

***Kaempferia attapeuensis* Picheans. & Koonterm (Zingiberaceae) - A new record of medicinal plant species for VietNam**

Nguyen Hoang Tuan^{1*}, Nguyen The Hien², Nguyen Danh Duc³

¹Department of Pharmacognosy, Hanoi University of Pharmacy

²Department of Forest Resources & Environment Management, Taynguyen University

³University of Science Ho Chi Minh City.

*Email:tuand150@yahoo.com

Article Info

Received: 10-10-2018,

Revised: 06-12-2018,

Accepted: 25-12-2018

Keywords:

Gia Lai province, distribution, ecology, *K. attapeuensis.*, medicinal plant

Abstract

Through survey of medicinal plant resources in Viet Nam, Gia Lai province, Chu Prong district, Ia Puch commune, *Kaempferia attapeuensis* Picheans. & Koonterm is identified as a new species in flora of Vietnam. *Kaempferia attapeuensis* Picheans. & Koonterm is characterized by the leaves is with sessile, oblong-elliptic to broadly ovate, horizontal near the ground or upright leaves. Anther crest is also varied greatly, ranged from the rectangular shape with the apex varied from bilobed (the apex of each lobe round to acuminate) to bifid. A full description with a colour plate and notes on the variability in morphology, distribution, phenology and uses of this species are given.

INTRODUCTION

The genus *Kaempferia* L. (Zingiberaceae) is a medium-sized genus with approximately 60 species, mostly distributed from India, South China, to Malaysia (Jana L, 2015; Larsen, 2006; Mabberley DJ, 1993). Where Thailand appears to be the richest biodiversity region with more than 20 extant species (Larsen & Saksuwan, 2006). The genus *Kaempferia* L. (Zingiberaceae) is one of the important medicinal plant groups in Thailand. Many taxa are known locally for their medicinal properties, *K. angustifolia* Rosc., *K. galanga* L., *K. marginata* Carey, *K. parviflora* Wall. ex Baker, *K. rotunda* L., to mention a few. Taxonomic studies on this plant group are essential to set up the baseline information for other related research, especially in drug development. Ten species have been reported from Vietnam up to now (Jana and Mark, 2015; Tuan and Cuong, 2016; Tuan and Trong, 2017; Tuan and Duc, 2017; Tuan NH *et al.*, 2018; Tuan NH *et al.*, 2018).

During 2016–2018 ginger investigations in the southern Vietnam, a *Kaempferia* species,

Kaempferia attapeuensis Picheans. & Koonterm was discovered in Viet Nam, Gia Lai province, Chu Prong district, Ia Puch commune. This species was previously known throughout Lao PDR, Attapeu Province, Ban Kasome, on the foothill of the Bolaven Plateau (Wu ZY & PH Raven, 2000; Picheansoonthon and Koonterm, 2009) but now is a newly recorded species for Vietnam.

MATERIALS AND METHODS

Whole plant of *Kaempferia attapeuensis* Picheans. & Koonterm was collected in Viet Nam, Gia Lai province, Chu Prong district, Ia Puch commune (19/08/2016), around point 13°37'02.2"N 107°45'53.4"E. Botanical identification was performed by Department of Pharmacognosy, Hanoi University of Pharmacy and the voucher specimen (HNU N.H.Tuan N26) was deposited at Herbarium of HNU, Vietnam. Comparative morphological method was applied to identify the species (Larsen, Saksuwan, 2006; Wu & Raven, 2000; Picheansoonthon and Koonterm, 2009; Siriruga, 1992); collected samples were analyzed

in morphological characteristics the compared with those of taxonomic key and description in the documents (Tap, 2006; Thin, 2007).

RESULTS

Classification

Scientific name: *Kaempferia attapeuensis* Picheans. & Koonterm, *Taiwania* 54: 221 2009.

Holotype BKF, isotype BK, SING

Vietnamese common name: Dia lien huong (Địa liên hương), Dia lien canh buom (Địa liên cánh bươm).

Family: Zingiberaceae

Description

Perennial herb, rhizome slender, long creeping, bearing several roots in a fascicle. Leaves (l)2, sessile, blade horizontal near the ground or erect 30°-80° above the ground, oblong elliptic to broadly ovate, 1.3-12.4 x 7.1-13.9 cm, base attenuate to cuneate, margin slightly undulate to undulate, apex acute, both surfaces glabrous; leaf-sheaths 1.2-3.1 cm long, glabrous; bladeless sheath 2-3, 0.5-2 cm long, glabrous, the upper one sometimes with reduced lamina; ligule inconspicuous. Inflorescence sessile to pedunculated, peduncle up to 1.7 cm long, embedded in the two innermost leaf sheaths; flowers 3-13. Bracts 1, lanceolate to triangular, 1.8-3.0 x 3-5 mm, apex acute. Bracteoles 2, linear, 1.3-2.0 x 1 mm, apex acuminate, glabrous. Calyx tubular, 2.4-3.2 cm long, split on one side, 0.8-1 cm long, glabrous, apex bifid. Corolla tube, 4.2-5.7 cm long, whitish, glabrous; dorsal corolla lobe narrowly lanceolate, 1.8-2.2 x 3 mm, apex acute; lateral corolla lobes narrowly lanceolate, 1.6-2.1 x 2 mm, apex acute. Staminodes lilac, broadly obovate, 2-2.6 x 0.7-1.8 cm. Labellum lilac, broadly obovate, 2.3-2.8 x 1.8-2.3 cm, divided to the base, each lobe obovate, 1.7-2 x 0.8-1.8 cm. Stamen sessile, anther 2-4 mm long, anther crest ovate, obovate or rectangular, 2-5 x 3-4 mm, apex varied from bifid to bilobe with the apex of each lobe round to acuminate. Stigma funnel-shaped. Ovary cylindrical 3-4 x 2 mm, glabrous, 3-locular, placentation axile, ovules many; styloide 1, filiform, very slender, 4-5 mm long. Fruits fleshy, obovate-oblong to oblong, ca. 1.3 x 7 mm. Seeds many, narrowly ellipsoid to deltoid, brownish, 2-3 x 1-2 mm; capped with whitish aril.

Ecology: In sandy soil in Dipterocarpaceae forest, from the altitude of 200 to 400 m. Flowering: July-September.

Distribution: Viet Nam, Gia Lai province, Chu Prong district, Ia Puch commune. Lao PDR, Attapeu province, Ban Kasome.

Uses: The leaves of *Kaempferia attapeuensis* Picheans. & Koonterm roots have been used to eat fish salad by the local people. Its roots have been used in the treatment of stomach pain, stimulate digestion.

CONCLUSION

This study has been recorded the occurrence of *Kaempferia attapeuensis* Picheans. & Koonterm to flora of Vietnam for the first time. *Kaempferia attapeuensis* Picheans. & Koonterm is characterized by the leaves is with sessile, oblong-elliptic to broadly ovate, horizontal near the ground or upright leaves. Anther crest is also varied greatly, ranged from the rectangular shape with the apex varied from bilobed (the apex of each lobe round to acuminate) to bifid. Present report will help prioritizing conservation of this species in Vietnam.

REFERENCES

- Jana L, Mark N, 2015.** *Gingers of Cambodia, Laos and Vietnam, Singapore*: National Parks Board, Singapore Botanic Gardens; Edinburgh, Scotland: Royal Botanic Garden Edinburgh; Lao P.D.R.: Pha Tad Ke Botanical Garden, 203-207.
- Larsen K, Saksuwan S, 2006.** *Gingers of Thailand*, Queen Sirikit Botanic Garden, the Botanical Garden Organization, Ministry of Natural Resources and Environment, Chiang Mai, 55-59.
- Mabberley DJ, 1993.** *The Plant Book. A portable dictionary of the higher plants.* Cambridge University Press, London, UK. 303.
- Picheansoonthon C and Koonterm S, 2009.** Two New *Kaempferia* L. (Zingiberaceae) from Southern Laos, *Taiwania*, 54(3): 219-225.
- Sirirugsa P, 1992.** Taxonomy of genus *Kaempferia* (Zingiberaceae) in Thailand. *Thai Forest Bulletin*; 19:1-15.
- Tap N, 2006.** *Methods for Medicine Plant Resources Survey.* In Nguyen Thuong Dong (Editors), *Study on Herbal Medicine*, Graduate curriculum, Science anh Technics Publishing House, Hanoi, 33-60.
- Wu ZY & PH Raven, 2000.** *Flora of China*, Editorial Committee, Flagellariaceae-Marantaceae, Missouri Botanical Garden Press and Science Press, China, vol. 24, p.368-370.
- Thin NN, 2007.** *Methods for Studying Botany*, National University Publishing House, Hanoi, 23-27.

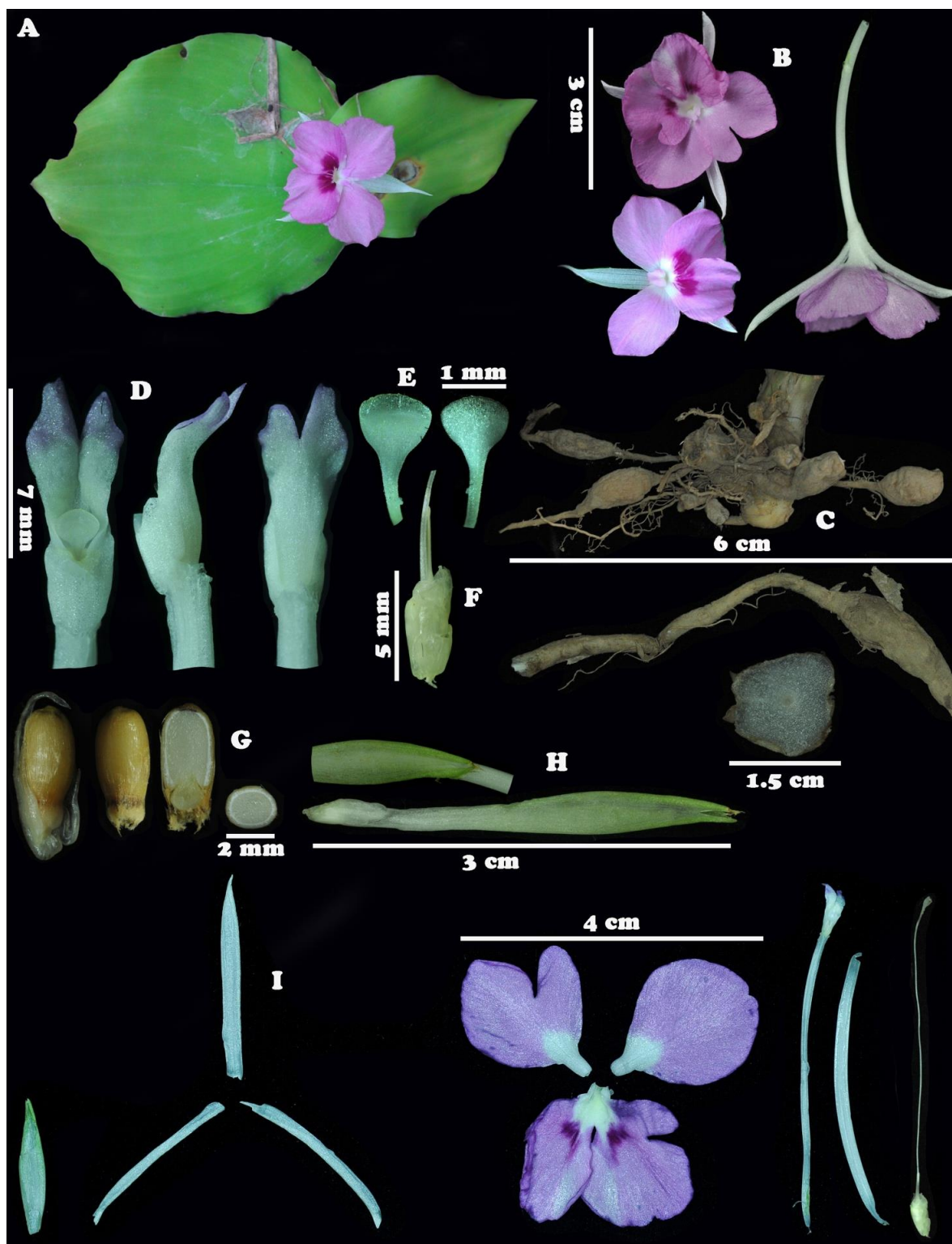


Fig.1: Some morphological characteristics of *K. attapeuensis* Picheans. & Koonterm's plant

A: The plant; B: The flowers; C: Radix and rizhoma; D: The anthers view from front, view from side, view from behind; E: The stigma; F: Ovary with part of the style and the stylodes; G: Seed dissection (from left) : seed covered with aril, bare seed, longitudinal section, cross section; H: Calyx tube; I: Dissection (from left) calyx tube, dorsal corolla lobe, lateral corolla lobes, lateral staminodes, labellum, splited floral tube, entire pistil. (Photo and design by Nguyen Hoang Tuan)



Fig.2: Distribution map of *Kaempferia attapeuensis* Picheans. & Koonterm showing its localities in the world

Tuan NH, Cuong BH, 2016. *Kaempferia parviflora* Wall. ex Baker - A new record of medicinal plant species for Vietnam; *Journal of Medicinal Materials*, **21**(5): 293 – 297.

Tuan NH, Trong ND, 2017. *Kaempferia daklakensis* N. H. Tuan & N. D. Trong (Zingiberaceae) – A new medicinal plant species from Vietnam; *Pharmaceutical journal*, **57**(490) 64-66,79

Tuan NH, Duc ND, 2017. *Kaempferia marginata* Carey ex Roscoe (Zingiberaceae) - A New Record

of Medicinal Plant Species for VietNam; *Journal of Medicinal Materials*, **22**(3): 322-324.

Tuan NH, Duc ND, Nam NH, 2018. *Kaempferia champasakensis* Picheans. & Koonterm. (Zingiberaceae) - A new record of medicinal plant species for Viet Nam; *Bioscience Discovery*, **9**(3): 356- 359.

Tuan NH, Nam NH, Duc ND, 2018. *Kaempferia laotica* Gagnep. (Zingiberaceae) – A new medicinal plant species from Vietnam; *Journal of Medicinal Materials*, **23**(4): 252-256.

How to cite this article

Nguyen Hoang Tuan, Nguyen The Hien, Nguyen Danh Duc , 2019. *Kaempferia attapeuensis* Picheans. & Koonterm (Zingiberaceae) - A new record of medicinal plant species for VietNam. *Bioscience Discovery*, **10**(1):01-04.