Original Article

Conamomum Pierreanum (Gagnep.) Skornick. & A. D. Poulsen (Zingiberaceae), a New Record for the Flora of Vietnam

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Abstract: Conamomum pierreanum (Gagnep.) Skornick. & A. D. Poulsen, (Zingiberaceae), a previously known species from Thailand and Cambodia, is here reported, as a new record for Vietnam. It is similar to C. rubidum and C. odorum but differs in having a present stilt root; a shorter petiole, 2-3 cm; a larger leaf blade, oblong, 30-50 × 5-8 cm, glabrous; a globose to ovoid inflorescence, arising near the base of rhizome; tomentose outer surface of bract; a 3-toothed bracteole, outer surface hairy; and a smaller filament, yellowish and glabrous. The detailed morphological description, distribution and ecology information, conservation status and a colour plate of this species are given.

Keywords: Conamomum Pierreanum, New record, Vietnam, Zingiberaceae.

1. Introduction

The genus Conamomum Ridl. belonging to Alpinieae (Zingiberaceae) comprises ca. 10 species and distributes mainly in primary evergreen lowland and montane forests from Indochina to the Malay Peninsula, Singapore, Borneo, and Sumatra [1, 2]. Of these, two species (Conamomum rubidium and C. odorum) were reported for the flora of Vietnam [1, 3, 4].

During the recent field investigation of essential oil plant diversity in the Ta Dung National Park, Dak Glong district, Dak Nong province, two specimens of a Conamomum species were collected. Detailed studies revealed that they did not match with any of the Conamomum species so far reported from Vietnam. After examining and consulting all known Conamomum species, we found that the morphological characters of these specimens are

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completely identical to those of *C. pierreanum* (Gagnep.) Skornick. & A. D. Poulsen, which was previously recorded only from Thailand and Cambodia [2, 3, 5]. Therefore, *Conomomum pierreanum* is here reported as new record for the flora of Vietnam.

2. Materials and Methods

Two voucher specimens were collected at Ta Dung National Park, Dak Glong district, Dak Nong province, Central Highland Vietnam in May 2019. These specimens were thoroughly processed following standard protocol and deposited in the Herbarium of Vietnam National Museum of Nature (VNMN) and Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology (HN).

We followed the morphological comparison method for this study. Relevant literature was consulted [1, 3, 5, 6]. Terminology for the morphological description follows Beentje [7].

3. Taxonomic Treatment


Clump-forming herb, 1.5-2 m tall with 10-18 leaves per pseudo stem; rhizome 0.8-1.0 cm diameter; stilt roots present, 0.6-1.0 cm diameter, dark brown, 10-20 cm long, hairy; interval between pseudo stems 4.0-6.0 cm scales hairy, broadly triangular, 0.8-1.2 × 1.4-1.6 cm, coriaceous, outer surface tomentose, apex broadly acute. Pseudo stem 1.8-2.1 cm diameter, slightly swollen at base, gradually becoming smaller towards the apex, striate, glabrous, outer surface finely reticulate; ligule ovate, 0.8-1.0 cm long, coriaceous, glabrous, swollen at the base of the petiole, apex bifid; petiole canalicate, 2-3 cm long, glabrous; blade oblong, 30-50 × 5-8 cm, glabrous, upper surface dark green, lower surface lighter-colored, base long attenuate, apex long caudate. Inflorescences globose to ovoid, 5-6 × 4-5 cm, arising near the base of the rhizome, 2-3 inflorescences per pseudo stem; peduncle cylindrical, 6.5-9 cm long, hairy; scales broadly triangular at base 1-1.4 × 1.5-2.1 cm, narrowly triangular above, 3-4.5 × 1.5-2 cm, striate, tomentose with soft hairs, apex acute, ciliate at the margin; bracts broadly ovate to boat-shaped, 2.5-4 × 1.5-2 cm, dark brown, hard, thick, subtending a single flower, outer surface striate, tomentose, apex cucullate with pointed spur; bracteole tubular, 3-toothed, 1.6-2 × 0.6-0.8 cm, reddish, outer surface hairy, tube 0.8-1.1 cm long. Calyx tubular, 3-toothed, 1.8-2.5 × 0.4-0.5 cm, glabrous, apex acute. Corolla tubular, corolla tube 1.8-2 × 0.5-0.6 cm, glabrous, corolla lobes glabrous, reddish, with darker red, narrow stripes; lateral lobes oblong, 1.8-2.1 × 1.3-1.5 cm; dorsal corolla lobe oblong, 2.2-2.5 × 1.8-2 cm; labellum bowl-shaped, 2-2.5 × 1-1.5 cm, yellow with red lines radiating to margin, margin turned forward, apex markedly trilobed, the central lobe emarginate and turned backward, glabrous; lateral staminodes bifid, apices pointed, reddish. Filament flat, 1-1.2 × c. 0.2 cm, glabrous, yellowish; anther yellowish-white, 0.6-0.7 × c.0.3 cm; anther crest yellowish, trilobed, lateral lobes oblong, pointed and turned forward, central lobe triangular. Stigma cup-shaped, yellowish, glabrous; Style hairy; Epigynous glands 1 pair, glabrous, c.0.2 cm long, yellow; ovary 0.2-0.4 cm diameter, brown, glabrous. Fruits not seen.
Table 1. Morphological comparison of *Conamomum pierreanum* with *C. rubidum* and *C. odorum*

<table>
<thead>
<tr>
<th>Characters</th>
<th><em>C. pierreanum</em></th>
<th><em>C. rubidium</em> (1)</th>
<th><em>C. odorum</em> (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stil roots</td>
<td>Present</td>
<td>Absent</td>
<td>Present</td>
</tr>
<tr>
<td>Petiole</td>
<td>2-3 cm</td>
<td>5-9 cm</td>
<td>2-4 cm</td>
</tr>
<tr>
<td>Leaf-blade</td>
<td>Oblong, 30-50 × 5-8 cm, glabrous</td>
<td>Oblong-linear, c.30-45 × 4.5-7 cm, margin hairy</td>
<td>Narrowly elliptic, 25-30 × 3-3.5 cm, glabrous, margin entire</td>
</tr>
<tr>
<td>Inflorescence</td>
<td>Globose to ovoid, arising near base of rhizome</td>
<td>Obovoid, arising from the base</td>
<td>Ovoid, erectly arising from creeping rhizome</td>
</tr>
<tr>
<td>Scale</td>
<td>Broadly triangular at base and narrowly triangular above</td>
<td>Ovate-triangular</td>
<td>Triangular</td>
</tr>
<tr>
<td>Bract</td>
<td>Outer surface tomentose</td>
<td>Tomentose at base and margin ciliate</td>
<td>Hairy abaxially and ciliate at margin</td>
</tr>
<tr>
<td>Bracteole</td>
<td>3-toothed, outer surface hairy</td>
<td>2-toothed, hairy at base</td>
<td>2-toothed, teeth with ciliate hairs</td>
</tr>
<tr>
<td>Calyx</td>
<td>Glabrous</td>
<td>Glabrous</td>
<td>Pubescent</td>
</tr>
<tr>
<td>Corolla lobes</td>
<td>Reddish</td>
<td>Reddish</td>
<td>Cream</td>
</tr>
<tr>
<td>Labellum</td>
<td>Bowl-shaped</td>
<td>Reniform</td>
<td>Obovate</td>
</tr>
<tr>
<td>Lateral staminodes</td>
<td>Bifid</td>
<td>Triangular-linear</td>
<td>Minute and linear</td>
</tr>
<tr>
<td>Filament</td>
<td>1-1.2 × 0.2 cm, glabrous, yellowish</td>
<td>c.0.7-0.8 × 0.2 cm, glandular-hairy, white</td>
<td>1.3 × 0.25 cm, yellow, sometimes with red tinge at base</td>
</tr>
<tr>
<td>Epigynous glands</td>
<td>1 pair, glabrous, c.0.2cm long, yellow</td>
<td>1 pair, 0.4 long, white</td>
<td>2 pair, c. 0.2 × 0.1 cm, yellow</td>
</tr>
<tr>
<td>Stigma</td>
<td>Yellowish, glabrous</td>
<td>Cream white, ciliate</td>
<td>Yellow, ostiole ciliate</td>
</tr>
<tr>
<td>Ovary</td>
<td>0.2-0.4 cm diameter, brown, glabrous</td>
<td>c.0.6 × 0.4 cm, glabrous</td>
<td>c.0.4 × 0.33 cm, cream, hairy</td>
</tr>
</tbody>
</table>

(1) From the description in Lamxay et al. (2012); (2) From the description in Luu et al. (2019).
Figure 1. *Conamomum pierreanum*. A. Habit, B. Ligule, C. Abaxial and adaxial leaf surface, D. Rhizome and inflorescences. E. Basal part of plant showing inflorescence, F. Flowers. Photos taken by Do Van Truong and Nguyen Quang Hung.

Type: CAMBODIA, Samraong Tong. monts Schral, Pierre L. 591 (Lectotype P00599242 & P00599243, images!; Isolectotype P00599276, image!).

Vietnamese name: Sa nhân Pierre

Ecology and phenology: This species grow on lowland and montane evergreen forest over sandstone, at alt. 980 m. Flowering in May.

Distribution: THAILAND, CAMBODIA, new to VIETNAM (Dak Nong).

Conservation status: According to IUCN Red List (2019), *C. pierreanum* is categorized as Least Concern (LC). This species has a large extent of occurrence, and all the known occurrences are within protected areas, so the species is secure and not declining.
Additional specimens examined: VIETNAM. Dak Nong province: Dak Glong district, Ta Dung National Park, 19 May 2019, Luu Dam Ngoc Anh, Bui Van Huong, Do Van Truong, Luu Dam Cu, Nguyen Quang Hung, Do Van Hai, Trinh Xuan Thanh, Nguyen Trung Thanh TN17/C04-DN19 [fl.] (VNMN!); Do Van Hai, DVH s.n. [fl.] (HN!).

Notes: Morphological characters of C. pierreanum resemble C. rubidium (Lamxay & Lý) Škorničková & Poulsen and C. odorum Luu, H.D.Tran & G.Tran. However, this species differs from both these species by the combination of some morphological characters of the root, petiole, leaf blade, inflorescence, bract, bracteole, and filament as presented in Table 1.

Acknowledgments

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References