## SHORT COMMUNICATION

# Rediscovered of *Gnetum gnemon* var. *tenerum* Markgr. in Kalimantan (Penemuan Kembali *Gnetum gnemon* var. *tenerum* Markgr. di Kalimantan)

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Gnetaceae is a gymnosperm family that consists of only one genus, that is the genus *Gnetum*. This genus consists of probably fewer than 33 species (Markgraf 1929) with the following distribution: 10 species are in South America, 2 species in West Africa and the remainder in are subtropical and tropical regions of Asia (Verheij & Coronel 1992; Won & Renner 2006; Markgraf 1951). In Southeast Asia there are 16 species of *Gnetum*, 12 species of them are found in Indonesia (Markgraf 1951). According to Markgraf and Munchën (1951), *Gnetum* has the following general characteristics: glabrous trees, shrubs, or for mostly vines. Leaves decussate, simple, entire, penninerverd, exstipulate, mostly provided with fine, pellucid lines (spicular cells) parallel to the secondary nerves and then bearded on fracture. Spikes ramified or simple, axillary or often cauline, dioecious, each one with 2 opposite basal scales and several collars containing moniliform hairs and sessile female, either numerous spirally arranged male ones below a ring of some sterile female ones, or a ring of few fertile female ones. ♂ flower: a claw – shaped, transversely splitting perianth and a central stamen with 2 (in *G. gnemonoides* one), yellow microsporangia that open by an apical median split. ♀ flower: a fleshy outer envelope (perianth) and 2 thin inner ones (integuments), the innermost with a long, slender, apical tube, and an orthotropous ovule; sterile female flower without the middle envelope. Fruit: consisting of the fleshy outer envelope, which in some spp. is narrowed into a stalk, the hardened, ribbed middle envelop, the thin, silky, inner envelop, and large, horny seed with small embryo.

*Gnetum gnemon* reportedly has several varieties. One of the varieties occurred in Southeast Asia is *G. gnemon* var. *tenerum* Markgr. This variety is distributed in Thailand, Malay Peninsula and Borneo (Kalimantan, Brunei, Sabah and Sarawak). Cultivation of *G. gnemon* var. *tenerum* has never been carried out in Southeast Asia (IUCN Red List of Threatened Species 2015; Butrat & Wangmuang 2004; Verheij & Sukendar 1991).

According to Markgraf (1929), *G. gnemon* var. *tenerum* was obtained in Kutai Barat (Borneo) at an altitude of 100 m above sea level. This variety was first collected from Borneo by F.H. Endert (*Endert* 4892) on November 14, 1925. Since then, no more reports stating the existence of this variety in Kalimantan. At 2014, the exploration team of the Center for Plant Conservation Botanic Gardens rediscovered its presence in Central Kalimantan. Considering not much information about this varieties it is very important to uncover the deeper mainly its distribution in Indonesia

As a first step in this direction, we have carried out a morphological characterization of the variety, and identified its growing environment and natural distribution.

This research used a descriptive method employing direct observation and identification in the field, library research, and an examination of herbarium specimen data of *G. gnemon* var. *tenerum* stored in the Herbarium Bogoriense – LIPI, Cibinong.

## Taxonomic Treatments

### a. Morphological characters

*Gnetum gnemon var. tenerum* is a shrub with a height of 3 m and a trunk diameter up to 7 cm. It has single leaves, lanceolate to oblong, penninerved, integer, tip acuminate, base rounded to tapering, young leaves brownish red to light green, older leaves dark green, upper surface and lower surface dull green. Inflorescences terminal and axillary, yellow.

Young fruit, oblong shape, size 1-1.5 cm and diameter of 1-1.5 cm (Figure 1).

**b. Ecology**

In general, *G. gnemon* var. *tenerum* grows in moist areas in the lowland forest, along the banks of streams and sometimes in the mountains up to an altitude of 1200 m above sea level.

**c. Distribution**

Based on data from the literature search and field research, *G. gnemon* var. *tenerum* in Kalimantan would appear to be only known in the West Kutai region (East Kalimantan) and in Katingan (Central Kalimantan). However based on the specimens at herbarium Bogoriense, the distribution of this variety appeared to be wider, which in cludes Sarawak and Kalimantan (Table 1

*Gnetum gnemon* var. *tenerum* was first discovered in Indonesia in 1893-1894 by H. Hallier. At first, this variety was named *G. gnemon*, but then in 1917 Markgraf successfully differentiated this separate variety of the species with the name *G. gnemon* var. *tenerum.* In 1896-1897, Jaheri (an employee of the Botanic Garden of Buitenzorg,now known as the Bogor Botanical Gardens) collected the species at Bloe-oe River (now Buluh River, South Kalimantan) on the Nieuwenhuis expedition headed by Anton W Nieuwenhuis. Amdjah (1898) collected the species at the Boeleng River (now Bulan River,

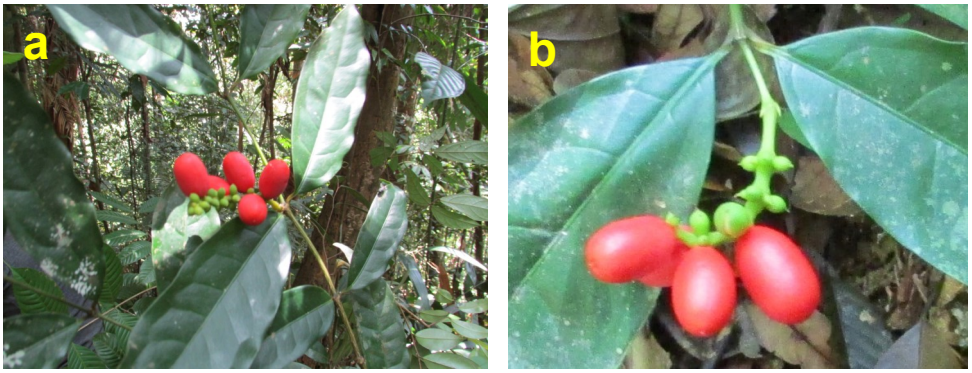


**Figure 1**. *G. gnemon* var. *tenerum*: a) habitus dan b) fruit appears at terminal

**Table 1.** Data distribution of *G. gnemon* var. *tenerum* from specimens in Herbarium Bogoriense

| No. | Collector | Collection number | Number of collection | Year | Location | Information |
|---|---|---|---|---|---|---|
| 1. | H. Hallier | 2540 | 4 | 1893-1894 | Djemala River, Mount Kelam areas, West Kalimantan | Expedition |
| 2. | Jaheri | 414 | 1 | 1896-1897 | Bloe-oe River, South Kalimantan | Nieuwenhuis Expedition |
| 3. | Amdjah | 117 | 1 | October 28, 1898 | Boeleng River, West Kalimantan | • Determinator: H. Hallier (1917)<br>• Local name: belinju |
| 4. | F.H. Endert | 4892 | 2 | November 14, 1925 | West Kutai, East Kalimantan | Expedition Midden Oost. Borneo |
| 5. | Anonim (a native of Sarawak) | 420 | 1 | - | Sarawak, Malaysia | Determinator: Markgraf (1930) |
| 6. | Dan Bin Hj. Bakar | 4356 | 1 | June 7, 1961 | District Miri, Lambir Hill, Sarawak at 500 m above sea level | • Determinator: J.A.R Anderson<br>• Local name: sabong |


**Figure 2.** Distribution of *G. gnemon* var. *tenerum* in Kalimantan

West Kalimantan). The last of the early recordings of *G. gnemon* var. *tenerum* from Kalimantan was the result of a collection by F. H. Endert obtained in the Midden Oost. Expedition to Borneo on November 14, 1925 in West Kutai, East Kalimantan. The recorded distribution of *G. gnemon* var. *tenerum* can be seen in Figure 2.

Based on data from herbarium specimens it is known that *G. gnemon* var. *tenerum* was last discovered in Indonesia in 1925. However, 89 years later, it was rediscovered by an exploration team from the Bogor Botanical Gardens in the production forest area of PT. Sarana Piranti Utama, in Katingan, Central Kalimantan. During this long interval, there was no publication of related research on G. *gnemon* var. *tenerum* in Indonesia after the discovery by FH. Endert in Kutai Barat. This is probably because people have been paying little attention to the possible existence of the plant and have assumed that this ‘’melinjo’’ is the kind of *G. gnemon*.

Distribution of *G. gnemon* var. *tenerum* in Indonesia is spread from East Kalimantan, South Kalimantan, Central Kalimantan, to West Kalimantan. *G. gnemon* var. *tenerum* is a plant that can be consumed as a vegetable, therefore research on the potential of the plant will be important in the future.

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