

ON THE TAIWAN SPECIES OF *DIOSCOREA*

TANG-SHUI LIU and TSENG-CHIENG HUANG⁽¹⁾

(Received February 8, 1961)

The family *Dioscoreaceae* has been treated before by some well-known botanists in the world. Dr. R. Kunth divided this family into two tribes, namely, *Dioscoreae* Pax and *Stenomerideae* Planch. and nine genera, namely, *Dioscorea* L., *Higimbothamia* Uline, *Borderea* Mieg., *Epipetrum* Phil., *Rajania* L., *Tamus* L., *Stenomeris* Planch., *Trichopus* Gaertn., and *Petermannia* F. Muell., in Engler's *Das Pflanzenreich*, 87 (IV, 43): 1-387, in 1924. He recognized 603 species of the genus *Dioscorea*, of which most species of Taiwan had been included. Drs. D. Prain and I. H. Burkill are also noted for their valuable contributions to the studies of *Dioscoreaceae*. Their most important work "A synopsis of the *Dioscorea* of the Old world, Africa excluded, with descriptions of new species and varieties" appeared in *Journal of the Asiatic Society of Bengal*, No. 5, X, 5-41 in 1914.

The first Japanese botanists who described *Dioscorea* of Taiwan is Dr. B. Hayata, whose research findings were published in *Icones Plantarum Formosanum* X, 36-49 in 1921. Professors Y. Yamamoto and G. Masamune and Drs. S. Sasaki and S. Kamikoti successively presented several papers on *Dioscorea* of Taiwan. It was Prof. Yamamoto who especially made detailed studies of these plants which had been reported in *Supplementa Iconum Plantarum Formosanarum* III, 5-9, 1927; in *Journal of the Society of Tropical Agriculture* X, No. 2, 180-182, 1938; and *Transactions of the Natural History Society of Formosa*. CCVIII, 38-44, 1938. There are altogether thirteen species and four varieties described and recorded by them.

This paper is a compendium of the knowledge of all the Taiwan species belonging to the genus *Dioscorea* with a key tentatively prepared by the authors and with detailed descriptions of the species. However, the descriptions of some specimens, like *Dioscorea japonica* var. *vera* and *Dioscorea persimilis*, that are not deposited in our herbaria, the Herbarium of Botany, Department of the National Taiwan University (TAI) and the Herbarium of Taiwan Forest Research Institute (TAIF), are not given in detail in this paper.

(1) Professor of Department of Forestry and Assistant of Department of Botany, National Taiwan University respectively.

Before going further the writers wish to acknowledge their indebtedness to Dr. H. W. Li, Director of the Institute of Botany, Academia Sinica, for his constant encouragement. Thanks are also due to Messrs. W. S. Gand and Y. Na for their assistance in supplying fresh plant materials for this study.

Dioscorea LINN. Sp. Pl. 1032 (1753)

Herbaceous twining vines with tuberous roots which are cylindrical or spherical in outline.

Stems terete or ridged, winged or wingless, pale green or violet in color, often bearing aerial tubers in the axils of leaves.

Leaves opposite or alternate, simple, entire or palmately lobed or divided, sometimes palmately compound, mostly arrow-shaped with cordate or auriculate bases, the venation reticulate with each of several primary veins extending to apex, long petiolate; the petioles usually sulcate above and dilated at base.

Inflorescence a raceme, panicle, or simple or fascicled spike. Flowers regular, small and inconspicuous, unisexual and dioecious; perianth segments 6, in 2 series; staminate flowers with 6 fertile stamens, or sometimes 3 fertile stamens and 3 staminodes; anthers 2-celled; the rudimentary ovary present or absent; pistillate flowers much similar to the staminate, with the staminodes 0, 3, or 6; pistil single, the ovary inferior, trilocular, with axile placentation; ovules 2 to numerous in each cell; the style one; stigmas 3, each of them bifurcate.

Fruit a 3-valved capsule, often 3-winged; seeds winged.

A rather large genus of more than 600 species of wide distribution over the earth in all hemispheres, but most abundant in the tropical America. There are 14 species and 5 varieties in Taiwan.

Key to Taiwan Species

1. Stem and petiole winged or quadrangular; leaves opposite..... 2
1. Stem and petiole neither winged nor angled 3
2. The skins of tubers, wings, petioles and leaves pale green in color.. (1) *D. alata*
2. The skins of tubers, wings, both ends of petioles and basal part of young leaves purplish in color..... (1A) *D. alata* var. *purpurea*
3. Leaves compound, alternate 4
3. Leaves simple 6
4. Plant glabrous; stem smooth; leaves 7-foliolate, nerves pinnate.....(1) *D. cumingii*
4. Plant pilose; stem spiny; leaves 3-5-foliolate, nerves palmate..... 5
5. Leaves 3-foliolate, hispidate (3) *D. hispida*
5. Leaves 5-foliolate, blackish-pilose..... (4) *D. codonopsifolia*
6. Stem spiny; leaves alternate 7
6. Stem spineless 8
7. Plant pilose; nerves 9; fruit villose..... (5) *D. esculenta* var. *spinosa*
7. Plant glabrous and glaucous; nerves 3-7; fruit glabrous; leaves sometimes partly opposite..... (6) *D. formosana*

8. Leaves opposite, sometimes partly alternate 9
 8. Leaves alternate 16
 9. Leaves elliptic or oblong, apex acute, base obtuse or cuneate or truncate;
 nerves 3-5 10
 9. Leaves oblong-ovate or triangular-ovate, apex acuminate, base cordate or
 auriculate; nerves 7 11
 10. Leaves subcoriaceous and glaucous, veinlets prominent on upper surface;
 pistillate inflorescences of 1-2 spikes, axillary; staminate inflorescences a
 panicle, rarely a portion of 2-3 fascicled spikes (7) *D. Matsudai*
 10. Leaves herbaceous and brownish, veinlets obscure on upper surface;
 pistillate inflorescences of 1-2 spikes, axillary; staminate inflorescences
 of 2-3 fascicled spikes, rarely a portion of single spike (8) *D. Benthamii*
 11. Staminate inflorescence of a panicle; leaves entire (9) *D. persimilis*
 11. Staminate inflorescences of fascicled spikes; leaves subtire, sometimes
 trilobed 12
 12. Leaves narrower, oblong-triangular or lanceolate-triangular
 (11A) *D. japonica* var. *Oldhami*
 12. Leaves broader, ovate-triangular 13
 13. Leaves auriculate at base (10) *D. batatas*
 13. Leaves broadly ovate at base 14
 14. Rachis slender (11B) *D. japonica* var. *vera*
 14. Rachis thicker 15
 15. Leaves membranaceous (11) *D. japonica*
 15. Leaves subcoriaceous (11C) *D. japonica* var. *pseudojaponica*
 16. Leaves trilobed, narrower, 2-4 cm. long, 2-2.5 cm. wide, coriaceous (12) *D. doryophora*
 16. Leaves entire or subtire, broader, 6-15 cm. long, 4-10 cm. wide, herbaceous 17
 17. Fruit oblong; leaves mostly entire; cordate-ovate (13) *D. bulbifera*
 17. Fruit obcordate; leaves subtire, triangular 18
 18. Pistillate inflorescence of a panicle (14) *D. Kaoi*
 18. Pistillate inflorescences of single or fascicled spikes (15) *D. Collettii*

- (1) *Dioscorea alata* LINN. Sp. Pl. ed. -1, 1033 (1753) & ed. -2, 1462 (1763);
 Wight, Icon. Pl. Ind. Ori. III, t. 813 (1840-56); Merr., Fl. Manila, 151 (1912);
 Hay., Icon. Pl. Formos. X, 42 (1921); Kunth in Pflanzenr. IV, 43, 265
 (1924); Yamam., Suppl. Icon. III, 5 (1932).

Dioscorea pteroclada HAY. in Sched. Herb. Univ. Imp. Tokyo (nomen nudum).

A twining vine with large tuberous roots; stems twisted, wrinkled, 4-winged or sharply 4-angled, 3-7 mm. thick; the wings undulate, 1-2 mm. broad, membranaceous rarely prickly on basal part of the stem after the wings fallen off; leaves chartaceous, glabrous, alternate below and opposite from the middle part above, triangular, oblong-triangular or oblong-ovate, 8-15 cm. long, 6-12 cm. wide, apex acuminate or short-caudate, the base auriculate or cordate, margins entire; nerves 7-9, prominent on both surfaces, veinlets fine and prominent; petioles winged, twisted and dilated at base, 3-5 mm. thick, 7-13 cm. long; the axillary tuber persistent, bulb-like, 4 cm. long, 1 cm. wide, rooting on stem; the staminate flowers in narrow axillary panicles 15-25 cm. long; the peduncle green, glabrous, winged; the pistillate flowers in simple spikes, composing of 8-14,

each flower bearing 1-2 basal bracts; capsule obovoid, 1.5-1.8 cm. long, 1.3-1.5 cm. wide, shortly stipitate.

DISTRIBUTION: Southern Asia: Philippines, India to Malaya. Mostly cultivated for the subterranean tubers.

SPECIMENS EXAMINED:

TAIPEI HSIEN: Kuan-ying Shan: Fukuyama & Miura, Sept. 23, 1940; Yangmingshan: Y. Yamamoto, June 1, 1938; Peitou: Shimada, Dec. 13, 1914 (TFRI).

NANTOU HSIEN: Ching-shui Kou Tract, Experimental Forest of National Taiwan University: T. C. Huang no. 123.

ILAN HSIEN: Rumoan & Sikikun: Suzuki no. 4196; Ryohen & Mohen: S. Suzuki no. 6035.

PINGTUNG HSIEN: Huang 1796 & 1798.

HWALIEN HSIEN: Banshoryo, Rono: T. Kawakami & U. Mori, Nov. 1907.

TAITUNG HSIEN: Botel tobago: S. Sasaki, June, 1926.

CHINESE NAME: 大薯, 田薯

JAPANESE NAME: Daijo or Gunbai dokoro.

(1A) *Dioscorea alata* LINN. var. *purpurea* (ROXB.) M. POUCH. in Bull. Econ. Indo-China, N. Ser. 8. 117, (1950).

Dioscorea purpurea ROXB. Fl. Ind. III, 799, (1832).

The plant is similar in all respects to the typical species, but it can be easily distinguished by the skins of tubers, young leaves and petioles being all purplish in color.

DISTRIBUTION: India.

SPECIMENS EXAMINED:

TAIPEI HSIEN: Botanical Garden, T. C. Huang 1799, cultivated by Y. Na.
CHINESE NAME: 紅大薯, 紫田薯。

(2) *Dioscorea Cumingii* PRAIN et BURK. in Journ. Asiat. Soc. Bengal. New Ser. IV, 449 (1908) & X, 25 (1914).

Dioscorea Elmeri PRAIN et BURK. in Elmer, Leaflets Philip. Isl. V, (1913) 1954.

Dioscorea heterophylla SASAKI in Trans. Nat. Hist. Soc. Formos. XXI, 147 (1931).

A large glabrous perennial dioecious climber, attaining 15 m. high; stem terete, 4 cm. in diameter; leaves alternate, palmately compound; petioles 7-10 cm. long; leaflets 7, elliptic, narrowly obovate or obliquely long-ovate, entire, caudate-acuminate at apex, cuneate at base, 8-11 cm. long, 3.5-4.5 cm. wide, shining above, midrib elevated beneath, with lateral veins 5-6 on each side, shortly petiolate; Male inflorescence of a long panicle bearing dense flowers, 3-5 cm. long, axillary, pendulous, covered with canescent wools, shortly peduncled; bracts 2, orbicular, caudate, slightly incurved, the outer larger than the inner one, 1-2.5 mm. wide; perianth-segments 6, in 2 series, purplish, triangular,

obtuse at apex, 0.7–2 mm. long; female inflorescence similar to the male, with brown hairs on the top of the peduncle; bract 1, adnate to the calyx, 3 mm. long; ovary inferior, bottle shaped, 6 mm. long, 2 mm. across, covered with brownish pubescent hairs, 3-celled; ovules pendulous in each cell; fruit fleshy, long ovate, 2.5–2.7 cm. across, with persistent style; seed flattend, elliptic, 9 mm. long, 4.5 mm. wide.

DISTRIBUTION: Philippine.

SPECIMENS EXAMINED:

TAITUNG HSIEN: Lan-yu: S. Sasaki, June 14, 1926; female and male no. 420075, Kokiti Segawa, April 10, 1930.

CHINESE NAME: 蘭嶼田薯。

JAPANESE NAME: Yatude-dokoro.

(3) *Dioscorea hispida* DENNST. Schlüssel, Hert. Malabar. 33 (1818); Tanaka & Odash. in Journ. Soc. Trop. Agr. X, 389 (1938); Merr., Interp. Rumph. Herb. Amoin.; Masam., Fl. Shint. 408 (1843).

Dioscorea hirsuta ROTH, Nov. Pl. Sp. 370 (1921).

Dioscorea triphylla LINN. var. *reticulata* PRAIN et BURK. in Journ. Asiat. Soc. Bengal. New ser. X,—1, 26 (1924); Kunth in Engl. Pflanzenr. IV, 43, 132, (1924); Yamam., Suppl. Icon. III. 8, 1932; Masam., Short Fl. Formos. 276 (1936); Yamam. in Journ. Soc. Trop. Agr. Vol. X, no. 2, 180 (1938).

Dioscorea verticillata LAM., Encycl. III, 231 (1789).

Dioscorea daemona ROXB. ex Henry, List Pl. Formos. 96 (1896).

Dioscorea daemona ROXB. var. *reticulata* HOOK. f., Fl. Brit. Ind. VI, 291 (1892); Mats. & Hay., Enum. Pl. Formos. 432 (1906); Hay., Mat. Fl. Formos. 355 (1911); Mak. & Nemoto, Fl. Jap. 1231 (1925).

A twining perennial with tuberous root, stem rounded, about 2 mm. thick, tomentose or glabrous, slightly spiny or much so on basal part; leaves compound, alternate, membranaceous, usually pubescent along the nerves; leaflets 3, the central one cuneate-obovate, apex acuminate, base acute, 8–25 cm. long, 6–15 cm. wide, 3–5 nerved; the lateral ones obovate or semicordate, apex acute, base obtuse; 2.2–8 cm. long, 7–9 cm. wide, with 5–6 nerves, usually confluent; petioles terete, 7–14 cm. long, villose, dilated on both ends, the older ones much spiny; petiolules terete, 0.5–1 cm. long; staminate flowers small, in dense head-like spikes, each with one bract at base; the bracts villose, unequal; peduncles 1.5 cm. long; perianth segments 6, unequal, ovate to subrotundate, glabrous or obscurely pubescent, the inner ones involute, thick, the outer ones smaller, hyaline, white; stamens 6, short; female spike solitary, elongate; perianth-segments 6, thick, slightly pubescent outside; stamens 6; style columnar, stigma bilobed; ovary tomentose; capsules long-pyriform, glabrous, 5.5 cm. long, 2 cm. wide

DISTRIBUTION: China mainland, Hainan, Philippine, Borneo,

Java, Malaya Peninsula, India, Tonkin, Burma.

SPECIMENS EXAMINED:

TAIPEI HSIEN: Neihu-shihling: Fukuyama, no. 4461.

NANTOU HSIEN: Sun moon lake: Kudo & Sasaki, no. 15537; Ching Shui Kou: Huang, nos. 177 & 756.

CHIAYI HSIEN: Tijutochi: T. Kawakami & Y. Shimada, Aug. 12, 1907; Lin Chi Pu: Kawakami, no. 6226 and no. 6227 (TAIF).

KAOSIUNG HSIEN: T. Hosokawa, no. 400 a; Henry, no. 1875, in Herb. Hort. Bot. Kew.

PINGTUNG HSIEN: Huang 1803.

CHINESE NAME: 大苦薯, 白薯榔。

JAPANESE NAME: Koban dokoro or Uchiwaba dokoro.

(4) *Dioscorea codonopsifolia* KAMIK. in Trans. Nat. Hist. Soc. Formos. XXV, 115 (1935).

A twining herb covered with pale or blackish brown pilose hairs; stem terete, sulcate, about 2 mm. thick, spiny, bearing small rounded bulblet-like tubers in the leaf-axils; leaves alternate, digitately compound, long petiolate; leaflets 5, shortly petiolulate, the middle one oblanceolate, apex acute or shortly acuminate, base narrowly cuneate, margins entire, about 5-8 cm. long, 1-1.7 cm. wide, penninerved, the lateral leaflets very short, obliquely elliptic, acute on both ends, about 4-5 cm. long, 1-1.6 cm. wide, 2-nerved; petiolules about 2 mm. long; midrib flat above, elevated beneath, veins and veinlets prominent on both surfaces, petioles about 3-5.5 cm. long.

Flowers dioecious, mostly in axillary single spike with the rachis about 4.5-5 cm. long, each spike bearing about 10-25 flowers.

Staminate flowers with perianth segments 6, the outer 3 thick, glabrous, ovate, apex narrowly obtuse, about 1.5 mm. long, 1 mm. wide, the inner 3 ovate-rhomboid, glabrous, equaling the outer ones in size; bract 2, the outer one cordate, apex acuminate, margins irregularly crenate, about 2.5 mm. long, 2 mm. wide, the inner one subtriangular, apex acuminate, glabrous, about 1.7 mm. long, 1.5 mm. wide, margins irregularly crenate. Fertile stamens 3, inserted on perianth tube and alternate with the 3 staminodes; filaments glabrous, 0.2 mm. long; anthers glabrous, about 0.5 mm. long; the staminodes bipartite at apex, about 0.5 mm. long, 0.2 mm. wide, rudimentary ovary present.

Female flowers and fruit have not seen.

DISTRIBUTION: Endemic.

SPECIMEN EXAMINED: At the foot of Mt. Tatun, about 100 m. high, Taipei Hsien (Kamikoti, Oct. 28, 1943. Type!).

CHINESE NAME: 掌葉薯。

JAPANESE NAME: Toratora Kazura.

- (5) *Dioscorea esculenta* (LOUR.) BURK. var. *spinosa* (ROXB.) R. KUNTH in Engl. Pflanzenr. III, 189 (1924).

Dioscorea spinosa ROXB. ex Wall Cat. No. 5103 a. d. e. (1828); Wight in Journ. Linn. Sci. Bot. XXXVI, 91, (1903).

Dioscorea aculeata NAVES var. *spinosa* PRAIN et BURK. ex Burk. in Journ. Asiat. Soc. Bengal. X, 20 (1914).

A twining vine with large subterranean tubers; stem terete, brown, villose, 1-2 cm. thick, sparingly spiny or at least with 2 spines on the lower portion of petioles; spines curved, 0.6 cm. long, pale green or purplish on upper part; leaves alternate, yellowish green, chartaceous, entire or deeply incised; the blade rounded or broadly ovate, base cordate or auriculate, apex acute, 5-13 cm. long, 6-15 cm. wide, pubescent or glabrous above, whitish or yellowish-pilose beneath, 9-7 nerved; nerves extremely furcate; petioles green, sulcate above, dilated on both ends, forming an angle of 70°-90° with stem, 2.5-8 cm. long, base spiny or wanting in young leaves; staminate spike simple, about 15 cm. long, rachis large, pubescent; flowers subsessile, irregular, 2-10 mm. across, perianth campanulate-urceolate, pilose outside, 3 mm. long, shortly pedicellate, 6-lobed; lobes ovate, tube nearly as long as the lobes; fertile stamens 6, inserted on throat, slightly shorter than the perianth; anthers introrse; style small, subpyramidal; capsules broadly obcordate, about 22 cm. wide.

DISTRIBUTION: New-guinea, India, and Malaya.

SPECIMENS EXAMINED:

PINGTUNG HSIEN: Bankinsing: A. Henry, no. 856 in Herb. Hort. Bot. Kew.; San-ti-wen: S. Sasaki, Oct. 8, 1934; Huang 1793.

CHINESE NAME: 刺薯蕷。

JAPANESE NAME: Hari-imo.

- (6) *Dioscorea formosana* R. KUNTH in Engl., Pflanzenr. IV, 43, 268; (1924); Yamam., Suppl. Icon. III, 7 (1932).

Dioscorea rhipogonoides OLIV. var. *aculeata* ULINE ex Yamam. l. c.

A twining vine; stem terete, sulcate, 1-3.5 mm. thick, pale green, glabrous, sometimes spiny on basal part of stem; spines erect or recurved, 3 mm. long; leaves alternate, or the immature ones opposite, 5-15 cm. long, remotely arranged; blade pappery, hastate-lanceolate or lanceolate, apex obliquely acute or acuminate, base deeply hastate, margins entire or incised or lobed, 8.5-12 cm. long, 2-4.5 cm. wide, glabrous, nerves 3-7, prominent on the lower side; the basal lobes triangular or ovate-quadriangular, apex obtuse or rotundate; petiole 7.5-15 cm. long, more or less firm, 1 mm. thick, sulcate above, slightly dilated at base.

DISTRIBUTION: Endemic.

SPECIMENS EXAMINED:

TAIPEI HSIEN: Keelung: Warburg a. 1888, no. 9680; Wan-tan, Hsin-tien: Shimidu, Apr. 24, 1936, nos. 2096 and 2672; Hsien-kung-miao: Huang 1841 and 1842.; Yamming Shan: Huang no. 1840; Huang 1795, cultivated by Y. Na.

NANTOU HSIEN: Ching-shui-kou: Huang 246.

CHINESE NAME: 臺灣薯蕷。

JAPANESE NAME: Warburg-dokoro.

(7) *Dioscorea Matsudai* HAY., Icon. Pl. Formos. X, 39, f. 20, (1921); Yamam. in Trans. Nat. Hist. Soc. Formos. XXVIII, 44, f. 4-5; (1938); Journ. Soc. Trop. Agr. Vol. XI, No. 4. 278-279, 1939.

Dioscorea rhipogonoides sensu Henry, List Pl. Formos. 96 (1896); Wight in Forbes et Hemsl. Journ. Linn. Soc. Bot. XXXVI, 91 (1903); Yamamoto, Suppl. Icon. Pl. Formos. III. 9 (1927); Sakaguchi, Gen. Ind. Fl. Okinawa 84 (1924); Mak. & Nemoto, Fl. Jap. 1232 (1925) and ed. 2, 1085 (1936); non OLIV.

A glabrous scandent perennial; stem terete, slender, yellow to brown, glabrous; leaves opposite, rarely alternate, elliptic-lanceolate, oblong-lanceolate or elliptic, 8-14 cm. long, 1.6-5 cm. wide, apex acute, base obtuse and truncate, chartaceous to subcoriaceous, glaucous beneath, nerves 3-7, prominent on both surfaces, petioles slender, 2-4 cm. long; staminate flowers many, rather densely crowded in an axillary panicle or fascicled spikes to single spike with the inflorescence 3-8 cm. long; each flowers with one basal bract, the bract ovate-triangular 0.6 mm. long, cuspidate; perianth segments 6, the outer 3 rotundate, 1 mm. in diameter, very concave, the inner 3 smaller; stamens 6, filament flat, 0.5 mm. long, anthers oblong, 0.2 mm. long; capsules 3-winged, 3.5-4 cm. long, 1.6-2 cm. wide, apex retuse, stipitate; the stalk 1-2 mm. long; seeds winged, 0.5 mm. long, 0.3 mm. wide, wing 1 mm. wide.

This plant is very near to *Dioscorea cirrhosa*, but it can be easily distinguished by the following characters:

- | | |
|--------------|--|
| D. Matsudai: | 1. Tuber rhizome-like or subglobose, simple. |
| | 2. Leaves narrower, glaucous beneath. |
| | 3. Anthers oblong. |
| | 4. Stem and petiole spineless. |
| D. cirrhosa: | 1. Tuber rounded or subglobose, fascicled. |
| | 2. Leaves wider, pale green beneath. |
| | 3. Anthers elliptic. |
| | 4. Stem and petiole spiny. |

DISTRIBUTION: Liuchiu (Iriomote and Isigaki).

SPECIMENS EXAMINED:

TAIPEI HSIEN: T. Nakamura, no. T. 1366; Ta-tun Shan: S. Suzuki, Oct.

31, 1938; Yangming Shan: Kudo & S. Suzuki, no. 3275; S. Sasaki, Dec. 29, 1935; Y. Yamam. & N. Honda, Feb. 12, 1939; Urai: S. Sasaki, no. 6274 (TAIF); Wen Shan: H. Shimizu, no. 2983; Keelung: Faurie, no. 6271 (TAIF). Fang & Kawakami, no. 6273 (TAIF).

TAICHUN HSIEN: Pa Hsien Shan: S. Suzuki, Oct. 22, 1929.

NANTOU HSIEN: Sun moon lake: Kudo & Sasaki, no. 15324; Kudo & S. Suzuki, no. 15919; Ching Shui Kou: Huang, nos. 224 & 1912; Chi-tou: no. 6275 (TAIF); Shui Chang; R. Kanehira, no. 6278 (TAIF); Hosheh: Huang, no. 2024.

CHIAYI HSIEN: Chiao-li-ping, Hayata, no. 6279 (TAIF).

PINGTUNG HSIEN: Huen-chung: Yamada, no. 6281 (TAIF).

TAITUNG HSIEN: Wu Yi Shan: S. Suzuki and E. Matsuda, 1918; Ta Wu Shan: S. Suzuki, Dec. 28, 1930; Lutau: S. Sasaki, Jan. 3, 1929, Oct. 28, 1934, July 5, 1935; U. Faurie, no. 8193, male plant; Lan Yu: Sasaki, June, 1926; Nov. 10, 1934; E. Matsuda, May 13, 1943.

KAOSHIUNG HSIEN: Gaugan: Shimada, nos. 6277 and 6276 (TAIF).

HWALIEN HSIEN: Tai-li-kou: S. Suzuki, no. 9150.

Bantanwan: E. Matsuda, 1918.

Dangaugai: E. Matsuda, 1918.

Raisya: E. Matsuda, 1916.

Kusukus: Kudo & S. Suzuki, no. 15919.

CHINESE NAME: 臺灣薯榔, 薯榔。

JAPANESE NAME: Taiwan somemono imo.

(8) *Dioscorea Benthamii* PRAIN et BURK. in Journ. Asiat. Soc. Bengal. New ser. IV, 488 (1908) & 38 X, (1914); Hay., Icon. Pl. Formos. X, 36 (1921); Kunth in Pflanzenr. IV, 43 283 (1924); Yamam. Suppl. Icon., III, 5 (1932).

Dioscorea oppositifolia BENTH., Fl. Hongk. 367 (1861); Wright in Journ. Soc. XXXVI, 92 (1903); Hay., Gen. Ind. Fl. Formos. 84 (1917).

Dioscorea tarokoensis HAY., Icon. Pl. Formos. X, 44 (1921).

Dioscorea glabra sensu HAY. Gen. Ind. 84 (1917), non LINN.

A glabrous twining vine; stem terete, brown; leaves opposite, chartaceous, lanceolate or elliptic, 5-7 cm. long, 1.5-3.5 cm. wide, apex acute, base obtuse or rounded, nerves 3-5, veinlets obscure above and prominent beneath; petioles 2-3.5 cm. long, slender; staminate inflorescence of 1-2 axillary fascicled-spikes, rarely of panicles, 3.5 cm. long, each spike consisting of more than 20 flowers; flowers white, the staminate 1 mm. long, 1.5 mm. wide, sessile, with one bract at base; bract triangular, acuminate, about 2 mm. long; rachis flat, sulcate; perianth segments 6, fertile stamens 6; pistillate spikes 1-2, 2-12 cm. long, each bearing 2-10 subsessile flowers; capsule reniform, 3-winged, 1.5-1.8 cm. long, 1.5-2.5 cm. wide, shortly stipitate; seeds 4 mm. long, with the wing 5 mm wide.

DISTRIBUTION: China (Hongkong).

SPECIMENS EXAMINED:

TAIPEI HSIEN: Keelung: Faurie, no. 6251 (TAIF); Ko & Joen, July 5, 1938; Sanhsia: Shimada, H. June 20, 1936; Kueishan: Masamune & Suzuki, July 2, 1932.

HSINCHU HSIEN: Hsin-chu normal middle school 1960.

NANTOU HSIEN: Sun moon lake: S. Sasaki, Nov. 7 1941; Kudo & Sasaki, no. 15505; Pu-li Sheh: Kawakami & Mori, no. 3396 (TAIF); Wu Sheh: Masamune and Nakai.

CHIAYI HSIEN: Kuan-tzu-ling & Pi-yun-tsu: A. T. Hsieh, Aug. 7, 1955.

PINGTUNG HSIEN: Mu-tan-sheh: E. Matsuda, Nov. 7, 1919.

CHINESE NAME: 大青薯, 山藥薯, 田菁。

JAPANESE NAME: Taisei imo.

(9) *Dioscorea persimilis* PRAIN et BURK. in Engl. Pflanzenr., IV, 43, 267(1924); Yamam., Suppl. Icon. Pl. Formos. III, 8 (1927).

Dioscorea raishaensis HAY., Icon. Pl. Formos. X, 44 (1921).

According to Prof. Y. Yamamoto, this plant had been collected in the Southern part of Taiwan, but we have not kept it in our herbaria. Near to *Dioscorea japonica* THUNB., but differs from it in having the male flowers in paniculate spikes.

DISTRIBUTION: China (Southern China and Hainan) and Indonesia.

CHINESE NAME: 假山藥薯。

JAPANESE NAME: Raisha imo.

(10) *Dioscorea batatas* DEENE. in Rev. Hort. Ser. 4, III, 243 (1854) & IV, 69 (1855); Decrock in Ann. Mus. Col. Marseille 2, Ser. VI, 119-121, f. 18 (1908); Inuma & MAK., Somoku-Dzusetsu ed. -3, IV, T. 57(1912); Prain & Burk. in Journ. Asiat. Soc. Bengal. X, 27(1914); Ohwi, Fl. Jap. 330, 1956.

Dioscorea opposita SIEB. in Verh. Bat. Genostsch. XII, 14 (1830).

Dioscorea polystachya TURCZ. in Bull. Soc. Nat. Mosc. VII, 158 (1837).

Dioscorea opposita KUNTH, Enum. Pl. V. 390, p. pte. (1850). Kawakami, List Pl. Formos. 122 (1910).

Dioscorea japonica PEPIN in Mem. Soc. Imp. et Cent. d'Agr. repr. (1854).

Dioscorea Decaisneana CARR. in Rep. Hort. 111 (1865).

Dioscorea glabra F. V. MUELL. ex Sel., Pl. Extra-Trop. Countr. Ind. ed. 100(1880).

Dioscorea cayenensis LAM. var. *pseudo-batatas* HAUMAN in Anal. Mus. Nac. Buenos. Aires XXVII, 488, t. 23, 24 (1915).

Tubers large, fleshy, mostly cylindrical, attaining 1 m. in length; stem twining, stout, ridged, glabrous, violet in color; leaves with long petiole, opposite or whorled; lamina triangular or ovate-triangular, apex acuminate, base hastate-cordate, rarely auriculate, 6-10 cm. long, 7-9 nerved; petioles and veins purple; aerial tubers axillary; flowers spicate, dioecious; male spikes 1-3, axillary; male flowers sessile, white, numerous, the perianth 6-lobed, stamens

6; female spikes pendulous; capsule obovate, 3-winged.

DISTRIBUTION: China, Japan, and Liuchiu. Commonly cultivated in Taiwan for its edible subterranean tubers.

SPECIMENS EXAMINED:

TAIPEI HSIEN: K. Goto, 1030; Y. Yamamoto and K. Goto, Aug. 10-11, 1943.

CHINESE NAME: 薯蕷, 山藥, 家山藥, 佛掌薯。

JAPANESE NAME: Naga imo.

- (11) *Dioscorea japonica* THUNB. Fl. Jap. 151 (1784); Miq. Procl. Fl. Jap. 322 (1866-7); Miq. in Ann. Mus. Bot. Lugd.—Bat. III, 151 (1867); Fr. & Sav, Enum. Pl. Jap. II, 47 (1878); Diels in Engl., Bot. Jahrb. XXIX, 261 (1903); Forbes & Hemsl., Ind. Fl. Sin. III, 92 (1903); Iinuma & Mak., Somoku-Dzusetsu ed.—3, IV, T. 56 (1912); Prain & Burk. in Journ. Asiat. Soc. Bengal. X, 28 (1914); Kunth in Engl., Pflanzenr. IV, 43, 262 (1924); Mak. & Nemoto, Fl. Jap. 1231 (1925); Ohwi, Fl. Jap. 330 (1956); Yamam., Suppl. Icon. III, 6 (1932); Yamam. in Journ. Soc. Trop. Agr. Vol. X, No. 2. 181 (1938).

A twining vine with long cylindrical tuber; stem slender, loosely branched; leaves triangular, or ovate-triangular, opposite, rarely alternate, apex acuminate, base cordate or auriculate, 5-10 cm. long, 2-10 cm. broad, semitransparent, glabrous with nerves 5-9, long petiolate; petioles 2-3 cm. long; flowers dioecious, small, white, usually 15-30 crowded in spike; the staminate spikes 3-5, erect, axillary, shortly pedunculate; the male flower with 6 perianth-segments and 6 stamens; rudimentary pistil present; the pistillate spikes pendulous, the female flower composing of 6 segments and 3-celled inferior ovary, staminodes present; capsules broadly elliptic or oblong, 2 cm. long, 1.5 cm. broad, sitpitate; seeds flat, winged.

DISTRIBUTION: Japan, Korea, China Mainland, and Liuchiu. The plant is mostly grown for the subterranean tubers.

SPECIMENS EXAMINED:

KAOHSIUNG HSIEN: Warburg, no. 10634, female.

NANTOU HSIEN: Hosheh: S. Suzuki, no. 502.

CHINESE NAME: 野山藥, 薯蕷。

JAPANESE NAME: Yama no imo.

- (11A.) *Dioscorea japonica* THUNB. var. *Oldhamii* ULINE et KUNTH in Engl., Pflanzenr. IV, 43, 263 (1924).

Dioscorea japonica THUNB. var. *tenuissima* PRIAN et BURK. in Sched. Herb. Hort. Bot. Kew.

Dioscorea japonica THUNB. var. *kelungensis* PRAIN et BURK. in Sched. Herb. Hort. Bot. Kew.

Dioscorea kelungensis sensu R. KUNTH in Engl., Pflanzenr. IV, 43, 263 (1924),
non YAMAMOTO.

Stem terete, 0.5 mm. thick, glabrous; leaves narrow-lanceolate, apex acute, base 2-lobed, 10-11 cm. long, 0.7-1.5 cm. wide, 7-nerved, glabrous; petioles 4-angular, dilated on both ends, 1.5-3 cm. long, aerial tubers unknown.

This variety differs from the typical species in having narrower triangular leaves and is found very common in the Northern parts of Taiwan.

DISTRIBUTION: Southern China.

SPECIMENS EXAMINED:

TAIPI HSIEN: Tanshui: Watters, no. 37, in Herb. Kew; Yangming-shan: E. H. Wilson, no. 10791, in Herb. Hort. Bot. Kew.; Huang 1839; Sekten: Keng & Kao, no. 1294; Wantan: H. Simizu, no. 2117; Kuan-yin-shan: Fukuyama & Miura, June 16, 1940.

NANTOU HSIEN: Sun moon lake: Kudo & Sasaki, no. 15274; Lien-hwa chih: S. Hibino & S. Suzuki, July 21, 1936; Ching-shui-kou: Huang 1910.

LOCALITY NOT INDICATED: R. Oldham, no. 593, anno 1864, in Herb. Hort. Bot. Kew.; C. Wilford, no. 561, in Herb. Hort. Bot. Kew.

CHINESE NAME: 細葉野山藥。

JAPANESE NAME: Nagaba yamanoimo;

(11B.) *Dioscorea japonica* THUNB. var. *vera* PRAIN et BURK. in Journ. Asiat. Soc. Bengal. 28 (1914); Y. Yamam., Journ. Soc. Trop. Agr. Vol. X, no. 2, 181 (1938).

This variety has no specimens preserved in our herbaria, but the late Prof. Y. Yamamoto reported that it had been collected in Kao-Hsiung Hsien. It differs from the typical species in having slender rachis only.

DISTRIBUTION: Japan, Korea, and Liuchiu.

CHINESE NAME: 細穗野山藥。

JAPANESE NAME: Yamano imo: Jinenjo

(11C.) *Dioscorea japonica* THUNB. var. *pseudojaponica* (HAY.) YAMAM. in Journ. Soc. Trop. Agr. Vol. X, 2, 182 (1938).

Dioscorea pseudojaponica HAY. Icon. Pl. Formos. X, 42, f. 21. (1921).

Dioscorea japonica THUNB. var. *kelungensis* sensu Yamam., Suppl. Icon. Pl. Formos. III, 8 (1927), non PRAIN et BURK.

A scandent perennial; stem flat-terete, about 2 mm. thick, glabrous, dotted with purplish color; leaves opposite, chartaceous, elliptic or ovate-triangular, apex caudate-acute, base auriculate and more or less truncate, margins subentire, 6-12 cm. long, 4-6 cm. wide, nerves 7, glabrous; petioles sulcate above, slender, 3-5 cm. long, glabrous; aerial tubers axillary, ovoid, about 5 mm. in diameter; staminate spikes axillary, whorled, 3-5 cm. long, glabrous; bracts triangular, cuspidate, 1 mm. long; male flowers sessile, globose, 2 mm. in diameter; perianth

segments 6, imbricate, reddish-punctate; the outer 3 larger, rotundate-oblong, apex obtuse, 1.5 mm. long, very concave, glabrous; the inner 3 smaller; stamens 6, subsessile; anthers oblong, 0.7 mm. long, apex emarginate; rudimentary ovary absent; capsules wide-reniform, apex obcordate, base cordate, 1.8 cm. long, 3 cm. wide; seed flat, with membranaceous wings all around.

DISTRIBUTION: Endemic.

SPECIMENS EXAMINED:

TAIPEI HSIEN: Chi-hsing Shan: H. Shimada, June 30, 1937; S. Sasaki, no. 6255 (TAIF) and no. 6257 (TAIF); Ching Kua Su: Hirazuka no. 6253 (TAIF).

TAOYÜEN HSIEN: Raran Shan: E. Matsuda, no. 6256 (TAIF).

MIAOLI HSIEN: Ta-fu: Kawakami, Hayata & Mori, 6259 (Type, a staminate specimen) (TFRI).

CHIYI HSIEN: Mt. Morrison: S. Sasaki, Aug. 1935.

PINGTUNG HSIEN: Mu-tan-sheh, Tairoko takizan: T. Suzuki, no. 10939; San-ti-men: S. Suzuki no. 11330; E. Matsuda, no. 6261 (TAIF).

KAOHSIUNG HSIEN: Liu Kuei: Mori, no. 6262 (TAIF).

TAITUNG HSIEN: Wu Shan, Chiao-shi: Kawakami, Mori, no. 6268 (TAIF).

ILAN HSIEN: Mt. Oobi, Suao: G. Masamune, Apr. 23, 1938; Mt. Li-tung: B. Hayata, in Herb. Hort. Bot. Kew.; E. Matsuda, July 29, 1918.

TAICHUNG HSIEN: Saramao: E. Matsuda, no. 527.

LOCALITY UNKNOWN: Agincourt: Y. Yamamoto, no. 78; Alikan: E. Matsuda, Jan. 2, 1961.

CHINESE NAME: 基隆野山藥, 基隆山薯。

JAPANESE NAME: Kiirun-yamanoimo.

NOTE: This variety differs from the typical species in having larger capsules and more or less coriaceous leaves.

- (12) *Dioscorea doryophora* HANCE in Ann. Soc. Nat. 5 me ser. V, 244 (1866); Henry, List Pl. Formos. 96 (1896); Wight in Journ. Linn. Soc. Bot. XXXVI, 91 (1903); Matsum. & Hay., Enum. Pl. Formos. 433 (1906); Prain & Burk., in Journ. Asiat. Soc. Bengal. X, 28 (1914); Gen. Ind. 84 (1917); Hay., Icon. Pl. Formos. X, 36 f. 18 (1921); Kunth in Pflanzenr. VI, 43, 261 (1924); Mak. & Nemoto, Fl. Jap. 1231 (1925); Yamam., Suppl. Icon. 7. (1932).

Dioscorea Swinhoei ROLFE in Journ. Bot. 359 (1882).

Stem terete, slender, dotted with purplish color, 1-1.5 mm. thick; leaves alternate, coriaceous, glabrous, hastate-triangular, apex acute, base deeply auriculate, 2-6.5 cm. long, 2-5 cm. wide, with 7 nerves, trilobed; the terminal lobe linear-oblong, acuminate, the 2 lateral lobes 1-1.5 cm. wide, rotundate, slightly reflexuous, margins entire or undulate; the older leaves larger and dark, green in color, the younger ones smaller, pale green; petioles 1.5-3 cm. long, pale

green, 4 angled, dilated on both ends; aerial tubers 1-3, axillary, rounded or oblong, 0.4-1 cm. long, 0.3-0.8 cm. wide, whitish brown, spiny; staminate inflorescence of an axillary spike, 2-9 cm. long, rachis sulcate; flowers 10-25, crowded; perianth-segments 6, oblanceolate, 1.5 mm. long, 0.8 mm. wide.

DISTRIBUTION: China & Liuchiu.

SPECIMENS EXAMINED:

NANTOU HSIEN: G. Nakahara, Aug. 1905.

KAOHSIUNG HSIEN: G. Nakahara, Sept. 1905; T. Soma, no. 42; E. Matsuda, nos. 6230 and 6206 (TFRI).

PINGTUNG HSIEN: Subonsha: T. Soma, Jan. 1916; Ping-tung: T. Soma, no. 6208 (TAIF); Kuraru, Kueitsu Chiao: R. Kanehira, July 4, 1918 (TAIF); Hsiao-Liuchiu: T. Hosokawa, no. 1664; Huang 1764.

TAITUNG HSIEN: Chu-pung: E. Matsuda, no. 6209 (TAIF).

E. Matuda, no. 516.

CHINESE NAME: 戟葉田薯。

JAPANESE NAME: Takasago dokoro.

(13) *Dioscorea bulbifera* LINN. Sp. Pl. ed.—1, 1035 (1953); Blume, Enum. Pl. Jav. 1, 1688 (1830); Wight, Icon. Pl. Ind. Ori. III, t. 878 (1840-56); Prain & Burk. in Journ. Asiat. Soc. Bengal. X, 26 (1914); Merr., Enum. Philip. Fl. Pl. 1.—2 215 (1622); Yamam. Suppl. Icon. 6 (1932); Ohwi, Fl. Jap. 330, 1956; Yamam. in Journ. Soc. Trop. Agr. X, 2, 180 (1939).

Dioscorea sativa THUNB. Fl. Jap. 191 (1784); Kunth, Enum. Pl. V, 340 (1850) and in Engl., Pflanzenr. VI, 88, 1924; Benth., Fl. Hongk. 159; Franch. & Sav., Enum. Pl. Jap. 11. 47 (1874); Hook. f., Fl. Brit. Ind. VI, 295 (1892); Henry, List Pl. Formos. 95 (1896); Wight in Journ. Linn. Soc. Bot. XXXVI. pt. 1, 91 (1903); Hay., Icon. Pl. Formos. X, 44, 24 (1921); Mak. & Nemoto, Fl. Jap. 1584 (1921).

Tuber flat-spheroidal, large; stem golden brown, ridged; leaves alternate, ovate, 6-9 cm. long, 5-8 cm. wide, glabrous, apex acuminate, the base broadly cordate, margins entire, nerves 7-9, petioles long, flat, triangular, glabrous; the aerial tubers in the axils of leaves flat, ovoid, 0.6-2.4 cm. across; staminate spikes axillary, 1-3 fascicled, sometimes loosely paniculate, 5-13 cm. long, the peduncle 1-2.5 cm. long, flowers greenish white or purple, numerous and crowded, sessile, each with one bract at base; the bract ovate, acuminate; perianth-segments rather thick, linear or lanceolate, slightly oblique, 2.5-3 mm. long, stamens 6; pistillate inflorescences of 1-5 fascicled spikes, rarely of panicles, 10-20 cm. long, female flowers with one bract at base; perianth-segments 6, linear; fruit a capsule, oblong, 1.5-2.5 cm. long, 1-1.5 cm. wide, usually dotted with golden brown color; stigma 6 lobed, persistent; seed winged.

DISTRIBUTION: China including Hainan and Taiwan, Japan, Korea, Australia, Africa and tropical America.

SPECIMENS EXAMINED:

TAIPEI HSIEN: Tanshui: R. Oldhami no. 574 in Herb. Bot. Kew; Pitan: Shimizu, no. 2254; Urai: Hayata, Tanaka, & Sasaki, no. 6213 (TAIF); Shihting: S. Sasaki, Sept. 10, 1933; Taipei: S. Suzuki, Nov. 10, 1922; Ta-tun-shan: S. Sasaki, Aug. 26, 1928; Yangming Shan: M. T. Kao, July 13, 1926; Hsintien: S. Shimizu, no. 2931; Mt. Kusshaku: U. Faurie, June, 1903; Urai: Shimada, Sept. 19 1917; Kawakami and Sasaki, 6273 (TAIF).

HSINCHU HSIEN: Hsin chu: E. Matuda, Sept. 18 1914.

NANTOU HSIEN: Ching Shui Kou: Huang, nos. 66 and 735.

KAOHSIUNG HSIEN: E. Matuda, no. 533; Y. Yamamoto, no. 572-773, T. Soma, A. 24., E. Matuda, no. 6218 (TAIF); Ape's Hill: A. Henry no. 1871A & B. in Herb. Hort. Bot. Kew.; Playfair, no. 188, in Herb. Hort. Bot. Kew.; South Cape: A. Henry, no. 1210 in Herb. Hort. Bot. Kew.; Bankinsing: Henry, no. 854 in Herb. Hort. Bot. Kew.; Kangshan pasture, Y. Shimada, no. 5993.

PINGTUNG HSIEN: Kontei & Higasikaigan near Hengchun: A. T. Hsieh, K. 54; Mu-tan-sheh: E. Matuda, Sept. 18, 1914; Santiwen: E. Matuda, Aug. 7, 1919.

TAITUNG HSIEN: Lanyu: S. Sasaki, July, 1912; June, 1926; Sept. 23, 1933.

CHINESE NAME: 金線吊蝦蟆，獨黃，薺草川。

JAPANESE NAME: Nagakashiu, Maruba-doko.

(14) *Dioscorea Kaoi* LIU *et* HUANG in *Taiwania* VII, 33 (1960).

An entirely glabrous slender scandent and twining subshrub up to 3 m. high with chartaceous or thinly coriaceous triangular-ovate leaves, paniculate fruiting inflorescence, and obcordate 3-winged capsules.

Stem and branches slender, rounded, about 2 mm. in diameter, smooth or very slightly sulcate and striate. Leaves alternate, petiolate; petioles slender, about 3.5 cm. long, glabrous, deeply canaliculate above, rounded and slightly striate beneath, dilated at base; the parts of dilation linear-triangular, somewhat falcate, about 5 mm. long, 1.7 mm. wide at base, clasping the stem; lamina chartaceous or thinly coriaceous when dry, triangular-ovate, obscurely 5-lobed, about 10.5 cm. long, 5.5 cm. wide, apex caudate-acuminate or long acuminate, base deeply cordate or auriculate-cordate, margins subentire, dull black above, brownish grey beneath when dry, glabrous on both surfaces, 9-nerved; nerves ascending, convergent at the apex, very slender, reticulate; nerves, veins and veinlets flattened or slightly elevated above, prominently elevated beneath. Flowers not seen. The fruiting panicles axillary, about 11-16 cm. long, glabrous; the peduncles slender, triangular in cross section, narrowly winged along the

angles; the branches of panicles simple, slender with 1-bract at the base; the bract triangular about 2 mm. long, 1 mm. wide, apex caudate. Capsules obcordate, 1.1-1.5 cm. long, 1-1.7 cm. wide with the wing slightly cordate at apex, obtuse-rounded at base; the stalk short, about 2-3 mm. long, with 1-3 bracteoles at base; bracteoles triangular, 1 mm. long. Seeds rounded, flattened, surrounded by a membranous wing, about 5 mm. in diameter with the wing.

This interesting plant is distinguished by its paniculate inflorescences, obcordate capsules, and triangular-ovate leaves which are undulate at base, with the 9-nerves being prominent on both sides. It may be very closely related to *Dioscorea Collettii* Hook. f., but the latter has the flowers arranged in a simple or fascicled raceme and the ovate-cordate leaves being with 7-nerves instead of 9.

DISTRIBUTION: Endemic.

SPECIMEN EXAMINED: Hwalien Hsien, Ta-lu-koh: Huang, no. 100 (Type), in forest near the Fong-shan Office, at an altitude from 1,850 to 1,900 m.

Collector: Liu, Chen & Kao.

CHINESE NAME: 高氏薯蕷。

- (15) *Dioscorea Collettii* Hook f., Fl. Brit. Ind. VI, 290 (1892); Prain & Burk. in Journ. Asiat. Soc. Bengal. X, 17 (1914); Kunth in Engl., Pflanzenr. IV, 43, 23 (1924); Yamam., Suppl. Icon. 6 (1932).

Dioscorea gracillima var. *Collettii* Hook. f. ex Yamam. l. c.

Dioscorea kelungensis HAY., Icon. Pl. Formos. X, 36 (1921); Kunth in Engl., Pflanzenr. IV, 43, 262 (1924).

Dioscorea Tashiroi HAY., Icon. Fl. Formos. X, 44 (1921).

Dioscorea Toro sensu HAY. Gen. Ind. Fl. Formos. 84 (1917), non MAKINO.

Dioscorea neglecta KUNTH in Engl., Pflanzenr. IV, 43, 359 (1924); Masam., List Vasc. Pl. Taiwan (1954).

Scandent herb; stem slender, terete, glabrous; leaves alternate, oblong-triangular or lanceolate, 5-15 cm. long, 4-10 cm. wide, apex acuminate or caudate, base broadly auriculate or entire, glabrous on both surfaces, primary nerves 7; petioles 4-5 cm. long, glabrous; aerial tubers axillary, rounded; staminate inflorescence an axillary solitary spike, slender, glabrous, 12-15 cm. long; flowers sessile, with one basal bract; bract widely ovate, membranaceous, 1.5 mm. long, apex cuspidate, base dilated; perianth 6-lobed, broadly obconic in outline, 1.5 mm. long, 3 mm. wide, each lobe broadly triangular, the apex acute, glabrous; stamens 3, stamnoides 3; pistillate inflorescence a spike, solitary, 5-15 cm. long, glabrous, slender, triangular; flowers sessile, each with one bract at base; the bracts equaling those on the staminate inflorescence; ovary inferior, triangular, 5 mm. long, 1 mm. wide, glabrous; perianth-lobes rotundate, 0.6 mm. both long and broad, glabrous, straminodes 6, small; style columnar, 0.5 mm.

long, apex 3-cleft, lobes recurved; capsule winged, obcordate, base obtuse-rotundate; 2.3 cm. long and 2 cm. wide; seeds with flat membranaceous wings all around.

DISTRIBUTION: China & Burma.

SPECIMENS EXAMINED:

TAIPEI HSIEN: Keeisha: G. Masamune & S. Suzuki, July 3, 1932; Tien-changshan: E. Matuda, no. 519; Sinkuan: S. Suzuki, Sept. 10, 1922; Wu-tsu-shan: H. Shimada, June 5, 1934; Y. Yamamoto, Feb. 27, 1938; Sungshan: S. Sasaki, Apr. 27, 1938; Keelung: S. Nagasawa, June, 1904; B. Hayata, March, 1916; S. Sasaki, May 3, 1931; Y. Yamamoto, Apr. 14, 1929.

HSINCHU HSIEN: Shimada, Apr. 6, 1914 and 1918 (TAIF).

TAICHUNG HSIEN: S. Sasaki, no. 6242 (TAIF).

NANTOU HSIEN: Chitou: B. Hayata, Apr., 1916; T. Ito, Apr., 1917.; Sun Moon Lake: Kudo & Sasaki, no. 15063; Garamao: E. Matuda, Aug., 11, 1919. Botel Tobago: S. Sasaki, July, 1910; Feb. 7, 1920; May 8, 1924; June, 1926; Y. Tashiro, Aug. 1912; T. Hosokawa, July 9, 1935; May 19, 1943, Y. Yamamoto, June 3, 1947; Lutao: S. Sasaki, Apr. 15, 1934; July 8, 1935; Y. Kudo & K. Mori, July 6, 1930.

PINGTUNG HSIEN: Hsiao Liuchiu, T. Hosokawa, no. 1661; Y. Tashiro 6222 (Type).

HWALIEN HSIEN: Tai-lu-kou: T. Kawakami & G. Nakahara, Jan. 1905; S. Suzuki, no. 9510; T. Hosokawa, Aug. 19, 1932.

GAOGAN: Y. Shimada, no. 520; Mt, Nantan, no. 6243 (TAIF).

CHINESE NAME: 南華薯蕷

JAPANESE NAME: Koto-imo.