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Notes on taxonomy of *Aristolochia impressinervis* C. F. Liang (Aristolochiaceae) from Vietnam

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Abstract: *Aristolochia impressinervis* C. F. Liang was regarded as an endemic species to Guangxi Zhuang Autonomous Region, China. This species is here reported as the first record for the flora of Vietnam. Notes on taxonomy and distinguishable discussion from *A. pierrei* L. are also provided.

Key words: Aristolochiaceae, *Aristolochia impressinervis*, *A. pierrei*, new record, Vietnam

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越南马兜铃属植物分布新记录——凹脉马兜铃

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摘要: 凹脉马兜铃(*Aristolochia impressinervis* C.F. Liang)曾被认为是中国广西的特有种。该文首次报道了越南植物区系中凹脉马兜铃的分布新记录,并讨论了凹脉马兜铃的分类及其与 *A. pierrei* L.的区别特征。

关键词: 马兜铃科, 凹脉马兜铃, *Aristolochia pierrei*, 新记录, 越南

1 Introduction

Aristolochia comprises about 500 species, is the largest genus of Aristolochiaceae (Wagner et al, 2012) and widely distributed throughout the tropics, subtropics and also extending to temperate regions (González & Stevenson, 2002; Hwang et al, 2003; Neinhuis et al, 2005; Wanke et al, 2006). Currently 14 *Aristolochia* species, belonging to two subgenera *Siphisia* and *Aristolochia*, were reported from Vietnam (Pham, 2000; Nguyen, 2003; Do et al, 2014), 6 of which belong to subgenus *Aristolochia*. In contrast to the well-known floras of Thailand (Phu-phathanaphong, 1987), and China (Hwang et al, 1988, 2003), *Aristolochia* has not been completely revised for

Vietnam, Laos and Cambodia since the primary studies were carried out by French botanists nearly 100 years ago (Lecomte, 1909, 1910). The assignment of a name to a taxon has been used inconsistently throughout these publications, as different names have been used for the same species. Actually, there are numerous unidentified *Aristolochia* specimens collected from Vietnam still deposited in worldwide herbaria, but they are difficult to assign to known species or to describe as new because of the lack of reproductive parts, especially the flowers. Furthermore, specimens in Vietnam are mostly collected by local ethnobotanists who only focus on the use of the species, but overlook the need of complete vouchers for proper identification. Numerous recent studies of the genus *Aristolochia* and other seed plants indicated that the floras of southern

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China and northern Vietnam are in close relationship due to identical similarities in climatic and floristic conditions (Do et al, 2013; Fu et al, 2013; Lu et al, 2014; Do et al, 2015). Thus many known *Aristolochia* species from China may be also found in Vietnam.

Liang (1975) primarily described *A. impressinervis* based on a collection made by Hwang Shangling from Jinji Cun, Fusui Xian, Guangxi Autonomous Region, China. Recently, while working on *Aristolochia* specimens at herbaria worldwide (CPNP, HN, HNU, IBK, K, KUN, L, MO, NIMM, P, VNM, VNMN) for revising of the genus *Aristolochia* from Indo-Chinese region as well as consultation of literature (Phuphathanaphong, 1987; Pham, 2000; Hwang, 2003; Nguyen, 2003), we found out *A. impressinervis* as new record for the flora of Vietnam. The specimens at Vietnamese herbaria were probably misidentified as *A. pierrei* L. This species is however distinguishable from the latter as showed in the discussion and Table 1.

Table 1 Morphological comparison between *Aristolochia impressinervis* and *A. pierrei*

Item	<i>A. impressinervis</i>	<i>A. pierrei</i>
Stem	Pubescent	Glabrous
Adaxial leaf	Glabrous	Pubescent
Leaf apex	Acuminate	Acute or tapering acute
Leaf base	Auriculate	Cordate
Veinlet	Closely reticulate	Loosely reticulate
Tube	Pale yellowish	Greenish brown
Limb	Dark-purple	Purplish brown
Bracteole	Sessile	Stipe
Capsule	Obovoid to subglobose 1.5–1.7× 0.8–1.2 cm	Ovoid 2–2.5×1.8–2 cm
Seed	Un-winged and both surfaces smooth	Membranous wings and both surfaces verrucose

2 Notes on taxonomy

Aristolochia impressinervis C. F. Liang in Acta Phytotax. Sin. 13(2): 15, 1975; S. M. Hwang, Fl. Reipubl. Pop. Sin. 24: 241, 1988 & Fl. China, 5: 269, 2003. Type: CHINA. Guangxi: Fusui Xian, Jinji Cun, Hwang Shangling et al. 3967 (IBK, holo!).

Additional specimens examined: Vietnam: Cao Bằng prov., Trà Lĩnh distr., Quốc Toản comm., vicinity

of Thang Heng and Lũng Tao villages, 25 May 1997, L. Averyanov et al. VH 4947 (HN, MO). -Quảng Ninh prov., Ha Long gulf, Van Gió island, 22 Aug. 2002, Vu Xuan Phuong 5461 (HN).

Ecology: Grows on dry mixed primary forest with domination of *Keteleeria fortunei* on top of limestone mesas and ridges, alt. 650–1 000 m. Flowering: April–May; Fruiting: June–August.

Distribution: SE CHINA (Guangxi) and new to VIETNAM (Cao Bằng, Quảng Ninh).

Notes: *Aristolochia impressinervis* is morphological homogeneous. Only slight variation in the shape and size of leaves, fruit of the populations occur in Vietnam compared to the type specimens in China.

A. impressinervis is morphologically similar to *A. pierrei* L. (reported from Laos and Thailand) by sharing the shape and size of leaves (ovate-lanceolata to lanceolata lamina, 9–14 cm long, 2–5 cm wide). However, *A. impressinervis* clearly differs from the latter by the following characters of venation on the adaxial surface (glabrous and obscure vs. pubescent and visible), veinlet on the abaxial surface (closely reticulate vs. loosely reticulate), bracteole (sessile vs. stipe), tube (slightly curved at base vs. rectilinear), limb (ligulate-shaped, dark-purple vs. oblong-shaped, purplish-brown), seeds (non-winged, both surfaces smooth vs. winged, both surfaces verrucose) (Table 1).

These morphological similarities made Vietnamese botanists confuse *A. impressinervis* with *A. pierrei*. For instance, the specimen L. Averyanov et al. VH 4947 (HN, MO) (Figure 1) that was misidentified as *A. pierrei*. Furthermore, the specimen L. Averyanov et al. VH 4947 that was collected in Cao Bang prov. in north eastern Vietnam where borders to the type locality of *A. impressinervis*. Whereas *A. pierrei* has still known in South Laos and extending to southwestern Thailand. Based on observation of the herbarium specimens as well as recent fieldworks the author has not ever seen any specimens of *A. pierrei* occurring in Vietnam and South China. It means that *A. pierrei* has still been restricted to Laos and Thailand, not yet reached to the north. Thus, the specimen L. Averyanov et al. VH 4947 from Vietnam have to be identified correctly as *A. impressinervis*.

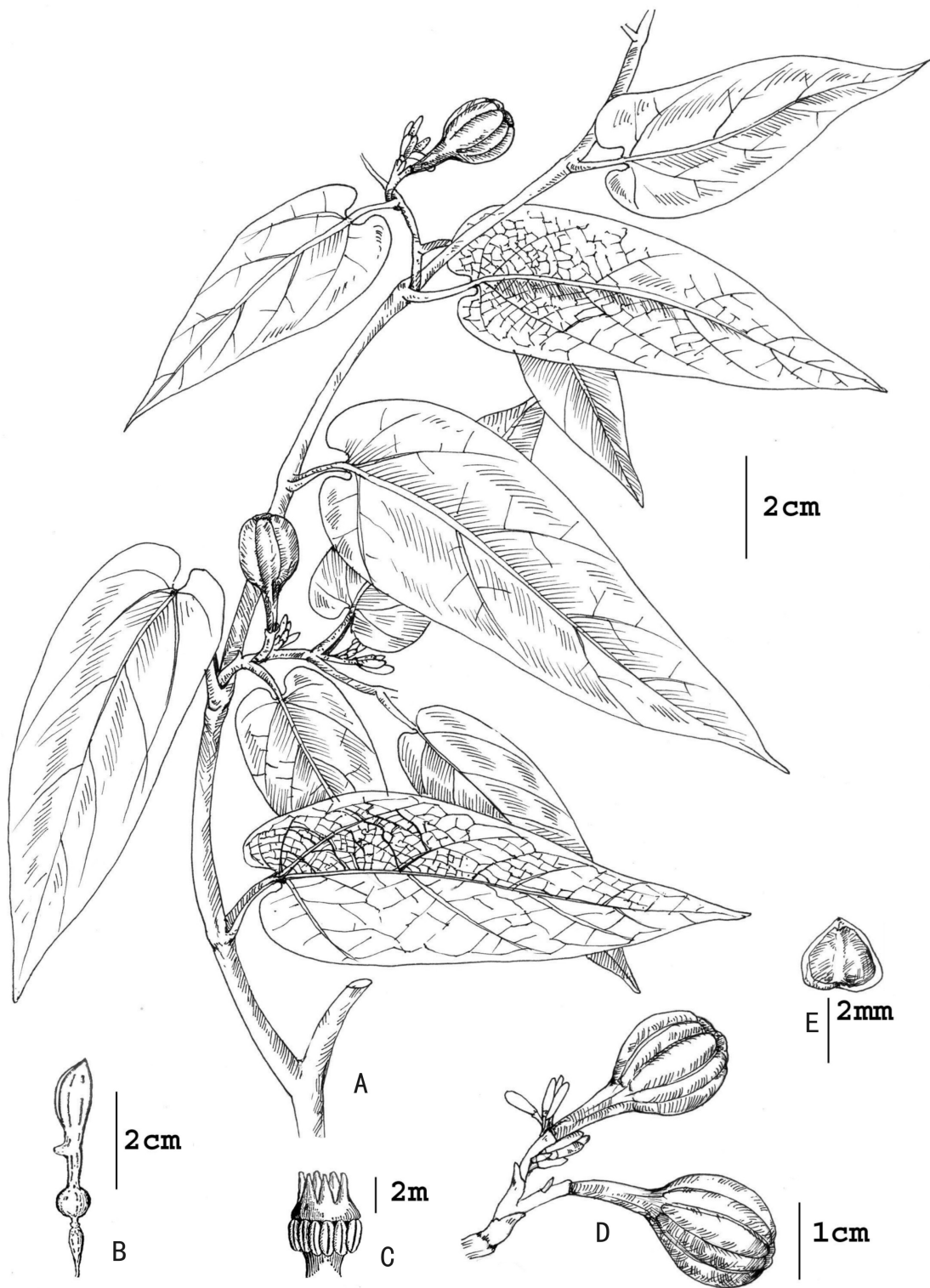


Fig. 1 *Aristolochia impressinervis* C. F. Liang A. Branch with infructescence; B. Lateral view of flower; C. Close up of gynostemium; D. Infructescence; E. Abaxial view of seed. Drawn from the specimens L. Averyanov et al. VH 4947 (HN, MO) by Nguyen Huu Quyet.

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