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A new record of Ericaceae from China: *Vaccinium eberhardtii* Dop

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Abstract: *Vaccinium eberhardtii* Dop (Ericaceae), a species previously known only from Vietnam and Thailand, is newly recorded from China. This species belongs to *Vaccinium* sect. *Bracteata*, and it is similar to the other two members of the same section, i.e. *V. bracteatum* and *V. wrightii*. However, *V. eberhardtii* is different from the former in having glabrous peduncle, pedicel and calyx tube, glabrous spherical-urceolate corolla and anthers with two conspicuous spurs, and can be easily distinguished from the latter by having pedicels, shorter than bracts and the upward spurs on the back of the anther, and longer than half of the anther tube. Previously, it was reported only from Central Vietnam and Thailand. This new finding extends its distribution to the coastal areas of Dongxing City, Guangxi Zhuang Autonomous Region, South China, which adds new distribution information for this species and the future taxonomic revision of the whole genus. The vouchers are kept in the herbaria of South China Botanical Garden, Chinese Academy of Sciences (IB-SC) and Guangxi Institute of Botany, Chinese Academy of Sciences (IBK).

Key words: Ericaceae, *Vaccinium eberhardtii* Dop, Guangxi of China

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中国杜鹃花科植物新记录种——埃氏越橘

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摘要: 该文报道了国产杜鹃花科(Ericaceae)一新记录种,即埃氏越橘(*Vaccinium eberhardtii* Dop)。该种隶属于越橘属(*Vaccinium*)南烛组(*Vaccinium* sect. *Bracteata*),与同属于该组的南烛(*V. bracteatum*)和海岛越橘(*V. wrightii*)近缘,但与前者的区别在于花序梗、花梗、萼筒无毛,花冠球状坛形,药室背部明显具2个距,与后者的区别在于花梗较短,短于苞片,药室背后的距直立,长超过药管的一半。据文献记录,该种原来仅分布于越南中部和泰国,此次发现该种的分布范围可以北延至中国的广西东兴市的沿海地区,不仅丰富了越橘属分类、分布的数据,也为今后该属的分类学修订提供了新资料。凭证标本保存在中国科学院华南植物园标本馆(IBSC)和中国科学院广西植物研究所标本馆(IBK)中。

关键词: 杜鹃花科, 埃氏越橘, 中国广西

Vaccinium L., with about 450–500 species, is the largest genus of Vaccinieae Rchb., Ericaceae (Fang & Stevens, 2005; Vander Kloet & Dickinson, 2009). The recent preliminary phylogenetic analyses revealed that *Vaccinium* was polyphyletic, and many sections recognized within *Vaccinium*, such as sect. *Epyginium*, sect. *Aëthopus*, sect. *Callicolus*, sect. *Conchophyllum*, sect. *Bracteata* and sect. *Eococcus*, are not monophyletic (Kron et al, 2002; Powell & Kron, 2002; Tong, 2014). Thus, more comprehensive work on *Vaccinium* is badly in need.

Including the recently published *Vaccinium damingshanense* Y. H. Tong & N. H. Xia, there are ca. 93 species of *Vaccinium* in China, and 23 species with three endemic species in Guangxi Zhuang Autonomous Region, China (Tang, 2011; Tong & Xia, 2015). During a recent field work in the coastal areas of Beibu Gulf, Dongxing City in South Guangxi, we collected some specimens of an unusual *Vaccinium* plant. They look much like *V. bracteatum* Thunb. in appearance, which is very common in the coastal woods there, but differs from the latter in the glabrous calyx tube and corolla. After comparing it with the species from China and neighboring countries, we confirmed that a number of morphological characteristics of this plant, such as the shrub habit, the glabrous and serrate leaves, the glabrous calyx with triangular lobes, the spherical-urceolate and glabrous corolla, the pilose filaments, the anthers with two conspicuous spurs on the back, are fully consistent with *V. eberhardtii* Dop, a species previously recorded from Vietnam and Thailand only (Fletcher,

1936; Ho, 1999; Sleumer, 1941). Thus, it represents a new record for flora of China.

***Vaccinium eberhardtii* Dop** in Fl. Indo-Chine 3: 708, fig. 80. 1930; Sluerner, Bot. Jahrb. Syst. 71: 469. 1941; P. H. Hô in Ill. Fl. Vietnam 1: 622. 1999. Type: Vietnam, Thua Thien-Hue Province, Lang Co, 27 April 1916, Eberhardt 2636 [holotype P (P00647844)!, isotype P (P00647845)!]

Shrubs, evergreen, 2–3 m tall, much branched. Twigs subterete, glabrous or pubescent, rarely setose. Leaves scattered; petiole 1–3 mm, glabrous or pubescent; leaf blade ovate, elliptic, elliptic-lanceolate, or obovate, 2.5–6 × 1.5–3.5 cm, thickly leathery, glabrous, midvein slightly impressed or flat adaxially, raised abaxially, with one to several inconspicuous glands abaxially, secondary veins 3–5 pairs, inconspicuous adaxially, conspicuous abaxially, base cuneate to broadly cuneate to suborbicular, margin serrate, sometimes inconspicuously toothed, apex acute to acuminate. Inflorescences axillary or pseudoterminal, racemose, 5–13-flowered. Peduncle 3–8 cm, glabrous; bracts persistent, sometimes caducous, leaflike, ovate to elliptic, 6–7 × 3–4 mm, serrate, teeth with glands at the apex. Pedicel 2–4 mm, glabrous, articulate with the calyx tube; bracteoles 2, caducous, lanceolate, ca. 3 mm long, margin with one or two teeth. Calyx tube greenish, ca. 1.5 mm long, glabrous; limb lobed nearly to the base, lobes triangular, ca. 1 mm long. Corolla spherical-urceolate, ca. 5 mm long, glabrous, 5-lobed, lobes reflexed, ca. 1 mm long. Filaments ca. 2.5 mm long, densely pilose; anther thecae ca. 1–1.2 mm long,



Note: **A.** Habit; **B.** Flower branches; **C.** Flower; **D.** Flower with corolla removed; **E.** Bracts, abaxial and adaxial view; **F.** Bracteoles, adaxial and abaxial view; **G.** Stamens, adaxial, abaxial and lateral view; **H.** Ovary, transectional view; bars=5 mm in C & D, 3 mm in E, 2 mm in F & G, 1 mm in H.

Fig. 1 *Vaccinium eberhardtii* Dop

papillate, with 2 spurs on back, spurs erect, ca. 1.2 mm long, tubules ca. 1.8 mm long. Style ca. 5 mm long, stigma truncate; ovary with 10 pseudo-locules, each with several ovules, disk hairy. Fruit not seen. Flowering in April. (The key characters are underlined.)

Distribution: China (Dongxing City, Guangxi), Vietnam and Thailand.

Ecology and habitat: This species grows in a small so called Fengshui wood near a village at an elevation of ca. 8 m. Fengshui woods are very common in countryside of South China, and most of them are distributed near local water sites and conserved well by the native people, for it is believed that Fengshui

woods can keep the good geomancy and bring people happiness and luck. This Fengshui wood mainly consists of shrub species, and the dominant species are *Elaeocarpus limitaneus* Hand.-Mazz., *Litsea rotundifolia* var. *oblongifolia* (Nees) Allen, *L. glutinosa* (Lour.) C. B. Rob., *Cansjera rheedei* J. F. Gmel., *V. bracteatum* Thunb., *Myrsine linearis* (Lour.) Poir., *Melastoma* sp. etc.

Conservation status: In spite of an exhaustive search, we only find several individuals of *Vaccinium eberhardtii* in that coastal area, which is less than 10 km², so it may turn out to be ‘Vulnerable’ (VU D2) according to the IUCN red list criteria (IUCN, 2001). Because no population assessment of this spe-

cies in the field has been made, it is best classified as 'Data Deficient' (DD).

Similar species and notes: *Vaccinium eberhardtii* Dop is similar to *V. bracteatum* and *V. wrightii*, both of which belong to *Vaccinium* sect. *Bracteata*. However, *V. eberhardtii* has glabrous peduncle, pedicel and calyx tube, spherical-urceolate corolla and anthers with two conspicuous spurs (Fig. 1: B), while *V. bracteatum* has densely pubescent peduncle, pedicel and calyx tube, tubular or slight urceolate corolla and anthers without spurs. And it can be distinguished from *V. wrightii* by the pedicel only 2–4 mm

long, shorter than bracts (Fig. 1: C) and the upward spurs on the back of the anther, ca. 1.2 mm long, longer than half of the anther tube (Fig. 1: G), while *V. wrightii* has pedicels 5–11 mm long and much longer than bracts and the obliquely upward spurs on the back of the anther, ca. 0.8 mm long, shorter than half of the tube. In addition, *V. eberhardtii* Dop is distributed in South China, Vietnam and Thailand, while *V. wrightii* is endemic to Taiwan of China and Ryukyu Islands, which are more than 1 000 km away from Guangxi. A key to differentiate the three species is provided as follows.

Key to *V. eberhardtii* and its related species

- 1 Peduncle, pedicel, calyx tube and corolla pubescent; without spurs on the back of the anther
 *V. bracteatum*
 –Peduncle, pedicel, calyx tube and corolla glabrous; with spurs on the back of the anther conspicuous 2
 2 Pedicel 2–4 mm, shorter than bracts; spurs on the back of the anther upward, ca. 1.2 mm long, longer than half of the anther tube; distributed in South China, Vietnam and Thailand *V. eberhardtii*
 –Pedicel 5–11 mm, much longer than bracts; spurs on the back of the anther obliquely upward, ca. 0.8 mm long, shorter than half of the tube; distributed in Taiwan of China and Ryukyu Islands. *Vaccinium wrightii*

Additional specimens examined: China. Guangxi: Dongxing City, Wutou Village, 19 March 2011, Y. S. Huang et al., H110369 (IBK); *ibid.* 18 April 2016, Y. H. Tong & X. E. Ye, TYH-615 (IBSC).

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