

# Morphological characteristics and distribution status of *Aquilaria banaensae* Phamh. in Hue Saola Nature Reserve

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## BACKGROUND

*Aquilaria banaensae* Phamh. is an endemic species (Thymelaeaceae) of Vietnam which only found in Da Nang (IUCN, 2018) and Thua Thien Hue province (Nha et al. 2019). *A. banaensae* is listed as one of the species that can produce agarwood, but there has been no research on the agarwood ability of this species (Ng et al. 1997). The study of Van et al. (2023) showed the anti-bacterial properties from essential oils extracted from the stems and leaves of this species. The detailed research and information on the morphological characteristics and distribution of *A. banaensae* is incomplete. There are few published works in Vietnam and worldwide. Thus, this research provides basic information for the conservation and development of endemic and rare genetic resources.

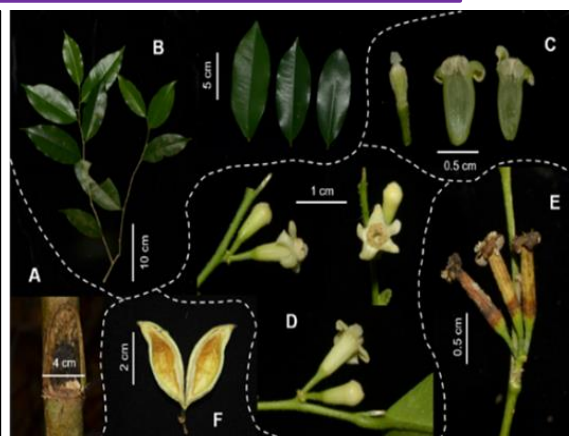
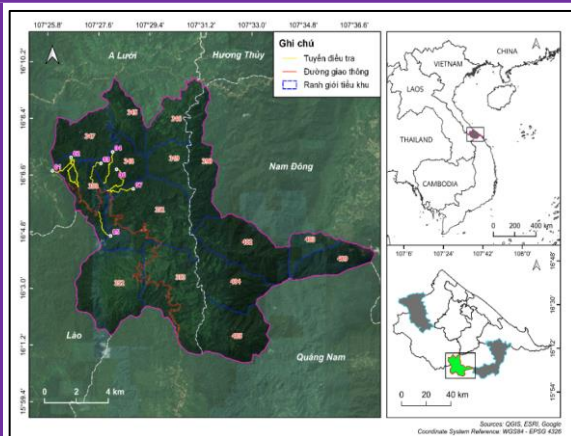
## METHODOLOGY

**Data collection:** 07 transects, designed plots (200 m<sup>2</sup>) next by next on each transect and from 1 - 2 plots 200 m<sup>2</sup> per transect (high density of *A. banaensae*) were extended to 1000 m<sup>2</sup>. In each plot 200 m<sup>2</sup> and 1,000 m<sup>2</sup>, the mature trees, regeneration of *A. banaensae*, forest status, altitude, threats, etc. were recorded. Five leaves/trees (10 mature trees) were collected for measuring morphological characteristics. Besides, 1,000 images were captured by ImageJ for counting stomatal density.

**Table 1.** Morphological traits of *A. banaensae*

Characteristics	Leaf length (cm)	Leaf width (cm)	Leaf area (cm <sup>2</sup> )	Stomata/ mm <sup>2</sup>
Average ± StDv	14.8 ± 1.8	5.8 ± 1.0	57.0 ± 15.8	144.5 ± 34.8
Range	11.2 - 19.0	3.4 - 7.7	29.1 - 88.9	79.4 - 222.3

## RESULTS & DISCUSSION



**Fig. 1.** Distribution map of *A. banaensae*

**Fig. 2.** Morphological traits of *A. banaensae*

**Table 2.** Distribution structure of *A. banaensae* and other tree composition

Description	Individuals	Average density (trees/ha)	D <sub>00</sub> ± StDv (cm)	D <sub>1.3</sub> ± StDv (cm)	H <sub>vn</sub> ± StDv (m)
<i>Aquilaria banaensae</i>	177	79.70	3.02 ± 1.10	1.96 ± 0.81	2.50 ± 0.92
Other tree composition	312	445.70	-	16.80 ± 12.70	13.10 ± 5.50

*A. banaensae* distributes at an altitude of 800 - 950 m. The average leaf area and stomatal density are 57.0 ± 15.8 cm<sup>2</sup> and 144.5 ± 34.8 (stomata/mm<sup>2</sup>). The average height and diameter are 2.50 ± 0.92 m and 1.96 ± 0.81 cm. Population density is relatively low.

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## CONCLUSION