jasminum L. - Oleaceae Juss.) IN VIETNAM

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ABSTRACT: Jasminum L. comprises about 200 species in the world including 5 sections: Jasminum Green, Alternifolia DC., Trifoliolata DC., Primulina Green and Unifoliolata DC. They distributed in tropical and subtropical in South East Asia, Europe, Australia and Africa. Section Trifoliolata DC. was published by De Candolle (1844) with the typus Jasminum didymum G. Forst. and characterized by leaves 3-foliolate, terminal leaflet slightly larger than or equal to lateral leaflets or sometimes, lateral leaflets reduced. There are about 10 species and 5 subspecies in this Section in the world. In Vietnam, there are 1 species and 2 subspecies in section Trifoliolata DC. recorded. In this paper to we introduced Jasminum sinense Hemsl. in sections Trifoliolata DC. as a new record for flora of Vietnam. This species is found in Ha Giang (Pho Bang) and has characteristic of Trifoliolata DC. section such leaves 3-foliolate. Jasminum sinense was closed to Jasminum brevilobum by lateral leaflets reduced, leaves and calyx pilose (different with Jasminum lanceolaria subsp. lanceolaria and Jasminum lanceolaria subsp. scorcherii) by terminal leaflet slightly larger than or equal to lateral leaflets, leaves and calyx glabrous). But Jasminum sinense characterized by calyx lobes linear, 1-5 mm long. In this article, we introduce nomenclature, key to species, morphology and illustration, distribution and research specimen of three species of Trifoliolata DC. section (Jasminum L.) from Vietnam.

Keywords: Oleaceae, Jasminum, Trifoliolata, morphology, new record, Ha Giang, Vietnam.

INTRODUCTION

Jasminum L. Comprises about 200 species in the world including 5 sections: Jasminum Green, Alternifolia DC., Trifoliolata DC., Primulina Green and Unifoliolata DC. They distributed in tropical and subtropical in South East Asia, European, Australia and Africa [4, 5, 7].

Section Trifoliolata DC. was published by De Candolle (1844) [1] with the typus was Jasminum didymum G. Forst. and characterized by leaves 3-foliolate, terminal leaflet slightly larger than or equal to lateral leaflets or sometimes, lateral leaflets reduced. There are about 10 species and 5 subspecies in this Section in the world. Green (2001) [5] research on this section in Australia, South East Asia and China had introduced 6 species, 2 varieties and 3 subspecies.

According to recent research, genus Jasminum L. in Vietnam has about 30 species [10] including 2 sections, viz: Trifoliolata DC. and Unifoliolata DC. and there are 1 species and 2 subspecies of section Trifoliolata DC. recorded in Vietnam [3, 8, 9].

During studying specimens of this section in the Herbarium, we introduced Jasminum sinense Hemsl. with leaves 3-foliolate in sections Trifoliolata DC. as a new record for flora of Vietnam, this species had been recorded only in China (Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Sichuan, Taiwan, Yunnan, Zhejiang) [2]. The voucher of this species was kept in HN Herbarium. Thus, this section in Vietnam has 2 species and 2 subspecies, viz: Jasminum brevilobum, Jasminum lanceolaria subsp. lanceolaria and Jasminum lanceolaria subsp. scorcherii and Jasminum sinense. Nomenclature, a key to species, morphology and illustration of three species was proridet.

MATERIALS AND METHODS

Materials were vouchers of all species of Trifoliolata DC. section from Vietnam which were kept in Herbaria of Institute of Ecology and biological Resources (HN), Institute of Tropical Biology (VNMN), National Institute of
Medicinal Materials (HNPI), VNU University of Science (HNU), Kunming Botanical Garden (KUN), South China Botanical Garden (SCBG), Herbarium of the Museum National d’Histoire Naturelle in Paris (P), and specimens collected from the field trips.

RESULTS AND DISCUSSION

Key to species of *Trifoliotata* DC. section (*Jasminum* L.) in Vietnam

1A. Lateral leaflets reduced; leaves and calyx pilose.

2A. Calyx lobes linear, 1-5 mm long.

2B. Calyx lobes shallow, triangular, 0.5 mm long.

1B. Terminal leaflet slightly larger than or equal to lateral leaflets; leaves and calyx glabrous.

3A. Corolla tube 17-25 mm long, fruit 8-9 × 7 mm.

3B. Corolla tube 10-15 mm long, fruit 20 × 12 mm.

1. *Jasminum sinense* Hemsley - Nhài hà giang (Fig. 1)


   Vines twining, 1-8 m, branchlets terete, densely rusty villous. Leaves opposite, 3-foliolate, lateral leaflets reduced; petiole 0.5-3.5 cm long; terminal leaflet ovate to ovate-lanceolate, 3-12.5 × 2-8 cm, rusty pubescent and more densely so along veins abaxially, base rounded or rounded-cuneate, apex obtuse, acute, to acuminate; primary veins 3-6 on each side of midrib; lateral leaflets 1.5-6.5 × 0.8-5 cm. Cymes congested to panicules, terminal or axillary, many-flowered. Flowers fragrant, pedicel 0.5 mm long. Calyx pilose; tube 2.3 mm long; 5 lobes linear, 1-5 mm. Corolla white or yellowish, salverform; tube 1.5-4 cm; lobes 5, oblong or lanceolate, 0.6-1.4 cm. Stamen 2, filament short, attach near throat; anther 3 mm. Fl. June-October, Fr. September-May (next year).

   ![Figure 1. *Jasminum sinense* Hemsley](image)

   **Figure 1.** *Jasminum sinense* Hemsley - Nhài hà giang

   1. Branch with flower; 2. part of branchlet; 3. leaf;
   4. calyx; 5. corolla tube (open); 6. corolla lobe;
   (illustration drawn by Mrs Kim Chi from Bien 420-HN)

   **Loc. class.:** China (Kwong tung). **Syntype:** s.n. 114 (P; SCBG!).

   **Distribution:** Ha Giang (Pho Bang). China.
Specimen examined: Ha Giang, Bien 428 (HN).

Note: A new record for flora of Vietnam.

2. Jasminum brevilobum A. DC. - Nhài thùy ngân (Fig. 2)


Figure 2. Jasminum brevilobum A. DC. - Nhài thùy ngân

1. Branch with flower; 2. leaf; 3. calyx; 4. flower; 5. corolla tube (open); 6. pistil; 7. Fruiting brach (illustration drawn by Mrs Kim Chi from VK 4426-HN).

Shrubs scandent, 1-5 m; branchlet slender, pubescent when young. Leaves 3-foliolate, lateral leaflets reduced; petiole 1-2 cm; terminal leaflet ovate or lanceolate 6-10 x 2.5-4.5 cm, base rounded or truncate; apex obtuse to caudate; adaxial sparse pilose, abaxial densely pubescent; primary vein prominent abaxial, lateral 4-5 pairs, pinnately; lateral leaflet small, 8-10 x 5-6 mm; base obtuse. Compound cymes terminal, many flowers, yellow pilose. Bract leafy, 1-2 cm long, branch bracts linear, 1 mm long. Flower white, pedicel 2 mm long or not. Calyx tubular, funnel, 5x5 mm; 5 lobes shallow, triangular, 0.5 mm long, pilose. Corolla white, salverform, tube 1.5-2 cm; 6 lobes, oval, 5-6x3-4 mm. Stament short, filament terete, 1 mm long; anther oval, 4 mm long. Gynoecum ovoid, 1.5 mm long, pilose; style terete, 1-1.5 cm, stigma 3.5 mm, bilobes. Berry, globose, 5-6 mm in diam. Seed 1. Fl. June-July, Fr. September-October.

Loc. class.: India, Nilgiris.

Typus: Perrottet s.n (HT: G; IT: K).

Distribution examined: Da Nang (Tourane), Gia Lai (MangYang), Ninh Thuan (Phan Rang). India.


3a. Jasminum lanceolaria subsp. lanceolaria P. S. Green. - Nhài thon (Fig. 3)


Shrubs scandent, 10-15 m; branchlets terete, glabrous or pubescent. Leaves opposite or nearly so, 3-foliolate; petiole 1-4.5 cm, glabrous to puberulent; terminal leaflet with petiolute 0.5-4.5 cm; leaflet blade elliptic, ovate, to lanceolate, rarely suborbicular, 3.5-16 x 1-9 cm, leathery, base rounded or cuneate, apex obtuse to caudate; primary veins obscure, lateral 5-7 on each side, very obscure. Compound cymes often paniculate, terminal or axillary, many flowered; bracts linear, 1-5 mm, branch bracts scale. Flowers fragrant, pedicel 0.5-5 mm long. Calyx cup, glabrous, 2 mm long; lobes deltate, 0.1-0.5 mm long. Corolla white, salverform; tube 1.7-3.5 cm; lobes 4 or 5, lanceolate to oblong, 12-14 x 3-4 mm. Stamen 2, filament short, attach near
throat, anther 5.5 mm long. Gynoecum cylinder, 0.5 mm long; style terete, 4.6 mm long, stigma 3 mm. Berry black, drying orange-yellow, ellipsoid, 8-9 × 7 mm. Fl. April-August. Fr. June-March (next year).

**Figure 3.** Jasminum lanceolaria subsp. lanceolaria P.S.Green. - Nhài Thon
1. Branch with fruit; 2. calyx; 3. young flower; 4. flower; 5. fruit
(illustration drawn by Mrs Kim Chi from Phương 3568 (HN))

**Loc.cl.** India, Khasia.

**Typus:** Griffiths in Herb. E. Ind. Co. 3715 (NT: K).

**Distribution:** Hoa Binh (Mai Châu), Lao Cai, Thua Thien - Hue (Bach Ma), Kon Tum, Gia Lai (K’ Bang), Dak Lak.

**Specimen examined:** Cao Bang, Bien - Do 43 (HN). - Lao Cai, Petelot 5886 (VMN). - Thua Thien - Hue, N. T. Nhan 750 (HN); T. D. Dai 315 (HN). - Gia Lai, KNP 977 (HN); B. H. Quang 50 (HN); VK 741(HN). - Kom Tum, DKH 4709 (HN). - Dak Lak, Dung 414 (HN); Bien 1038 (HN); T. D. Ly 714 (HN).

**CONCLUSION**

There are 2 species and 2 subspecies of *Trifoliolata* DC. (*Jasminum* L.) in Vietnam including 1 new record for flora of Vietnam (*Jasminum sinense* Hemsl.).

The morphological characteristics such: lateral leaflets reduced or present; leaves glabrous or pilose; calyx glabrous or pilose; calyx lobes shallow, triangular or deeply, linear; length of corolla tube and side of fruit was used to identify the species.

Distribution and studied specimen of each species were cited.

**Acknowledgment:** We are thankful to the Herbarium of South China Botanical Garden, Chinese Academy of Sciences (IBSC); “This research is funded by Vietnam National Foundation for Science and Technology Development (NAFOSTED) under grant number 106.11-2012.37”; Project TN3/T07 of
the National Program Tay Nguyen III and project Bioprospecting on Biological Materials of Vietnam and Korea for their help during this research.

REFERENCES


NGHỊÉN CỨU NHÁNH (Sec. Trifoliolata DC.)
THUỘC CHI Jasminum L. (HỌ NHÃI - Oleaceae Juss.) Ở VIỆT NAM

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TÓM TÀT

Trên thế giới, chi Jasminum L. có khoảng trên 200 loại được chia thành 5 nhánh Jasminum Green, Alternifolia DC, Trifoliolata DC. Primulina Green và Unifoliolata DC. có phần bố ở các vùng nhiệt đới và cận nhiệt đới ở Đông Nam A, châu Âu, châu Úc và châu Mỹ. Nhánh Trifoliolata DC được De Candolle (1844) công bố với loài chuẩn là Jasminum didymum G. Forst. với đặc điểm là lá kép 3 lá chét, 2 lá chét bên bãng hoặc gần bằng là chét hay 2 lá chét bén tiêu giảm. Trên thế giới, nhánh Trifoliolata DC có khoảng 10 loài và 5 duỗi loài. Ở Việt Nam đã ghi nhận được có 1 loài và 2 duỗi loài thuộc nhánh Trifoliolata DC.

Trong quá trình nghiên cứu mâu tiêu bến và tài liệu chỉ nay ở các phòng tiêu bến Việt Nam, chúng tôi đã phát hiện loài Jasminum sinense Hems. thuộc nhánh Trifoliolata DC. là loài mới, bổ sung cho hệ thực vật Việt Nam, loài này phân bố ở Hà Giang (Phô Băng) có đặc điểm đặc trưng của nhánh Trifoliolata DC. là lá kép có 3 lá chét. Loài Jasminum sinense gắn với loài Jasminum brevilobum bởi lá có lòng, là chét bén nhiều hơn nhiều so với lá chét ở giữa, dài có lòng (khác biệt với 2 duỗi loài Jasminum lanceolatia subsp.
lanceolaria và Jasminum lanceolaria subsp. scortechinii có lá nhân, lá chét bên gần bằng lá chét giữa, dài nhân). Tuy nhiên loài Jasminum sinense khác biệt bởi dài xẻ sâu, thủy dài hình soi, dài 1-5 mm.

Trong bài báo này, chúng tôi giới thiệu danh pháp, xây dựng khóa định loại và mô tả chi tiết, hình vẽ, trích dẫn phân bố và mẫu nghiên cứu ba loài trong nhánh Trifoliolata DC. thuộc chi Jasminum L. ở Việt Nam.

Từ khóa: Oleaceae, Jasminum, Trifoliolata, Jasminum sinense, ghi nhận mới, Hà Giang, Việt Nam.

Ngày nhận bài: 12-7-2013