Rediscovery of Two Wild Seeded Bananas of Indonesia

by Rusdy E. Nasution*

Introduction

In 1982, the author was able to visit Halmahera island while in Molucca. Halmahera is the place where *Musa lolodensis* Cheesman, a wild seeded banana of the section Australimusa, was first discovered. This species was first reported by Fairchild in 1940, then named by Cheesman in 1950. However, since then, no reports of the plant have been made.

The same is true for another wild banana, *Musa salaccensis* Zoll., from Java. This species was first reported by Zollinger in 1854, and typified by a plant collected from Mt. Salak, near Bogor in West Java, Indonesia. There has been no report of the species since then. Meijer (1960) reported its existence in West Sumatra, and the author found them wild in Aceh, Alas canyon, Sumatra, in 1982.

Data presented here are the results of field observation and the study of herbarium specimens at the Herbarium Bogoriense, Center for Research and Development in Biology, Bogor, Indonesia.

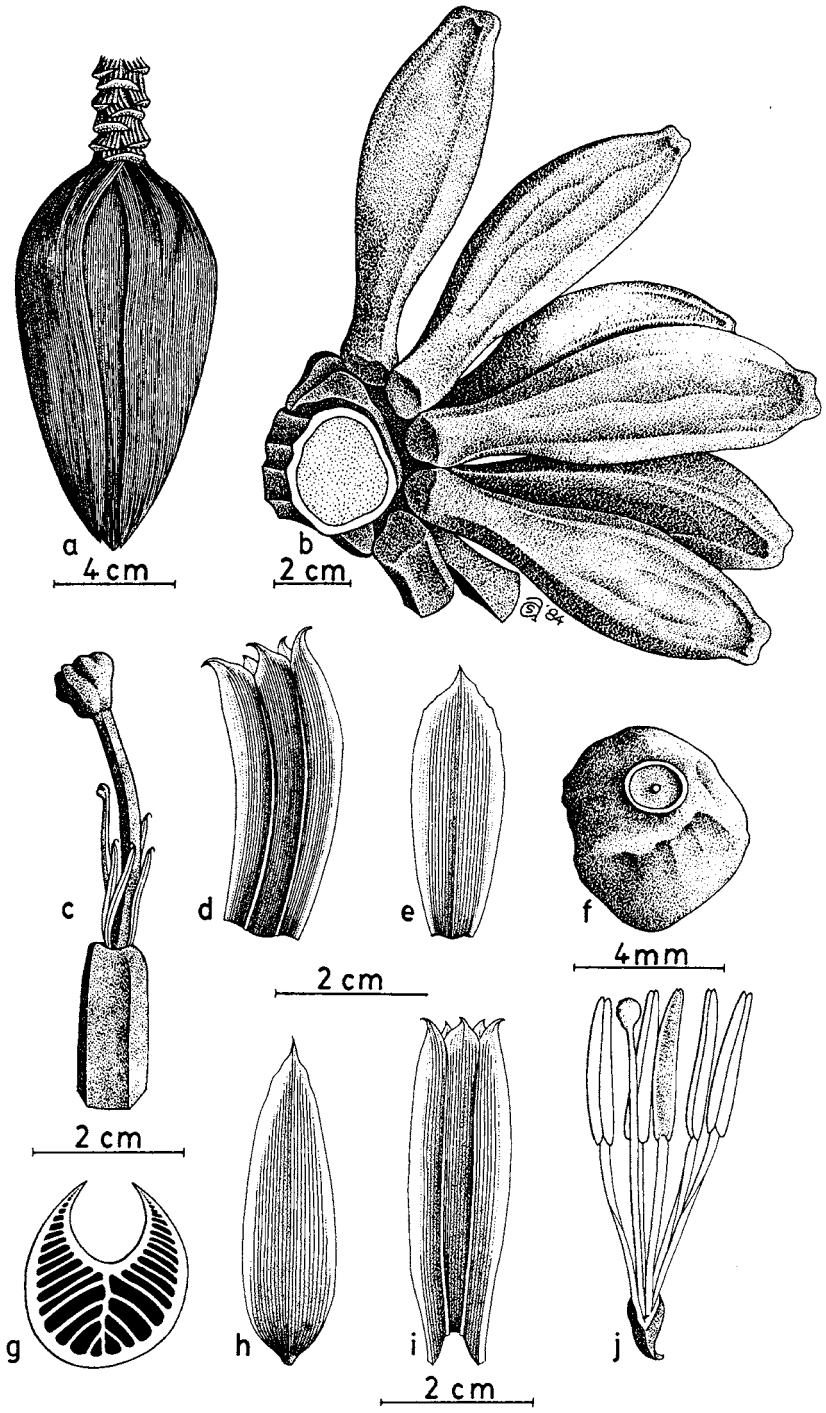
Musa lolodensis Cheesman.

Musa lolodensis Cheesman, Kew Bull. 1, 27 fig 2, 1950; Simmonds, Evol. Banana 16, 1962; Argent, Not. Roy. Bot. Gard. Edinburgh 35, 1, 106, fig 17, 1976 - Type: Fairchild Trop. Grad. Exp.

Photo 1. Musa lolodensis *Cheesman*



Figure 1: Musa lolodensis *Cheesman. **a**. male bud **b.** fruits **c**. female flower **d**. compound tepal of female flower **e.** free tepal of female flower **f**. seeds **g.** cross section of petiole **h**. free tepal of male flower **i.** compound tepal of male flower **j.** male flower.*



* *Centre for Research and Development in Biology, Jln. Ir. Juanda 18, Bogor, Indonesia.*

Acc. n° 388, leg. Fairchild & Curran, Loloda river, Soasiu, N. Halmahera, Indonesia (K, n.v.).

Plant part of a big clump. Pseudostem large and tall, up to 7 m high, more than 20 cm diameter at base, upper part bright, devoid of wax, base develops brown-black blotches varying with age and exposure.

Leaves large. Petiole 30-50 cm long, concave, edges nearly meeting over the adaxial channel, green in color and no blotches; blades large up to 3 m long, 60 cm wide, unequally rounded at base, truncate at apex, green upperside and slightly glaucous beneath; mid rib paler than lamina.

Inflorescence pendulous, up to 150 cm long; rachis glabrous. Basal flowers female, number varying up to 8 hands, upper flowers male. Female flowers 7-14 per hand, biseriately arranged; compound tepals boat shaped, 4.0-4.5 cm long, cream with orange yellow lobes; free tepals lanceolate to oval, nearly as long as compound tepals. Staminodes 5, varying from 1.5 to 4.0 cm long, longer ones ending in stigma-like knobs. Next to the stamens it has an organ which ends in a sticky knob.

Male bud in advancing blooming broadly ovoid, convolute or slightly imbricate, 13-15 cm long, 6-7 cm diameter; bracts yellow orange to pinkish brown outside, often with greenish cast, smooth, no wax, inside darker, dull pinkish brown with longitudinal striate.

Male flowers of about 14 per bracts, in two rows; compound tepals 4.5 cm long, cream; stamens 5, at first as long as the perianths, later executed by at least 1 cm, 3.8-4.0 cm; anthers 2.3 cm long, dark purple but turned to almost black after dehiscened.

Fruits up to 7-8 per hand, in two rows; individual fruit obovate, gradually enlarged to the tip, distinctly 4-angled at maturity with obtuse tip, 8-10 cm long, 3 cm diameter. Pericarp thick, about 3 mm, splitting at full ripeness, and curling back into 3-5 irregular valvaes from the apex. Pulp sticky and yellow orange in color.

Seeds irregularly angular, minutely striate, dorsiventrally flattened, 6 mm across, 3 mm high, dull black in color. Each fruit contains 25-30 seeds, fertile.

Vernacular names: kawasi (Goal, Halmahera)

Habitat: lowland plants on open places.

Distribution: Halmahera westward to Irian Jaya and Papua New Guinea; but not found in Ambon and Celebes.

Notes: Argent reported that there is an evidence of some introgression with *Musa booman* Argent whenever they grow side by side. He indicated that the hybrid is similar in appearance to *M. lolodensis* but differs in having strongly imbricated, pale yellowish or cream male bud and much shorter tepals.

***Musa salaccensis* Zoll.**

Musa salaccensis Zoll., Syst. Verz. Indisch. Archip. 74, 1854, nom. nudum; Kurz, J. agric. hort. Soc. India 14, 301, t. 14, 1865-66; Baker, Ann. Bot. 7, 220, 1893; Schumann in Engler: Pflanzenreich 23, 1900; Koorders, Eks. Fl. Java 1, 134, 1944; Backer, Hand. Fl. Java 3, 133, 1925; Backer & v. den Brink Jr., Fl. Java 3, 37, 1963; Meijer, Acta Bot. Neerld. 10. pl. 1, 1960; Ochse & v. den Brink, Veg. D.E.I 619, fig. 320, 1977. - Type: HZ 1353 Ex. Mt. Salak, tschau sole (Sunda) (BO).

Plant stooling freely. Pseudostems slender, 1-3 m high, rarely more than 10 cm diameter at base, upper part yellowish green, base red pigmented, but not waxy.

Leaves small, petiole circa 30-35 cm long, 22-24 cm wide, base unequal, tip blunt; upperside green but paler beneath, devoid of wax; mid rib purplish in color, marginal veins purple.

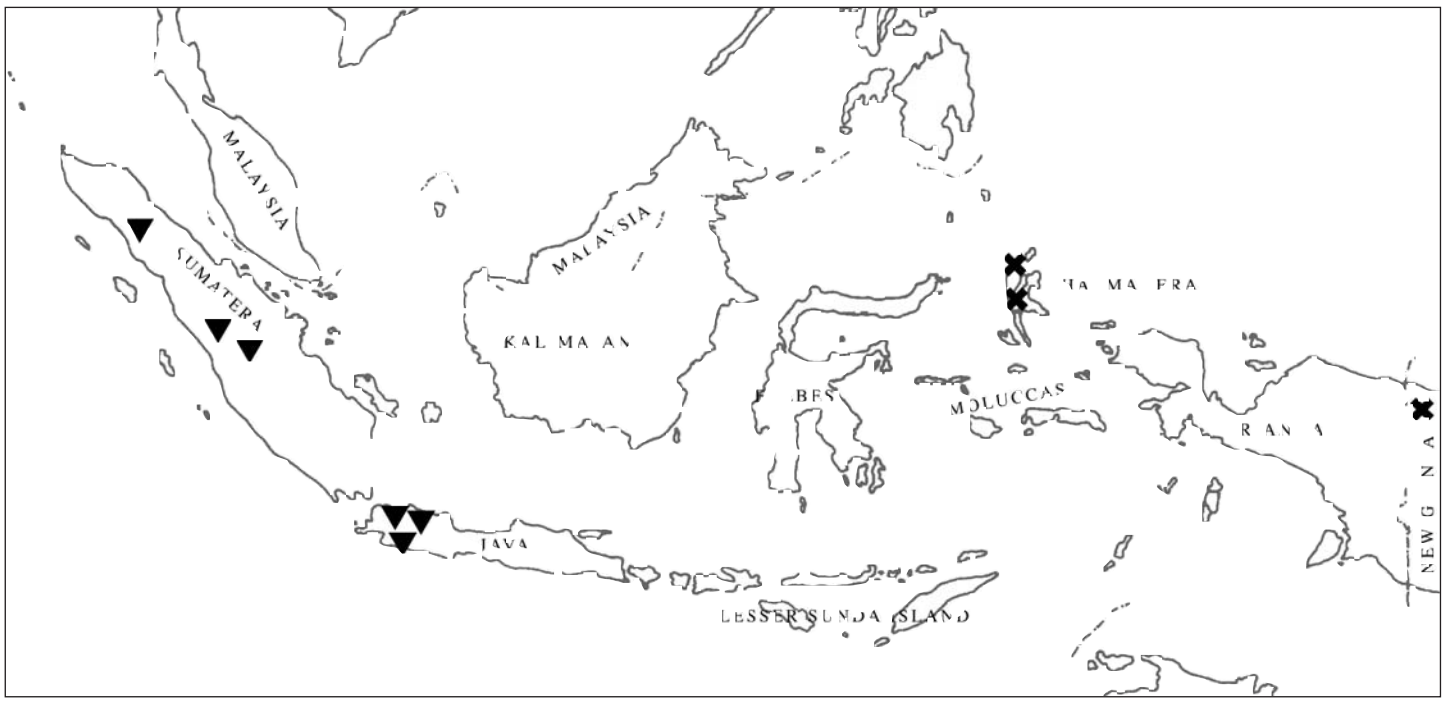
Inflorescence erect; peduncle violet, ornamented with longitudinal lines, glabrous, up to 80 cm long. Basal flower female, usually 4-5 hands, upper flowers male.

Female flowers 2-4 per hand, in a single row; staminodes 5, circa 3 cm long; stigma rounded flat; style 4 cm long, white in color.

Male bud in advance blooming ellipsoid, 14 cm long, 4.5 cm wide, strongly imbricate with blunt tip. Bracts lanceolate, purplish with green edges outside, smooth with blunt tip. Usually only one bract lifted at a time, and not revolute on fading.

Male flowers 2-4 per bract, uniseriate; compound tepal linear, 5 cm long, 2 cm wide, corrugated at tip, green from half to tip; free tepal lanceolate, 5 cm long, 2 cm width, tip obtuse.

Geographical distribution of M. lolodensis *Cheesman (✕) and* M. salaccensis *Zoll (▼).*



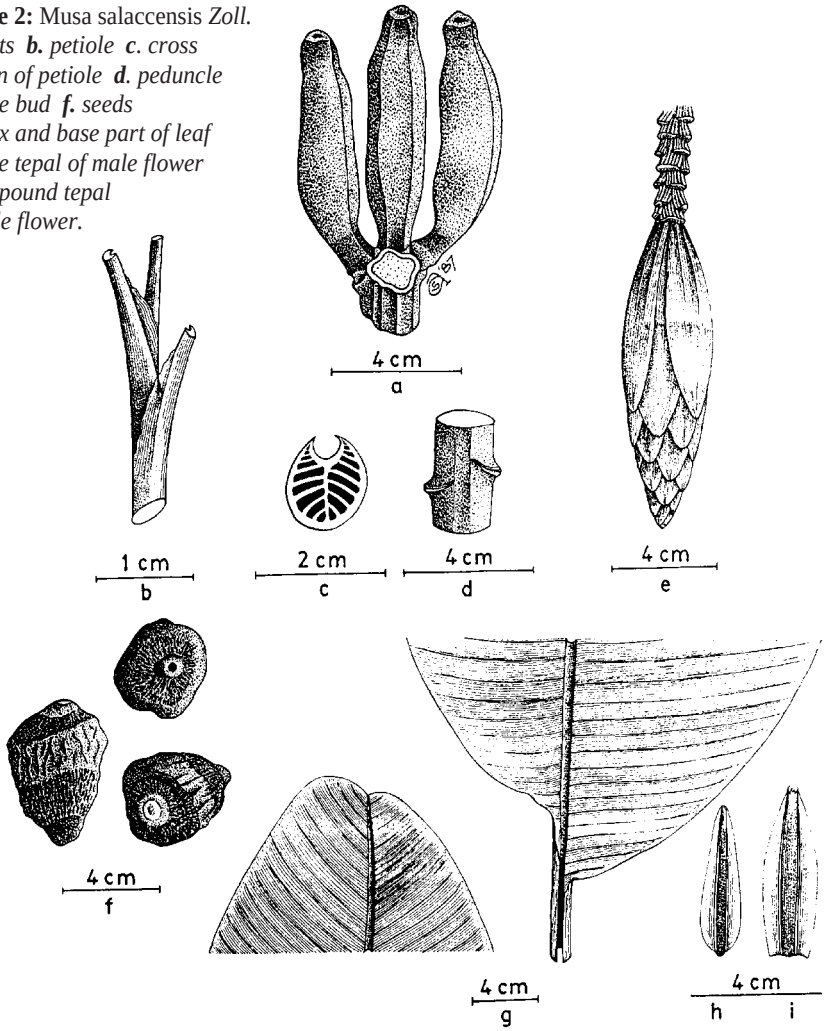


Figure 2: Musa salaccensis *Zoll.* ***a.*** *fruits* ***b.*** *petiole* ***c***. *cross section of petiole* ***d***. *peduncle* ***e.*** *male bud* ***f.*** *seeds* ***g***. *apex and base part of leaf* ***h***. *free tepal of male flower* ***i***. *compound tepal of male flower.*



Photo 2. Musa salaccensis *Zoll.*

Filaments 2.7 cm long, white; anthers light brown.

Fruits 2-4 per hand, cylindrical, roughly 4-angled, slightly curved, 9 cm long, 2 cm diameter, with short pedicel. Pericarp thick, purple with green stripes along the edges. Pulp white with weak flavor.

Seeds obpyriform, ornamented with circle lines, tubercle on upper half, smooth under. Each fruit contains 20-30 seeds.

Vernacular names: Cau kole (Sunda), Pisang karok (Minang-kabau), Pisang sitata (Mandailing), Pisang hutan (Indonesia).

Habitat: secondary forest on open places from 300 m to 1200 m above sea level.

Distribution: wild in Sumatra and Java, but never reported found in other islands in Indonesia.

Aknowledgements
I would like to extend my thanks to Mr Satiri, Biotrop, Bogor, for preparing the drawings.

INIBAP / ASPNET Launches New Book on Bananas



INIBAP's Asia and Pacific Network has released its fourth publication, "International Symposium on Recent Developments in Banana Cultivation Technology", which documents the proceedings of the symposium held in Pingtung, Taiwan, 14-17 December 1992.

INIBAP together with the Taiwan Banana Research Institute, co-sponsored the meeting which attracted senior scientists, who are mostly members of the International Group on Horticultural Physiology of Banana (IGHPB), from 15 countries namely Australia, Brazil, Canary Islands (Spain), France, Indonesia, Israel, Japan, Malaysia, New Caledonia, Costa Rica, Philippines, Taiwan, South Africa, Uganda, and the United States of America.

This 314-page book is divided into six sections on Agronomy and Nutrition, Breeding for Disease Resistance, Physiology, Biotechnology, Fusarium Wilt of Banana, and other Banana Diseases. Editors of the book are Ramon V. Valmayor, Shin Chuan Hwang, Randy Ploetz, Sin Wan Lee, and Versalyn N. Roa.

Researchers and institutions working on banana who are interested to receive a complimentary copy of the Proceedings may write to INIBAP Headquarters in France. Those working on bananas in Asia and the Pacific region may contact Dr Ramon V. Valmayor, INIBAP Regional Coordinator*.

** INIBAP/ASPNET, c/o PCARRD, Los Baños, Laguna 3732, Philippines*