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NOTES OF *Aquilaria* AND *Gyrinops* (THYMELAEACEAE) IN HALMAHERA ISLAND MOLUCCAS INDONESIA

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ABSTRACT

The exploration of the diversity of eaglewood in Halmahera was done on June 1-12, 2017. This research was obtained 3 species of eaglewood that belong to 2 genera. Those are *Gyrinops moluccana*, and two species from genus *Aquilaria* are *A. cumingiana* and the other *A. filaria* that new record to Halmahera island.

Keywords: *Gyrinops*, taxonomy, Halmahera, Mollucas, Indonesia.

INTRODUCTION

Halmahera is one of the second largest islands covering an area of 18,000 km^2, located in the Moluccas archipelago. The land is hilly with nickel ore and gold. Eaglewood research on Halmahera island has rarely been done, since Ding Hou in 1960. Eaglewood plants that exist in the Moluccas Islands, there are two genera with three species of Thymelaeaceae family, namely *Aquilaria filaria* (found in Ambon, Morotai and Seram), *A. cumingiana* (in Sampit region, Borneo; Halmahera, Morotai) and *G. moluccana* (in Buru and Halmahera) (Hou, 1960; Papikaya, 2014; Susilo et al., 2014; Mulyaningsih et al., 2017)..

METHOD

The exploration of the diversity of eaglewood trees grown in Halmahera is done on June 1-12. 2017, using a combination of excursing and delineation methods (Mulyaningsih et al., 2017). Exploration is focused on the eaglewood habitat on the island. The collected samples of herbariums were then identified and stored in the Herbarium of Mataram University Lombok (MUL).

RESULTS AND DISCUSSION

Agarwood species which were found in Halmahera are consisted of 3 eaglewood native species and 1 eaglewood plantation (G. versteegii). Three native species are G. moluccana, A. cumingiana, and one species A. filaria that was a new record to Halmahera island.

Identification key to species.

1. a. Leaves lanceolate, nerves simple or sometimes branched slightly curved, ascending towards the margins …….2
   b. Leaves narrow lanceolate-oblong, with distinctly parallel veins ..... *G. moluccana*
2. a. Calyx lobes 4; petaloid appendages usually united in a ring, lower 1/3-1/2 of the anthers usually adnate to the floral tube .....…… *A. cumingiana.*

b. Calyx lobes 5; Petaloid appendages free, inserted at the throat of the floral tube ...……..... *A. filaria.*

Description

***Aquilaria cumingiana* (Decne) Ridl. J. Str. Br. R. As. Soc. n. 35 (1901) 80; Hall./. Med. Rijks-herb. n. 44 (1922) 17.**

Shrubs, bark greenish grey, smooth, young branches tomentose. Leaves chartaceous, lanceolate-oblong, 11.9-40.3cm x 3.7-7.6cm, based cuneate, tip acute-caudate up to 1.1cm, glabrous, undulate and wavy on above surface, tomentose, sparsely on below side; alternate; nerves simple or sometimes branched slightly curved, ascending towards the margins and joining several intramarginal veins, nerves: 58-68; margins wavy, slightly recurved and thickened. Petioles glabrous on above surface and tomentose on below surface, 0.7-0.9x0.2-0.25cm. Inflorescent caulis (cauliflory), umbel, peduncle short 2-5 mm length, tomentulose densely; 9-12 flowers/ peduncle. Pedicles 0.4-0.5x0.05-0.1cm, puberulent densely. Flower greenish white, tubular. Calyx tube 0.7-0.9cmx02-0.3cm, puberulent out side, puberulent thick in side, 4 lobes, lobes oblong, 0.25-0.35cmx0.15-0.2cm; tomentulose thick in side and sparsely puberulent outside. Petaloid appendages, petal lobes 8, oblong, 0.05-0.1x0.05cm, sericeous thick, usually united in a ring, lower 1/3-1/2 of the anthers, adnate to the floral tube, episepalus on the neck calyx tube; stamen 8, episepalous, anther dorsifix, oblong, 0.2-0.25x0.05-0.075cm, filament 0.3-0.6-0.1-0.15cm puberulent. Stigma capitate.

Vernacular Names. Gaharu daun durian.

Distribution. Moluccas, Halmahera, Weda district, Lukulamo forest, Akelamo forest, Saolat mount, Wasile district, Maba district.

Habitat & ecology. In the primary and secondary forest.

***Aquilaria filaria* (Oken) Merr. J. Arn. Arb. 31(1950) 283.**

Shrubs, bark brown blackish, with spot grey, fissure, tomentose. Leaves Coriaceus, Lanceolate, elliptic-oblong, 8.7-9.4x2.8x3cm, papilose on above, tomentose scattered on bellow, base cuneate, cuspidate-caudate up to 1.3 cm at the tip, midrib menonjol bellow. Pteolus papillose, 0.4-0.6 cm length, 0.15-0.2 cm diameter. Inflorescentia on the short branchlet, axillar, umbel. Bractea pedunculus, oblong, 0.1 cm length, 0.05cm width, thick tomentose. Peduncle terete, 0.2 cm length, 0.15 cm width.

Vernacular Names. Gaharu daun sirsat.

Distribution. Moluccas, Halmahera, Wailukum village, Maba District, Maba region, Jailolo region; in the region Akelamo and Ekon, Subaim and Buli area foot of Saolat mount. Wasile district, slope of Gamkonora Mount,

Habitat & ecology. In the primary and secondary forest and in the protected forest.
Notes: in Maba district, some people were already cultivated A. filaria trees in their gardens, near their house.

Gyrinops moluccana (Miq.) Bail. Adansonia 11 (1875) 326; Gilg in E. & P. Pfl. Fam. 3, 6a (1894) 225; Boerl. Handl. 3 (1900) 111;
Quis. J. Am. Arb. 27 (1946) 404.

Shrubs, bark greenish cream with grey spot (young tree). Leaves spirally arranged, with distinctly parallel veins joining the several intramarginal veins; margin thickened. Leaves narrow-lanceolate, 5-8 times as long as wide (without reproductive organ).

Vernacular Names. Gaharu daun panjang.

Distribution. Moluccas, Halmahera, Maba district.

Habitat & ecology. In the primary and secondary forest, nearby the river.

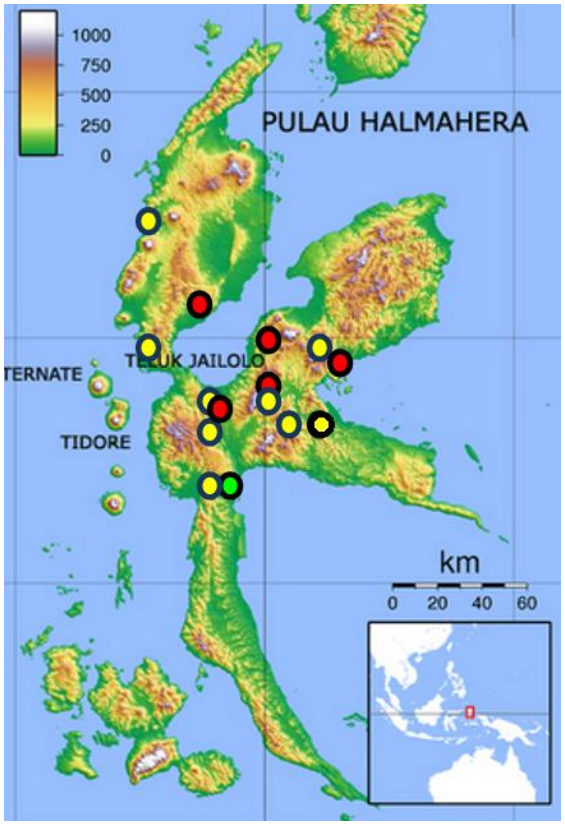

Figure 1. Map of Eaglewood Distribution in Halmahera Island, Maluccas, Indonesia. Notes: yellow: A.filaria, Light green, A. cumingiana red: G. moluccana.

CONCLUSIONS

Based on this research can be conclude that there are 4 species of production agarwood plants in the Halmahera island, namely G. moluccana, A. cumingiana, and one species A. filaria that was a new record to Halmahera island, and other species was G. versteegii which was a cultivation eaglewood.

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