

## A New Palm from the Ryukyus

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***Gulubia liukiensis*** Hatusima, sp. nov.

'*Cyphokentia Savoryana* Rehd.' Sakaguchi, General Index Fl. Okinawa (1924) 91

'*Exorrhiza Savoryana* Burr.': Walker et al., Fl. Okinawa (1952); Walker, Import. Trees Ryukyu Isls. (1954) 313, excl. fig. 204; Masamune, Enum. Tracheophyt. Ryukyu Insl. 9 (1957) 86.

'*Bentinkioopsis Savoryana* Becc.': Hatusima & Amano, Fl. Okinawa (1958) 134.

Caudex circ. 15–20 m. altus, columnaris, circ. 20–30 cm. in diam.. Folia pinnatisecta circ. 5 m. longa, foliola numerosissima, aequidistantia, alterna vel opposita, concinna, coriacea, concoloria, lineari-ensiformia, maxima 60–70 cm. longa et 3–4 cm. lata, apice breviter bidentata, apicem folii versus longitudine decrescentia. Foliorum nervis medianus utrinque valde elevatis et acutis, nervi secundarii utrinque 2–3 utrinque facie elevati, tertiarum numerosi subtus leviter prominens, margines acuti nervo secundarios valde approximato limbati. Spadix patens infrafoliaceus fastigiatus ramosus circ. 1 m. longus in ambitu sphericus basi amplexicaulis tumidus peduncularis, spadiceis primarii rami in paucos brevissimos secundariis divisi, secundarii in ramos floriferos 7–8 graciles divisi. Rami floriferi rigidi, inaequilongi, circ. 40 cm. longi, subtetragoni, circ. 4–5 mm. crassi, brevissime tomentosi. Flores in ramuli floriferi spicati, decussatim dense oppositis, monoici, inferiores (infra medium) 2–ni, inferiores ♀ et superiores ♂, superiores (supra medium) 2–ni tantum ♂. ♂: sepala 3, imbricata, libera, orbiculari-reniformis, convexa, acuta, dorso carinata, subscariosa, 2 mm. longa et 2.5 mm. lata; petala libera, imbricata, elliptica, utrinque acuta, convexa, circ. 3.5 mm. longa et 2 mm. lata; stamina 6, excerta, filamentis complanatis circ. 4 mm. longis et 0.6 mm. latis, antheris versatilibus anguste ovatis circ. 2–2.5 mm. longis, apice obtusis; rudimentum ovarii lanceolato-oblongoides circ. 2 mm. longum apice incurvum. ♀: sepala 3, late imbricata, suborbicularis convexa, circ. 4 mm. longa et 5 mm. lata; petala consimilia circ. 3–4 mm. longa et lata, subito in apicem minimum sub anthesi jam conspicuum triangularem contracta, margine ciliolata; ovarium ovoideum circ. 2 mm. longum basi breve crassisque stipitatum; stigmata 3, terminalis parva; staminoidea 3, triangularis, complanata, circ. 1 mm. longa et lata. Bracteolae sub flos ♀ 2, persistens, depresso-orbicularis late imbricatae et in annulus circ. 2 mm. altus, 4–5 mm. longus 3 mm. latus formantes. Fructus horizontaliter insertis, oblongoides circ. 1.3 mm, longus et 7 mm. latus. Epicarpium pergamaceum, mesocarpium satis evolutum, fibris complanatis densis, in uno strato fructus longitudinem percurrentibus. Semen oblongoides apice acutum et ± incurvum, basi rotundatum, circ. 1 cm. longum et 5 mm. latum, testa cinereo-brunnea supra nervis paulo ramificatis, hilo angusto lineari totius seminis longitudinem aequans, albumine aequabili, embrio basalis.

Hab. Ryukyus: Isl. Iriomote: cultivated? in the hamlet of Sonai, alt. 1 m., a graceful palm about 15 m. ht., S. Hatusima 18500 (flowering type), July 9, 1955; Isl. Ishigaki:

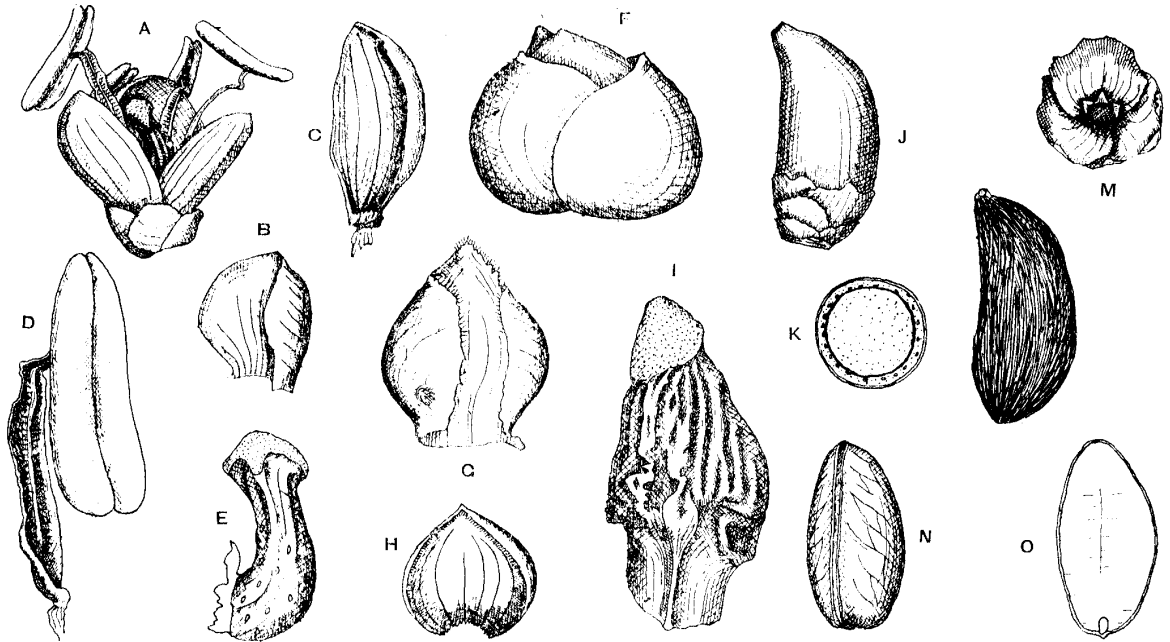


Fig. 1. *Gulubia liukiensis* Hatusima; A, a male flower showing a rudimentary ovary  $\times 5$ ; B, a sepal seen from side  $\times 10$ ; C, a petal seen from inside  $\times 10$ ; D, a stamen with complanate filament  $\times 12$ ; E, a rudimentary ovary  $\times 12$ ; F, a female flower  $\times 6$ ; G, a petal seen from inside  $\times 7$ ; H, a sepal seen from inside  $\times 5$ ; I, an ovary with a terminal stigma  $\times 12$ ; J, a fruit  $\times 2$ ; K, the same in cross section  $\times 2$ ; L, a fruit showing the fibrous mesocarp  $\times 2$ ; M, persistent calyx showing three triangular complanate staminoides in its inner base  $\times 2$ ; N, a seed showing a long vertical hilum  $\times 2$ ; O, the same in longitudinal section showing a basal embryo  $\times 2$ .

abundant in the thicket at Yonehara, alt. 200 m., a young palm 5 m. ht., S. Hatusima 22966, Nov. 5, 1958; K. Kuroshima, without number (Fruiting type).

The present new species is most closely related to *G. cylindrocarpa* Becc. from the New Hebrides from which it differs, according to the original description and figure, by its more or less incurved ovate-oblong fruits with elliptic seeds. *G. moluccana* Becc. is also near to this new species, but differs by its obovate-clavate fruits, its larger male flowers, and its larger and broader pinnae. *G. Hombronii* Becc. from the Solomon Islands also resembles this new species, but differs from it by its somewhat larger clavate-oblong fruits. The differences from other species are shown in the following Table 1.

Table 1. A synopsis of the distinctive characters of the species of the genus *Gulubia*

Species and its habitat	Form and size of fruits	Form and size of seeds	Form and size of male flowers	Size of pinnae
<i>G. moluccana</i> Isl. Ternate, Moluccas	Obovate-oblong 8 $\times$ 4mm.	Oblong	Triangular-lanceo- late 7.5-8mm.	100 $\times$ 5-5.5cm.
<i>G. costata</i> Aru Island	Obovate-globose 10 $\times$ 6-7mm.	subturbinato- globose-pisiform	3.5cm.	100 $\times$ 5-5.5cm.
<i>G. liukiensis</i> Ryukyus	Oblong 13 $\times$ 7mm.	Oblong 10 $\times$ 5mm.	Elliptical 3.5 $\times$ 2mm.	60-70 $\times$ 3-4cm.

<i>G. cylindrocarpa</i> New Hebrides	Oblong-cylindrical 13-14×5mm.	Oblong-cylindrical 9×4mm.	Unknown	75×2.4cm.
<i>G. Ramsayi</i> N. Australia	Oblong 15-17×8mm.	Ovate-oblong 11×6-6.5mm.	Unknown	Unknown
<i>G. Hombronii</i> Solomon Isls.	Clavate-oblong 17×6.5mm.	Ovate-oblong 11×5mm.	Unknown	45×2cm.
<i>G. longispatha</i> NE. New Guinea	Unknown	Unknown	Narrowly lanceolate 10×3mm.	70×4cm.
<i>G. affinis</i> NE. New Guinea	Unknown	Unknown	Lanceolate 7mm.	50×2-2.3cm.
<i>G. crenata</i> NE. New Guinea	Ovate-globose 9×6mm.	Globose	Unknown	50×2cm.
<i>G. obscura</i> NE. New Guinea	Immature 9×4mm.	Unknown	Unknown, female flower globose 3.5mm. in diam.	65×3cm.

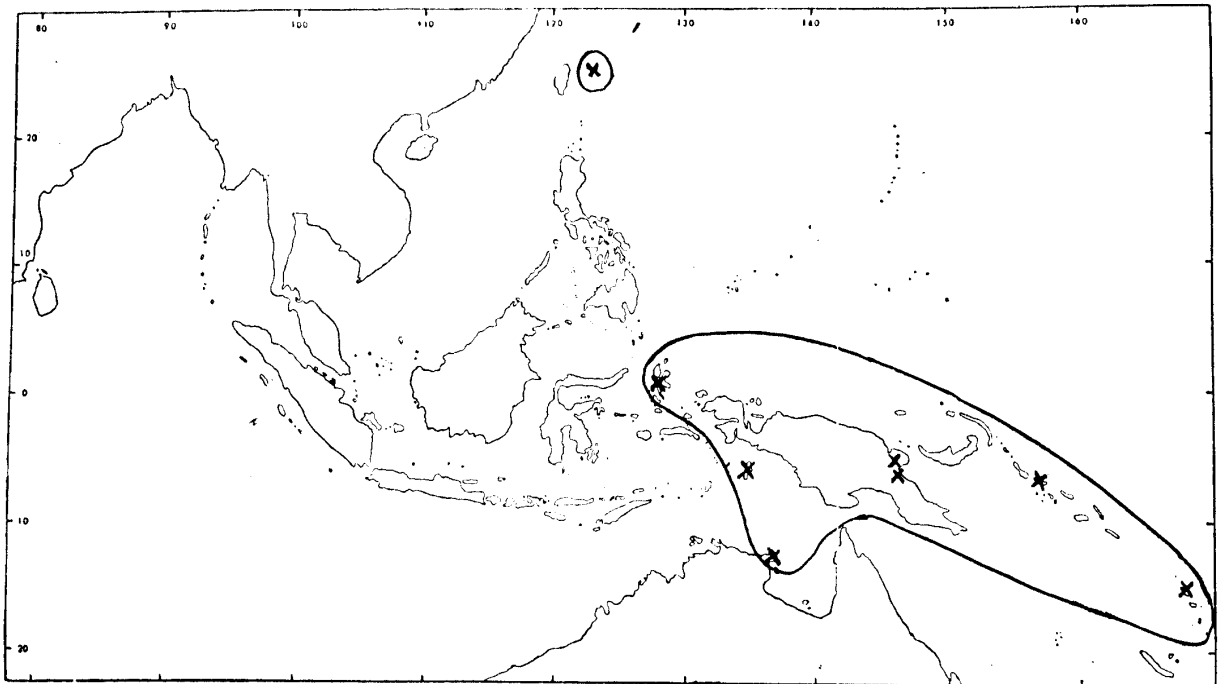


Fig. 2. Map showing the range of the species of the genus *Gulubia*.

According to Mr. S. Tawada who investigated the distribution of this palm in Isl. Iriomote, it occurs abundantly on the mountain slope of the northern bank of the River Nakama at 200-300 m. above the sea level. It is not obvious whether a clump of this palm in the hamlet of Hoshitate at about 2 m. above the sea level which was inserted in the present paper as Fig. 3 is spontaneous or a cultivated origin.

In Isl. Ishigaki this palm occurs spontaneously. Its distribution in this island is restricted to the northern foot of Mt. Omoto at about 100-200 m. above the sea level near the settlement of Yonehara. I could observe there were some hundred large palms scat-

tered in the evergreen thicket.

The genus *Gulubia* was established by O. Beccari in 1885 based upon the specimens from the Moluccas, and it comprises ten species of which three species are from NE. New Guinea, two species are from the New Hebrides and the Solomon Islands, one species is from N. Australia, and two species are from the Moluccas, and their distributional range is shown in Fig. 2.

It is very interesting phytogeographically that a species of the genus *Gulubia* occurs in the southern Ryukyus though none of the representative of this genus occurs in the Philippines.

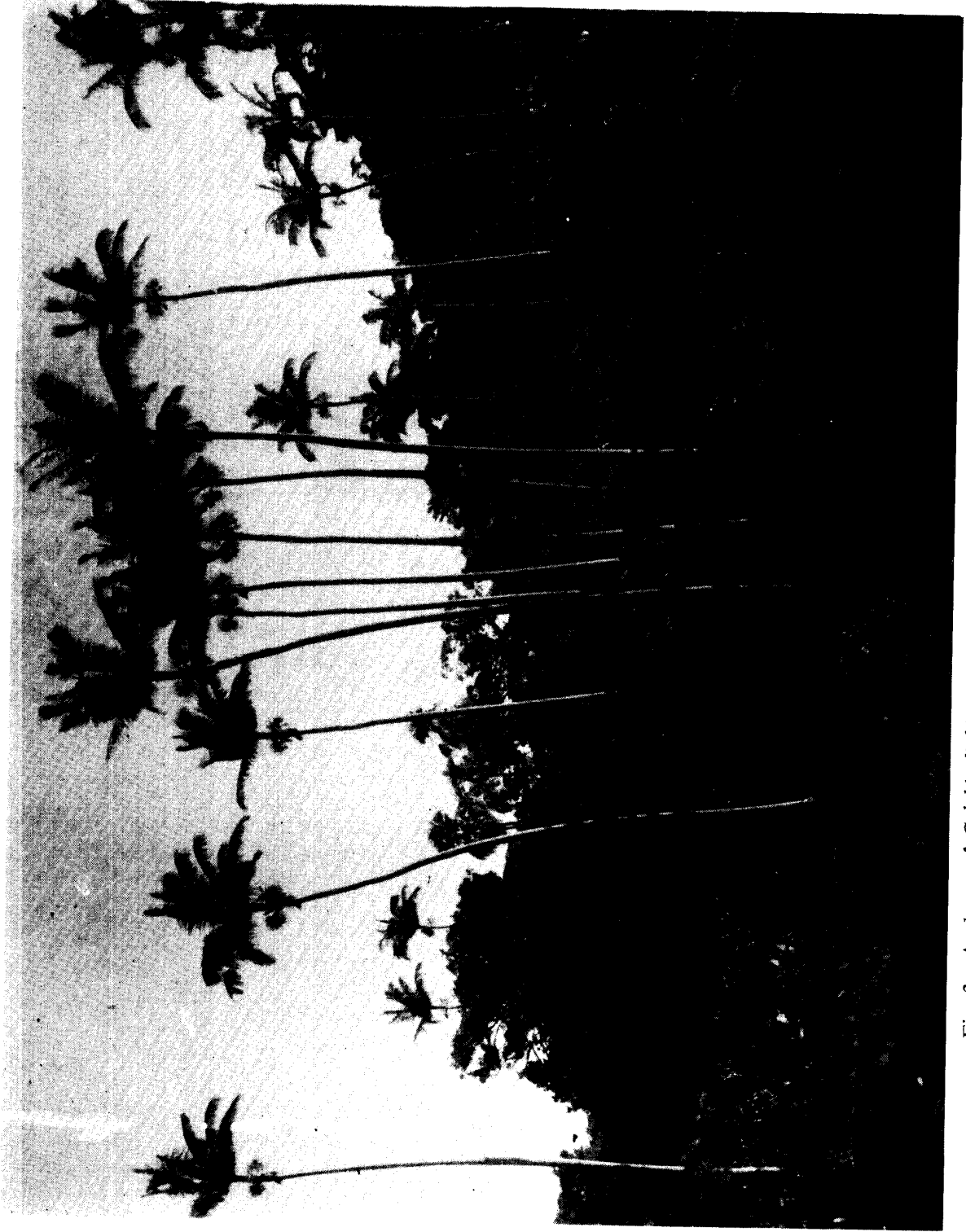


Fig. 3. A clump of *Gulubia liukuensis* Hatusima in hamlet Hoshitate of Isl. Iriomote.

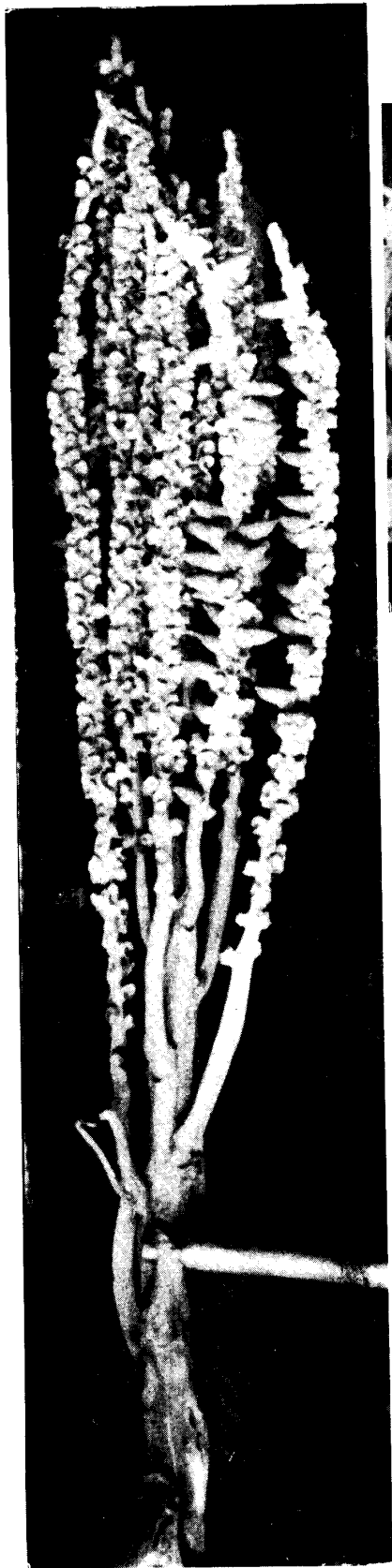


Fig. 4. A part of infructescens of *Gulubia liukuensis* Hatusima.  $\times 1/2$

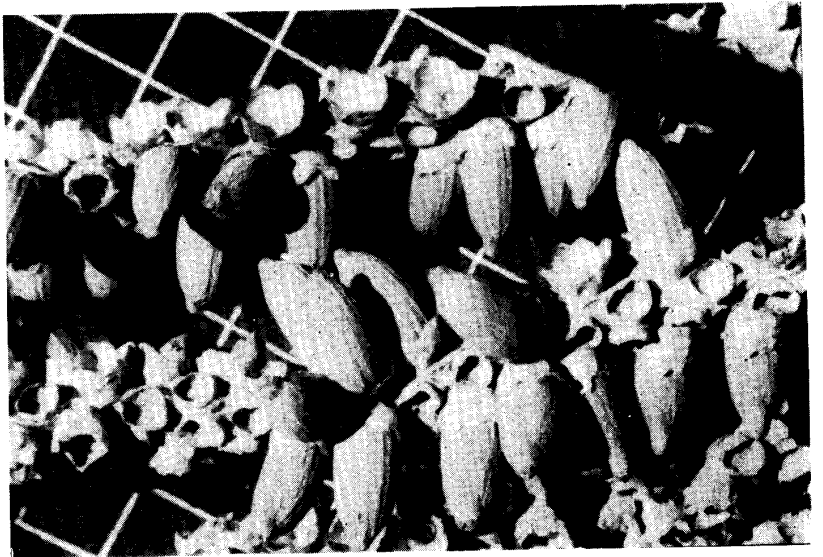


Fig. 5. A part of infructescence of *Gulubia liukuensis* Hatusima, a side of the square lined by white ink is 1cm. long.



Fig. 6. A young thicket of *Gulubia liukuensis* Hatusima at Yonehara, Isl. Ishigaki.