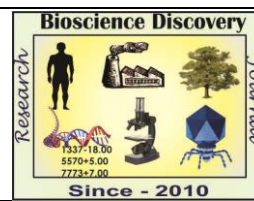


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Print & Online, Open Access, Research Journal Available on <http://jbsd.in>

ISSN: 2229-3469 (Print); ISSN: 2231-024X (Online)

Research Article



***Kaempferia champasakensis* Picheans. & Koonterm. (Zingiberaceae) - A new record of medicinal plant species for Viet Nam**

Nguyen Hoang Tuan^{1*}, Nguyen Danh Duc², Nguyen Hoang Nam³

¹15 Le Thanh Tong, Hoan Kiem, Hanoi University of Pharmacy, Hanoi, Viet Nam.

²University of Science Ho Chi Minh City, Viet Nam.

³Nong Lam University, Ho Chi Minh, Viet Nam.

*Email: tuandl50@yahoo.com

Article Info

Received: 01-01-2018,

Revised: 02-04-2018,

Accepted: 10-05-2018

Keywords:

Kaempferia champasakensis,
new record, Viet Nam.

Abstract

Through survey of medicinal plant resources in Ba Ria – Vung Tau province and Binh Thuan province, *Kaempferia champasakensis* Picheans. & Koonterm. was recorded as a new species in flora of Viet Nam. *Kaempferia champasakensis* Picheans. & Koonterm. is characterized by its pure white flowers with the labellum divided two-third to the base and the large white ovate-elliptic to suborbicular anther crest with greatly varied apex. A full description with a colour plate and notes on the variability in morphology, distribution, phenology, conservation status 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 and Mark, 2015; Larsen, Saksuwan, 2006; Mabberley, 1993). Where Thailand appears to be the richest biodiversity region with more than 20 extant species (Larsen and 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).

During 2015–2016 ginger investigations in the southern Vietnam, a *Kaempferia champasakensis* was discovered and Binh Thuan province and Ba Ria-Vung Tau province. This

species was previously known throughout Ban Lad Suea, Xanasomboon Town Champasak Province, Lao PDR. (*Chayan P, Supachai K, 2008; Sirirugsa P, 1992*) but now is a newly recorded species for Viet Nam.

MATERIALS AND METHODS

Whole plant of *Kaempferia champasakensis* Picheans. & Koonterm. was collected in Big mountain, 1 ward, Vung Tau city, Ba Ria – Vung Tau province (30/08/2016), around point 10°21'06.8"N 107°04'14.0"E. Botanical identification was performed by Department of Pharmacognosy, Hanoi University of Pharmacy and the voucher specimen (HNU 021383) was deposited at Herbarium of HNU, Vietnam.

Comparative morphological method was applied to identify the species *Chayan P, Supachai K, 2008; Sirirugsa P, 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 champasakensis* Picheans. & Koonterm., *Taiwania* 53: 406 2008.

Holotype BKF, isotype BK, SING

Vietnamese common name: Thiêng liêng hoa trắng.

Family: Zingiberaceae

Description

Perennial herb, rhizome slender, long creeping, bearing several roots in a fascicle. Leaves 2(-3), sessile, blade horizontal, near the ground, ovate to ovate-lanceolate, 5.2-7.3 by 0.8- 1.6 cm, apex acute, base attenuate to cuneate, margin undulate, both surfaces glabrous; leaf sheaths 1-2.3 cm long, glabrous; bladeless sheath 2-3, 0.5-2 cm long, glabrous; ligule inconspicuous. In florescence sessile, enclosed by the two leaf sheaths. Flowers 2-5; bracts 2, narrowly lanceolate to linear, 0.8- 1.3 by c. 0.2 cm., apex acute; bracteoles 2, linear c. 0.5-1 cm by c. 1 mm, apex acuminate, glabrous; calyx tubular, 2-2.5 cm long, split on one side, 0.7-1 cm long, glabrous, apex trident; corolla tubular, 3-4.2 cm long, white, glabrous, dorsal corolla lobe narrowly lanceolate, 1.8-2.3 cm by c. 3 mm, apex acute, lateral corolla lobes narrowly lanceolate, 1.6-2 cm by c. 2 mm, apex acute. Staminodes pure white, broadly obovate, 1.6-1.8 by 1.2- 1.7 cm. Labellum pure white, broadly obovate, 2-2.3 by 1.8-2 cm, divided about two-third to the base, each lobe obovate, 1.8-2 by 0.8 - 1.2 cm. Stamen sessile, anther 2-4 mm long, anther crest ovate-elliptic to suborbicular, 4-7 by 3-4 mm, apex varied from round to bilobe with the apex of each lobe round to

acuminate. Stigma funnel-shaped. Ovary cylindrical c. 7 by c. 5 mm, glabrous, 3-10ocular, placentation axile, ovules many; styloide 1, filiform, very slender, 7-9 mm long. Fruits fleshy, obovate, 1- 1.3 cm by 5-7 mm; Seeds many, narrowly ellipsoid to deltoid, 2-3 by 1-2 mm

Ecology: The plant grows well in sandy soils along the stream in the dry deciduous forest, ca. 50-150 m alt.. Flowering: May-June.

Distribution: Viet Nam (Dinh mountain, Tan Hoa commune, Tan Thanh district, Ba Ria-Vung Tau province; Binh Chau-Phuoc Buu Nature Reserve, Vung Tau city, Ba Ria – Vung Tau province; Suoi Kiet commune, Tanh Linh district, Binh Thuan province), Lao PDR. (Ban Lad Suea, Xanasomboon Town Champasak Province).

Uses: The leaves of *Kaempferia champasakensis* 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 champasakensis* Picheans. & Koonterm. to flora of Vietnam for the first time. *Kaempferia champasakensis* Picheans. & Koonterm. is characterized by its pure white flowers with the labellum divided two-third to the base and the large white ovate-elliptic to suborbicular anther crest with greatly varied apex. Present report will help prioritizing conservation of this species in Vietnam.



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

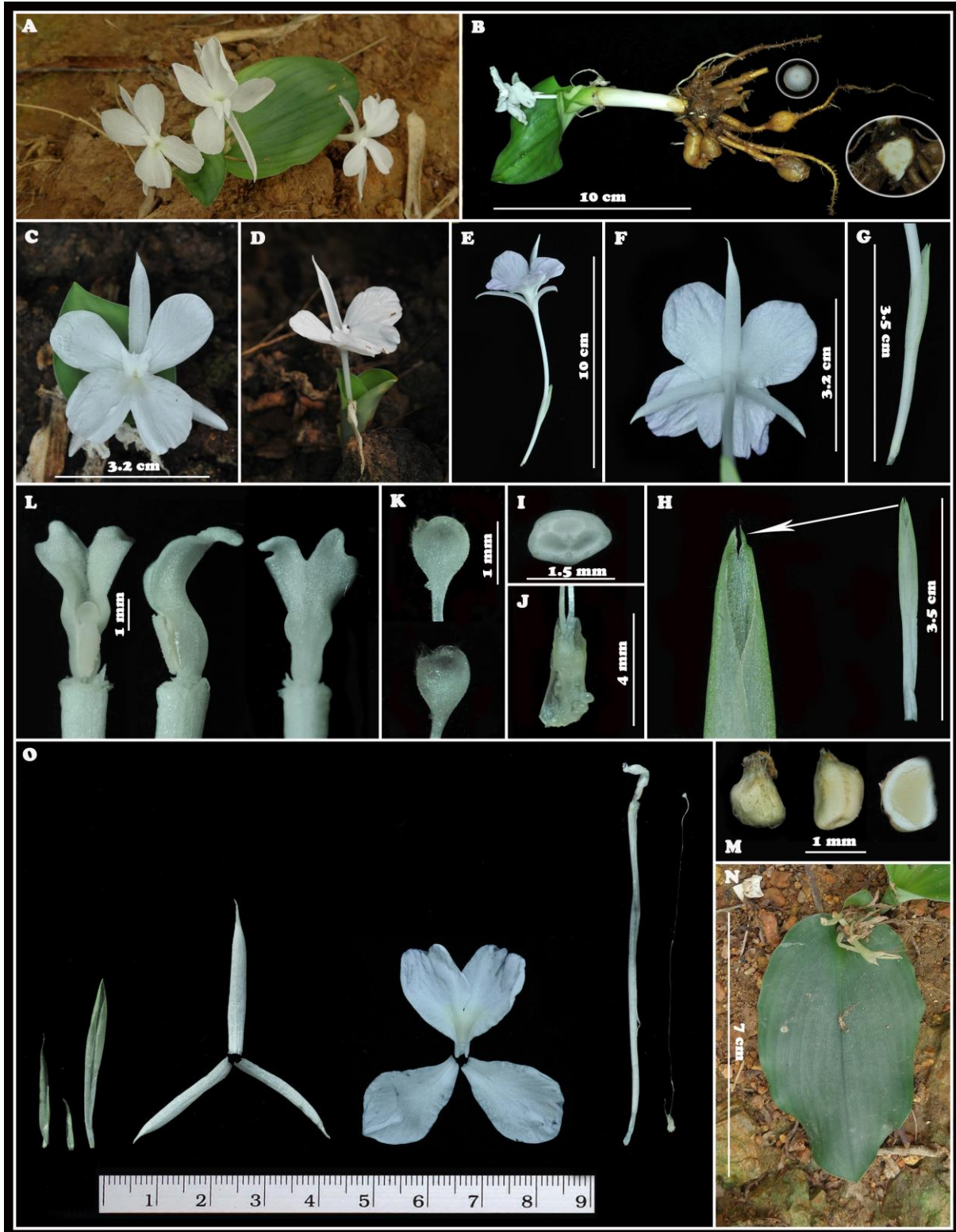


Fig.1: Some morphological characteristics of *K. champasakensis* Pichens. & Koonterm.'s plant

A, B: The plants; C, D, E, F : Detail of the flower; G, H: calyx tube; I: Horizontal cross section of ovary; J: Ovary with part of the style and the stylodes; H: The stigma ligule; I: Leaf; L: The anthers view from front, view from behind, view from side; M: Seeds; N: leaves; O: Dissection (from left) bracts, calyx tube, dorsal corolla lobe, lateral corolla lobes, labellum, lateral staminodes, entire pistil. (Photo and design by Nguyen Hoang Tuan)

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How to cite this article

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