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Thottea aroangensis, a new species of Aristolochiaceae from central Vietnam

TUAN ANH LE^{1,5}, DIEN DINH^{2,6}, QUOC TUAN DOAN^{3,7}, QUANG HOA ANH NGUYEN^{2,8} & SHUICHIRO TAGANE^{4,9*}

¹ Mien Trung Institute for Scientific Research, Vietnam Academy of Science and Technology, 321, Huynh Thuc Khang str., Thua Thien Hue, Vietnam.

² WWF- Viet Nam, Hue Field office, 150 Truong Gia Mo street, Hue City, Viet Nam.

³ Faculty of Pharmacy, Hue University of Medicine and Pharmacy, Hue University, 06 Ngo Quyen, Hue City, Viet Nam.

⁴ The Kagoshima University Museum, Kagoshima University, 1-21-30, Korimoto, Kagoshima, 890-0065, Japan.

⁵ ✉ tasa207@gmail.com; <https://orcid.org/0000-0002-5917-3243>

⁶ ✉ dinhdien95@gmail.com; <https://orcid.org/0000-0001-9164-7245>

⁷ ✉ doanquoctuan@hueuni.edu.vn; <https://orcid.org/0000-0003-4664-8972>

⁸ ✉ anh.nguyenquanghoa@wwf.org.vn; <https://orcid.org/0000-0001-6265-0824>

⁹ ✉ stagane29@gmail.com; <https://orcid.org/0000-0002-1974-7329>

*Authors for correspondence: ✉ stagane29@gmail.com

Abstract

Thottea aroangensis T.A. Le, D. Dien & Tagane (Aristolochiaceae) is described based on the specimen collected from the A Roang commune, A Luoi district, Thua Thien Hue province, central Vietnam. This species is characterized by subshrub habit 70–90 cm tall, inflorescence at base of stem close to ground level, campanulate and obscurely lobed perianth ca. 2.6 cm long, inside of perianth tube with creamy white patches, and 20 stamens in 2 whorls, by which combination it is clearly distinguished from the other species of *Thottea* in Vietnam and its surrounding countries. Morphological descriptions, photographs, a distribution map, vernacular name, and preliminary conservation status are provided for *T. aroangensis*.

Keywords: angiosperms, flora, Indochina, Piperales, taxonomy, Thua Thien Hue

Introduction

The genus *Thottea* Rottbøll (1783: 529) (Aristolochiaceae), with about 45 species, is a small (sub)shrubs usually less than 1 m tall widely distributed in Asia, from India in the west to Sulawesi and Philippines in the east (Yao 2015, Tagane *et al.* 2017, POWO 2019). Three species of *Thottea*, namely *T. racemosa* (Loureiro 1790: 528) Hou (1981: 326), *T. tomentosa* (Blume 1827: 1135) Hou (1981: 328), and *T. aff. hainanensis* (Merrill & Chun 1935: 220) Hou (1981: 321) are known in Vietnam (Hou 1981, Hô 1999, Huyen 2005, Phan *et al.* 2009).

During an ethnobotanical study of medicinal plants led by the first to forth authors in the mountainous areas of A Roang commune, A Luoi district, Thua Thien Hue province in central Vietnam (Fig. 1), a specimen of an unknown species of *Thottea* was collected. After a careful examination referring to taxonomic literature (Hou 1981, Sivarajan 1985, Phuphathanaphong 1987, Hô 1999, Kumar *et al.* 2000, Huang *et al.* 2003, Huyen 2005, Phan *et al.* 2009, Murugan 2011, Yao 2013, 2015, Sunil & Vannaratta 2014, Mustaqim & Putra 2020) and digital specimen images of HN and available on the online resources (e.g. JSTOR Global Plants <https://plants.jstor.org>), we are convinced that it is a new species and here we describe *Thottea aroangensis* T.A. Le & D. Dien & Tagane as the fourth *Thottea* species for Vietnam.

Taxonomic treatment

Thottea aroangensis T.A. Le, D. Dien & Tagane, sp. nov. (Figs 2 & 3)

TYPE:—VIETNAM. Thua Thien Hue province: A Luoi district, A Roang commune, 16°07'39.17"N, 107°24'39.59"E, ± 850 m a.s.l., 18 April 2021, *Dien Dinh, Quoc Tuan Doan, Quang Hoa Anh Nguyen, Tuan Anh Le LTA 1101* (holotype VNMN!).

Thottea aroangensis is characterized by subshrub habit 70–90 cm tall, inflorescence at base of stem close to ground level, campanulate perianth ca. 2.6 cm long, inside of perianth tube with creamy white patches, obscure perianth lobes very broadly triangular ca. 0.5 cm long, and 20 stamens in 2 whorls, which the combination of characters clearly distinguished it from all the previously known species of the genus.

Perennial subshrubs, 70–90 cm tall. Stems erect, scarcely branched, dark green, 0.4–1 cm in diam., terete, glabrous; internode 2.5–15 cm long, node swollen, above nodes constricted. **Leaves** alternate, distichous; blade elliptic-oblong to obovate, 13–16 × 4–5 cm, slightly curved, laterally not equal, apex acute or mucronate, base obtuse to rounded, slightly oblique, margins entire, adaxial surface green, glabrous, abaxial surface pale green, sparsely pubescent along midrib and veins, midrib prominent on both surfaces, lateral veins 5–6 pairs, prominent on abaxial surface; petioles 0.8–1 cm long, glabrous. **Inflorescences** 1–2 per plant, racemose, at base of stem close to ground level, axils of fallen leaves, up to 8-flowered; peduncle not branched, 6–11 mm long, 2–3 mm in diam., bracts ovate, elliptic-lanceolate, lanceolate or obovate, 5 × 2–4 mm, venation obvious when young, dark purple, pubescent, margin entire, apex acute, sometimes bifid. **Pedicel and ovary** 0.5–1.2 cm long, densely pubescent, 4-ribbed. **Perianth** campanulate, ca. 2.6 cm long, 2.2 cm in diam., base sub-truncate, obscurely lobed, tube ca. 2.1 cm long, outer surface dark claret, sparsely pubescent, with prominent longitudinal veins, inner surface claret with creamy white patches in upper half, densely villous, margin shallowly 3-lobed, lobes very broadly triangular, 0.5 × 0.4–1.8 cm, apex blunt. **Stamens** 20 in alternate whorls of 2, upper whorl with 10 stamens, lower whorl with 10, filaments 1–1.5 mm long, glabrous, anthers extrose, positioned at swollen connective apex, oblong, ca. 1 mm long, ca. 0.5 mm wide. **Style** column cylindric, ca. 1.5 mm long, glabrous, stigmatic lobes 8–9, positioned higher than stamens, ca. 4 mm long, glabrous. **Capsules** ca. 3 cm long, ca. 3.5 mm in diam., dark green to dark purple, curved, 4-angled, puberulent. **Seeds** not seen.

Distribution:—Vietnam, known only from the type locality (Fig. 1).

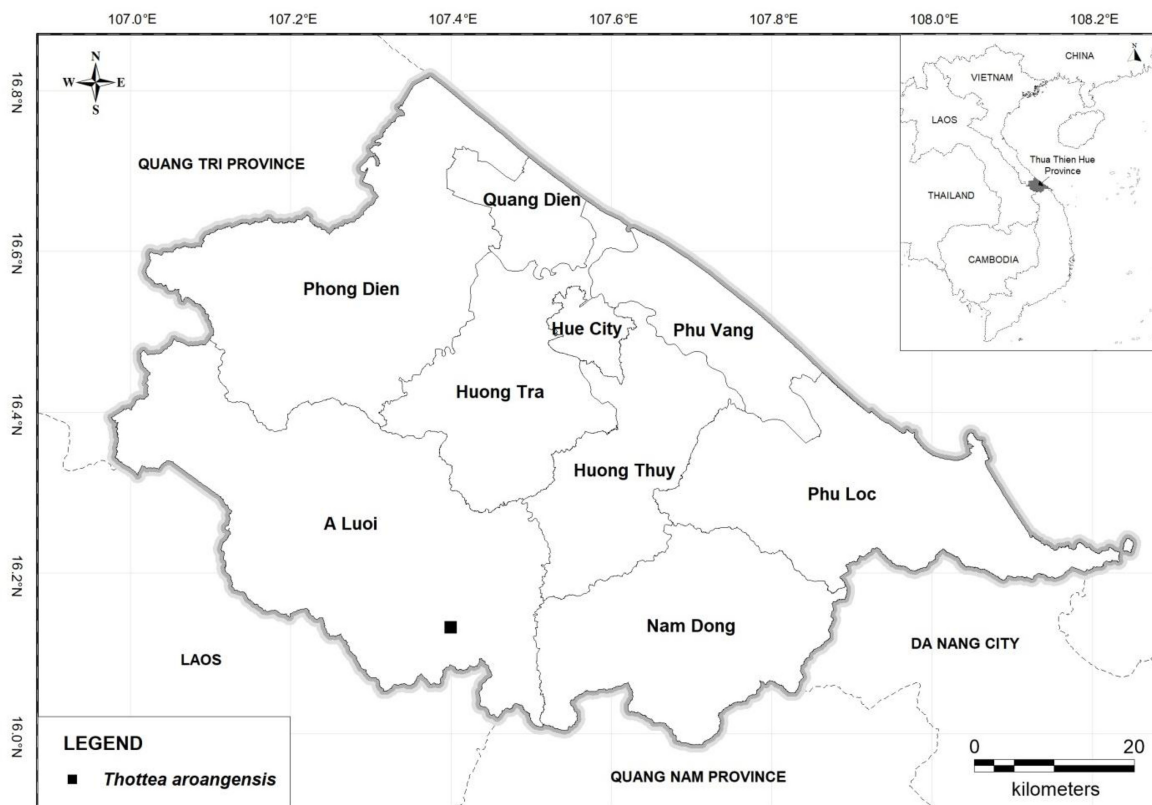


FIGURE 1. Locality of A Roang commune, A Luoi district, Thua Thien Hue province (closed square), representing the distribution of *Thottea aroangensis* T.A. Le & D. Dien & Tagane.

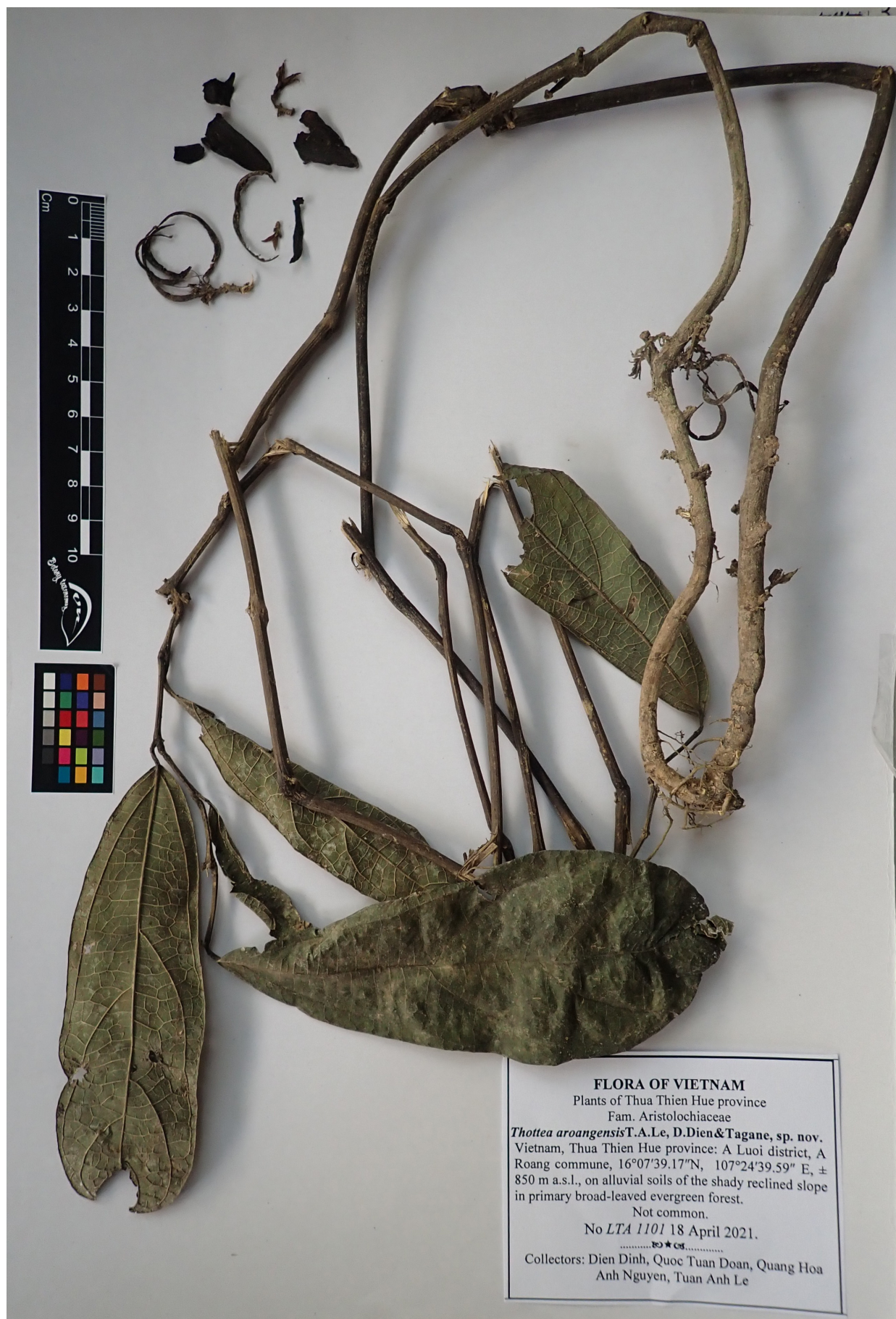


FIGURE 2. Holotype of *Thottea aroangensis* T.A. Le, D. Dien & Tagane (Dien et al. LTA 1101, VNMN).

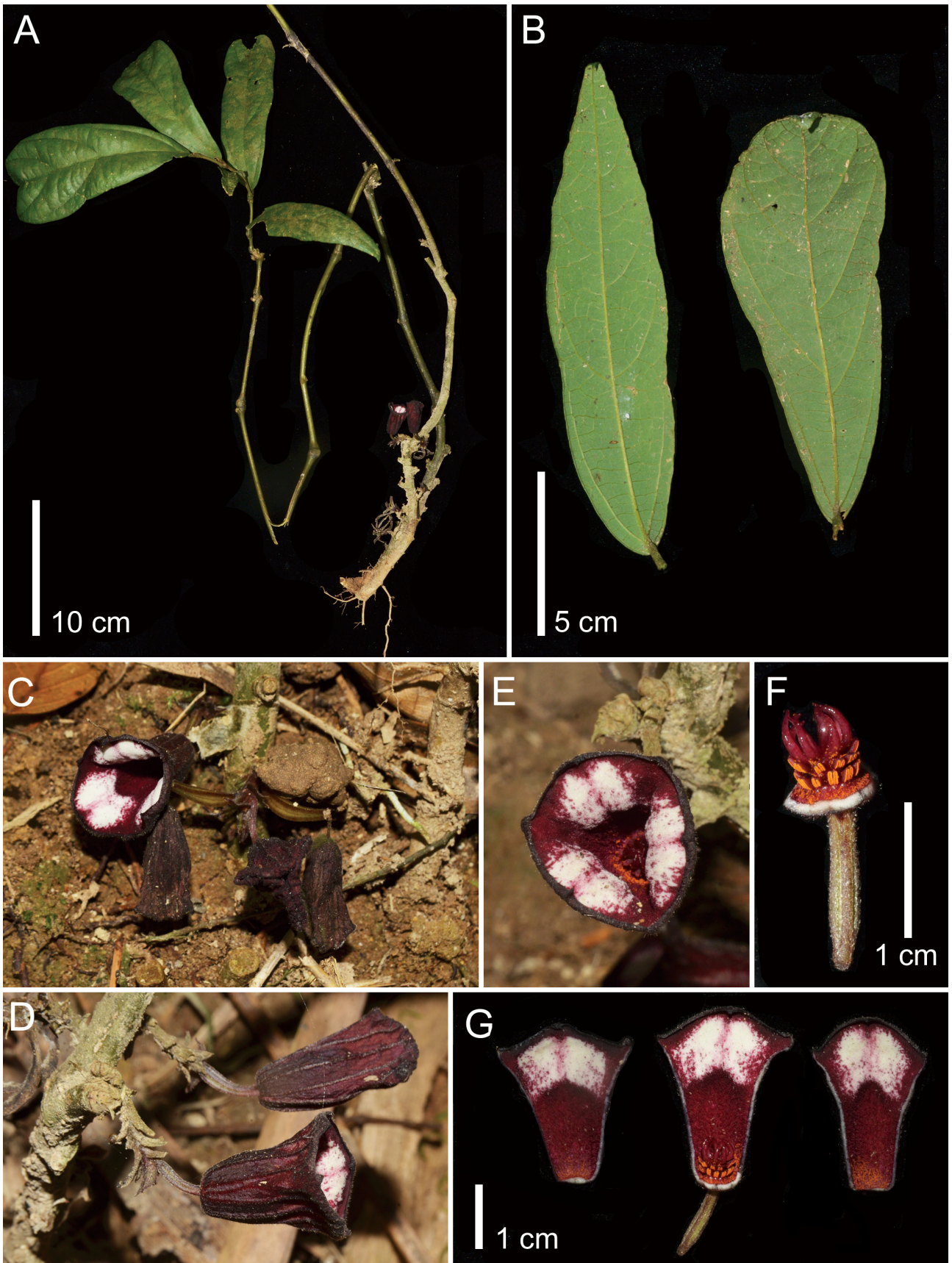


FIGURE 3. *Thottea aroangensis* T.A. Le, D. Dien & Tagane. A. Habit; B. Leaves (abaxial surface); C. Inflorescence with flowers and immature fruits; D. Flowers (lateral view); E. Flower (front view); F. Flower corolla removed, showing stamens and pistil; G. Corolla dissected showing the coloration of inner surface.

Habitat:—*Thottea aroangensis* was found on alluvial soils of the shady reclined slope in primary broad-leaved evergreen forest at elevation around 850 m a.s.l., where it grows with *Aspidistra heterocarpa* Aver., Tillich & V.T. Pham var. *echinata* Aver., Tillich & T.A. Le, *Curculigo* sp., *Dracaena angustifolia* Roxb., and *Gomphia serrata* (Gaertn.) Kanis.

Phenology:—Flowering in March to April and fruiting in April to May.

Etymology:—The specific epithet is derived from its type locality, A Roang commune, located in A Luoi district, Thua Thien Hue province, central Vietnam.

Vernacular name:—Tốt hoa a roàng

Preliminary conservation assessment:—Critically Endangered (CR). To date, we found only five individuals in one population of *Thottea aroangensis* in the type locality. Therefore, the most appropriate initial assessment of the IUCN conservation status for this species is Critically Endangered (CR) under criteria D (IUCN, 2012). The habitat is located within the protected area at district level and well-protected. However, since it grows near the route for tourist, we need to pay special attention for its survival.

Note:—In Indochina, three species of *Thottea*, *T. racemosa*, *T. tomentosa*, and *T. aff. hainanensis* were recorded (Hou 1981, Hô 1999, Phan *et al.* 2009, Tagane *et al.* 2017). *Thottea aroangensis* is easily distinguished from *T. racemosa* and *T. aff. hainanensis* by its inflorescence at base of stem close to ground level (vs. at the upper part of stem, in the axils of foliage leaves) and from *T. tomentosa* by taller habit 70–90 cm tall (vs. 10–50 cm tall), abaxial surface of lamina sparsely pubescent along midrib and veins (vs. tomentose), and longer perianth ca. 2.6 cm long (vs. 0.7–1.2 cm long). *Thottea aroangensis* is similar to *T. beccarii* Hou (1981: 315) of Sumatra in having inflorescence at base of stems and obscurely lobed perianth, but differs in having smaller lamina (13–16 × 4–5 cm in *T. aroangensis* vs. 19.5–25 × 9.5–15 cm in *T. beccarii*), shorter pedicle and ovary (5–12 mm long vs. 15–17.5 mm long), larger campanulate perianth ca. 2.6 cm long (vs. perianth cupular, 1.2–1.5 cm long).

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