

# A New Species of *Hopea* (Dipterocarpaceae) from Vietnam

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**Abstract:** A new species of *Hopea* (Dipterocarpaceae) from Vietnam, *Hopea vietnamensis*, has been described and depicted. This species was previously misidentified as *Hopea exalata* Lin, Yang & Hsue. *Hopea vietnamensis* is somewhat similar to *Hopea exalata* and *Hopea reticulata*, but the sepals are dense hairy outside, slightly hairy inside, and have a pale yellow color.

**Keywords:** Dipterocarpaceae, *Hopea vietnamensis*, new species, Vietnam.

## INTRODUCTION

The Dipterocarpaceae include about 600 species in three subfamilies and 17 genera, with 6 genera and 44 species in Vietnam [5, 6]. A careful examination of Indochinese specimens of *Hopea* at Vietnam Forestry University and the Vietnam Forest Inventory and Planning Institute found some unusual specimens that had been collected by Le Van Thuan in Thua Thien Hue and Quang Binh provinces, which are almost 500 km south of Hanoi, Vietnam. These specimens were collected in 1978, and they were assigned the numbers Le Van Thuan 6792, 6794, 6795, 6796 and 6797. These specimens were identified by Nguyen Ngoc Chinh and Vu Van Dung as *Hopea exalata* [7]. In 2011 we conducted fieldwork in Quang Binh province (Phong Nha Ke Bang National Park) to try and recollect this species, and we were able to discover a similar specimen in the karst formation of the National Park. We studied literatures [1-4, 8-10] and many specimens including types of Indochineses and Chinese *Hopea*. After comparing this specimen with type specimens and many other specimens in Paris (P), Leiden (L), South China Botanical Garden Herbarium (IBSC) and most herbaria in Vietnam, it became obvious that our materials differed significantly from *Hopea exalata* Lin, Yang & Hsue and *Hopea reticulata* Tardieu

## RESULTS AND DISCUSSION

***Hopea vietnamensis* H. V. Sam & D. Vu**

***Typus* Le Van Thuan 6795 (Holo type, VNF)**

Evergreen trees, 30-40 m tall, 60-80 cm in diameter. Bark thin, white grey, not peeling when young, peeling

off into large pieces when old. Branches slender, white grey. Leaves simple, alternate, distichous ovoid or lanceolate, tip attenuate, base rounded, a little bit asymmetrical, 5-11cm long, 3-5cm wide. Basal veins 5-6 pairs, the two lower veins usually not obvious, lateral veins 3-5 pairs, without domatia at the lower surface of the leaves. There is no reticulate tertiary venation. Petioles thin, 6-10 mm long, covered with yellow grey tomentum when young, soon caducous. Inflorescence and axillary panicle, 6-11cm long, rachis glabrous, bud c. 6 mm long. Sepals 5, nearly rounded or ovoid, 2-2,5 mm long, top convex, tomentose at margin and outside. Petals 5, obovoid or elliptical, pale yellow, c. 5 mm long; apex acuminate and oblique, dense, grey tomentose outside and slightly pubescent inside. Stamens 15, arranged in two rings; inside round with 10 and outside round with 5 stamens

Anthers ellipsoid, 0,5-0,7mm long, filaments 1,3-1,6 mm long, connectival appendage about 2 times as long as anther, Ovary superior, pyriform, shortly fine pubescent with short style, 3-locular, two ovules in each locule. Fruits ovoid, c. 1,7cm long and c. 0,9cm wide, pointed at top, brownish-yellow when mature, wings 2, 4-6cm long, c. 1,2 cm wide; apex obtuse, glabrous, about 11 parallel veins on each wing.

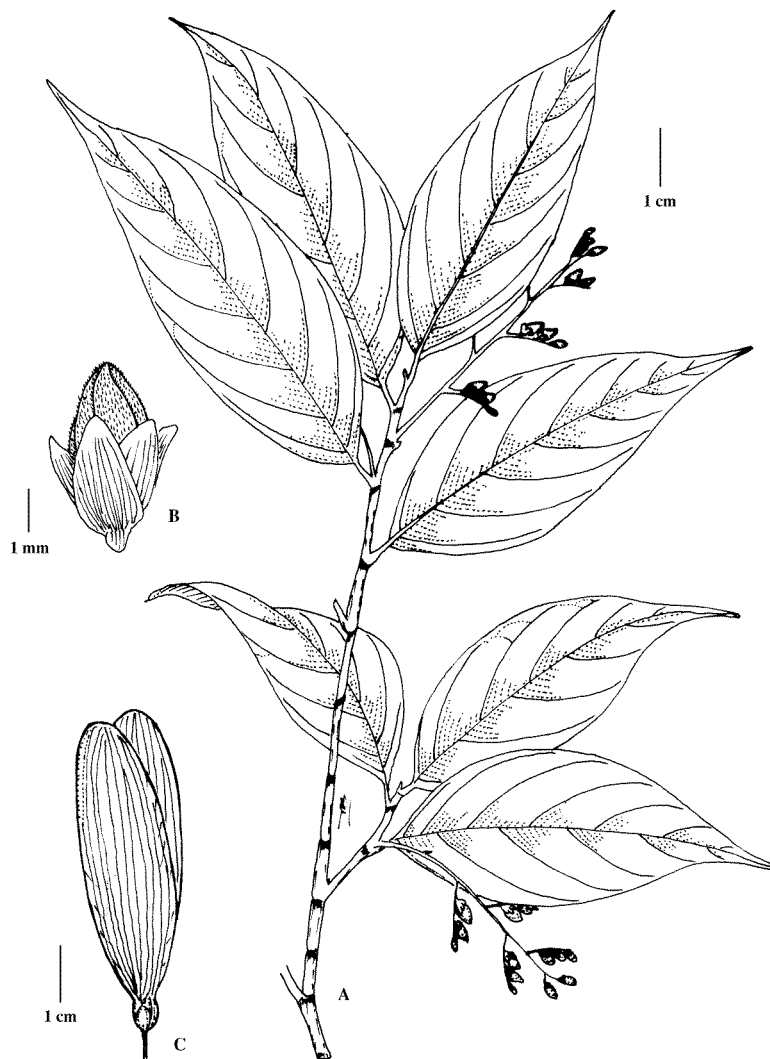
## Note

According to "Flora of China" [11], *Hopea exalata* is a synonym for *Hopea reticulata*. However, my research shows that they are two different species (see Table 1). *Hopea exalata* has glans on the lower surface of the leaves while *Hopea reticulata* does not have glans; *Hopea exalata* has 15 stamens while *Hopea reticulata* only has 10 stamens. The sepal of *Hopea exalata* is of a pink color and smooth on both surfaces while the

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**Table 1: Comparison of *Hopea vietnamensis* with *Hopea reticulata* and *Hopea exalata***

Characteristics	<i>Hopea vietnamensis</i>	<i>Hopea reticulata</i>	<i>Hopea exalata</i>
Glans	No glans on the lower surface of the leaves	No glans on the lower surface of the leaves	Glans on the lower surface of the leaves
Venation	No reticulate tertiary venation	Reticulate tertiary venation	No reticulate tertiary venation
Number of Stamens	15 (10+5)	10	15 (10+5)
Color of sepal	Pale yellow	Reddish	Pink
Sepal	Dense hairy outside, slightly hairy inside	Slightly hairy outside, smooth inside	Smooth on both surfaces



**Figure 1:** *Hopea vietnamensis* H. V. Sam & D. Vu a, leaves and inflorescence, b, flower, c fruit (A & B Le Van Thuan 6974 (VNF), C Le Van Thuan 6975 (VNF)).

sepal of *Hopea reticulata* has a reddish color, and is slightly hairy outside and smooth inside.

#### Distribution

This species is an endemic species of Vietnam. To date it has only been found in limestone forests in Nam Dong and Phong Nha Ke Bang National Park, Quang

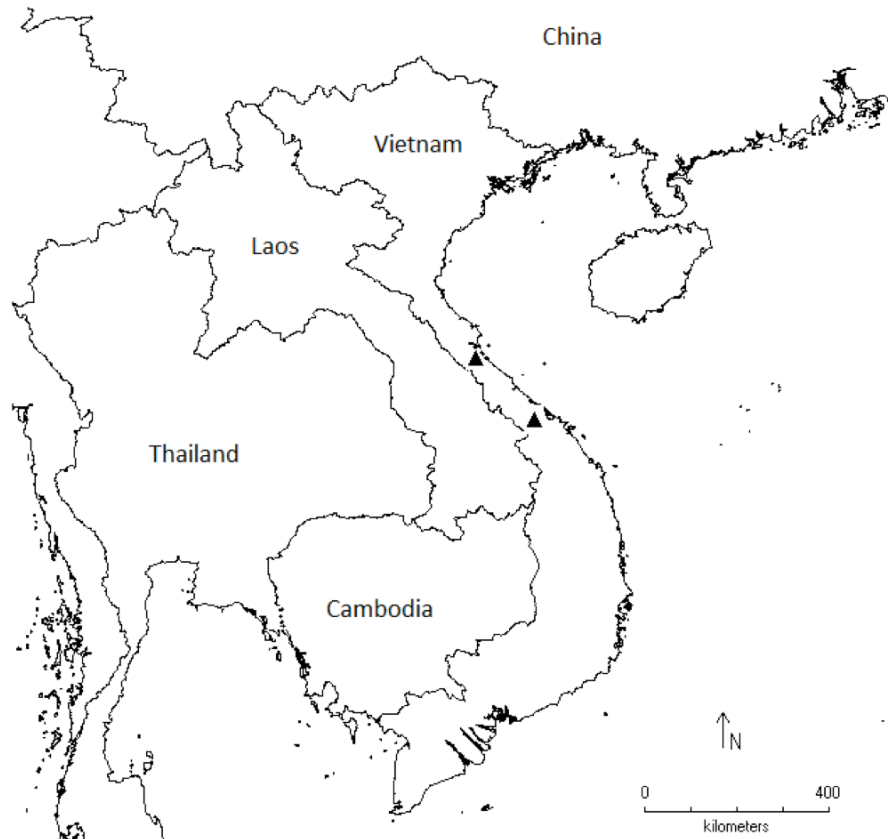
Binh province, central Vietnam. These areas are about 500 km south of Hanoi (Figure 3).

#### Ecology

Flowering in July-September; fruiting in February-March.



**Figure 2:** *Hopea vietnamensis* H. V. Sam & D. Vu (Le Van Thuan 6975 (VNF)).



**Figure 3:** Distribution of *Hopea vietnamensis* H. V. Sam & D. Vu.

This species grows in limestone forests in Nam Dong and Phong Nha Ke Bang National Park, Quang Binh province, Vietnam.

*Additional specimens:* Le Van Thuan 6800, Le Van Thuan 6790, Le Van Thuan 6791, Le Van Thuan 6792, Le Van Thuan 6796, Le Van Thuan 6797, Le Van Thuan 6976, Le Van Thuan 6977 (FIPI); Le Van Thuan 6794 and Le Van Thuan 6795 (VNF) in Quang Binh, Vietnam. Date of collection June 1978.

Hoang Van Sam BC-TV 1445 (VNF) in Quang Binh, Vietnam. Date of collection November 2011.

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