

Notes on Genus *Gastrodia* of Southeastern Asia.*

Takasi TUYAMA

津山 尚: 東南アジアノホにのやがら屬數種=就テ

Species duae novae ab HAYATA collectae in Tai (Siam).1) ***Gastrodia taiensis*** TUYAMA, sp. nov.

Planta saprophytica aphylla gracillima 16–20–29 cm alta; tubere subhorizontali fusiformi curvato parce pubescente, squamis obscuris parce donato, in siceo longitudinali rugoso 1.5 cm longo medio latissimo 5 mm lato, basi cum tubere annotino continuante, ex apice radices 2–3 gracillimas horizontales ad ca. 7 cm longas 0.3 mm crassas longe emittente; caule stricte erecto tereti glaberrimo 0.7–1.2 mm crasso in siceo, vaginis ample amplectentibus remote sitis, apice floribus racemosim 2 (rarius 3?) dispositis et inter se 5–8 mm distantibus, racemo ipso 1–1.5 cm longo erecto; floribus suberectis basi bracteis patentissimis lineari-oblongis vel anguste obovatis apice subito acuminatis 3.5–4 mm longis 2 mm latis membranaceo-papyraceis praeditis, pedicellis filiformibus suberectis 4.5–5.5 mm longis; ovario anguste obovoideo supra truncato et latissimo 1.2 mm lato et 2 mm longo. Flos profundius campanulatus pallidissime luteus (fide HAYATA “cream yellow or nearly white”), sepalis cum petalis tubum in diametro 1.1–1.2 mm latum ore leviter dilatatum ventro ample ventricosum longitudinali manifeste nervosum formantibus; sepalo intermedio 1.6 mm longo parte libera 3.5 mm longa 5 mm lata late ovata apice obtusata, sepalis lateralibus majoribus sed rarius brevioribus rotundato-ellipticis 16–17 mm longis 6.5 mm latis; petalis sepalis brevioribus 13–14 mm longis partibus liberis late deltoideis obtusissimis ca. 2.5–3 mm longis 4 mm latis vel oblongis et 3 mm longis 2 mm latis; labello 6–7 mm longo basi cum tubo corollae in longitudine 0.5–0.8 mm cohaerente et mentum obscurum formante anguste ovato-oblongo, apice subito in longitudine 2 mm cuspidato-angustato ubi 0.7 mm lato leviter recurvato longe papuloso et epichilum

* Contribution from the Laboratory of Systematic Botany (Prof. T. NAKAI) of the Botanical Institute, Faculty of Science, Tokyo Imperial University.

formante; hypochilo ovato-oblongo carnosulo basi latissime cordato et in ungue infra 1 mm longo et lato contracto, utrinque intra margines longitudinali longe elliptico-incrassato et medio longitudinali basin versus latius canaliculato, in apice hypochili utrinque minute lamellato, lamellis apice connatis, in medio unguis utrinque callis subglobosis granulato-glomeratis praedito; columna trigona 5.5–6 mm longa 1.3 mm crassa apice truncata (bidentata?) utrinque medio ample alata basi angustata; anthera orbiculata apice incrassata utrinque latere basique membranaceo-attenuata basi late emarginata medio longitudinali valide 1-nervata 0.8 mm in diametro; stigmatibus ignoto. Capsula ignota.

Nom. jap. *Nanban-yagara* (nov.).

Spec. exam. Tai (Siam), Chapa (leg. BUNZÔ HAYATA, Jun. 25, 1917—typus in Herb. Univ. Imp. Tokyo.).

This species is nearest to *G. Dyeriana* KING et PANTLING, but the flower is larger and the lip is different in shape.

2) **Gastrodia Hayatae** TUYAMA, sp. nov.

Planta saprophytica aphylla gracilis ad 25–28.5 cm alta erecta; tubere ignoto; caule medio in sicco 1.4 mm crasso, cum vaginis valde adpressis ad 0.8 cm longis remote sitis sed superioribus in bracteis transformantibus; racemo terminali erecto basi laxius sed superiore subdensifloro ad ca. 5 cm longo 1.5 cm lato 4–10-floro; bracteis floriferis inferioribus ad 6 mm longis 2.5 mm latis oblongo-lanceolatis acuto-obtusis patentibus superioribus minoribus. Flores divaricati vel porrecti levissime retroseque arcuati cum ovarii ca. 3 mm longis 1.5 mm latis toto ca. 12.5 mm longi albidi (fide HAYATA “nearly white”), pedicellis erectis filiformibus rectis 2.5 mm longis, sepalis cum petalis tubum formantibus; tubo corollae 9.5–10 mm longo 4.5 mm lato subarcuato anguste obconico-tubuloso apice dilatato basi subito contracto; sepalis 3-nervatis, partibus liberis 2 mm longis vel longioribus 3.5 mm latis vel latioribus apice breviter acutatis vel longius acuminatis margine profunde glanduloso-crenulatis; petalis ad basin marginis sepali intermedii sitis infra 2 mm longis et latis margine aequaliter crenulatis; labello anguste oblongo apice subito anguste lineari- cuspidato et epichilum 1.7 mm longum 0.6 mm latum formante, toto 5.7 mm longo 2 mm lato 5-nervato (intermedio valido); hypochilo orbi-

culato-elliptico basi rotundato breviter unguiculato in humeris truncato-rotundato margine superiore leviter incrassato et leviter undulato, in apice hypochili 2-callosolamellato, lamellis ad apicem epichili decurrentibus basi oblique rotundatis, ungue 0.7 mm longo et lato in apice callis 2 reniformibus 0.6 mm longis 3 mm latis divaricatim dispositis inter se basi contiguentibus donato; columna 4.7 mm longa 1 mm lata 3-nervata utrinque ventro anguste alata, alis in brachiis minute dentatis decurrentibus, anthera suborbiculata 0.7 mm in diametro. Capsula ignota.

Nom. jap. *Higire-yagaru* (nov.).

Spec. exam. Tai (Siam), Doi Step (leg. BUNZÔ HAYATA, Oct. 17, 1921—typus in Herb. Univ. Imp. Tokyo.).

This species is near to *G. siamensis* ROLFE, but quite different in the shape of the lip.

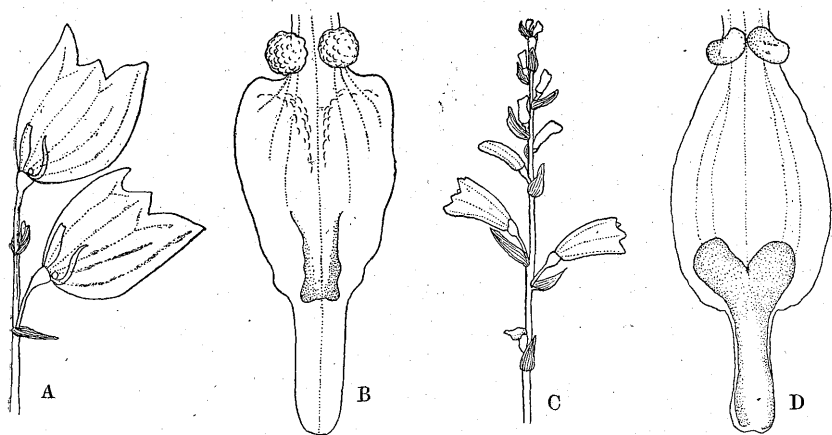


Fig. 1. Inflorescences and lips.

A, B. *Gastrodia taiensis* TUYAMA. C, D. *Gastrodia Hayatae* TUYAMA.

Enumeratio specierum generis *Gastrodiae* in Taiwan crescentium.

3) ***Gastrodia elata*** BLUME, Mus. Bot. Lugd. Bat. 2, 174 (1856).

Nom. jap. *Onino-yagara*, *Nusubitono-asi*.

Spec. exam. Taiwan: prov. Niitaka, Bokurô (leg. K. SEGAWA, Jul. 19, 1935 in Herb. Orch. KÔKICHI SEGAWAE Tokyo.).

New addition to the flora of Taiwan.

form. **pilifera** TUYAMA, nov. form.

Tuber parce pilifer, pilis unicellularibus elongatis pallide fusciscentibus.

Nom. jap. *Ubuge-oninoyagara* (nov.).

Spec. exam. Taiwan: prov. Niitaka, Bokurô (leg. K. SEGAWA, Jul. 19, 1935—typus in Herb. Orch. KÔKICHI SEGAWAE Tokyo.).

The tuber of the ordinary *G. elata* is entirely glabrous and cannot absorb water without the aid of rhizomorph. In this new form of *G. elata*, the hairy tuber probably has the ability of absorbing water by itself.

4) **Gastrodia Stapfii** HAYATA in Journ. Col. Sci. Imp. Univ. Tokyo 30 art. 1, (Mater. Fl. Formos.) 347 (1911); NEMOTO, Fl. Jap. Suppl. 1118 (1936), ut *Stapfiana*.

Syn. *G. lutea* FUKUYAMA in Bot. Mag. Tokyo. 49, 666 (1935), syn. nov. fide FUKUYAMA in sched.

Nom. jap. *Konziki-yagara* (FUKUYAMA, 1935), *Ryûkyû-yagara* (NEMOTO, 1936).

Spec. exam. Taiwan: ins. Kôtô-syo, in silvis montis Omori-yama (leg. N. FUKUYAMA, Jul. 3, 1934, no. 4682 et 4683—in Herb. Orch. FUKUYAMAE); ibidem, ca. Teibokurei (leg. N. FUKUYAMA, Jul. 2, 1934—in Herb. Orch. KÔKICHI SEGAWAE Tokyo.); ins. Kwasyôtô, in pluvisilvis montis Kwayô-zan (leg. N. FUKUYAMA, Mart. 23, 1935—in Herb. Orch. FUKUYAMAE).

Spec. extr. Taiwan. Ryûkyû; ins. Yonakuni, in monte Urabutake (leg. S. TANAKA, no. 419, Jun. 13, 1891—in Herb. Univ. Imp. Tokyo.); ins. Isigaki, in monte Sori-yama (leg. S. TANAKA, no. 309, Jun. 24, 1891—in Herb. Univ. Imp. Tokyo.); ibidem, in oppido Ookawa-mura, Huazan (leg. S. TANAKA, Jun. 27 vel 30

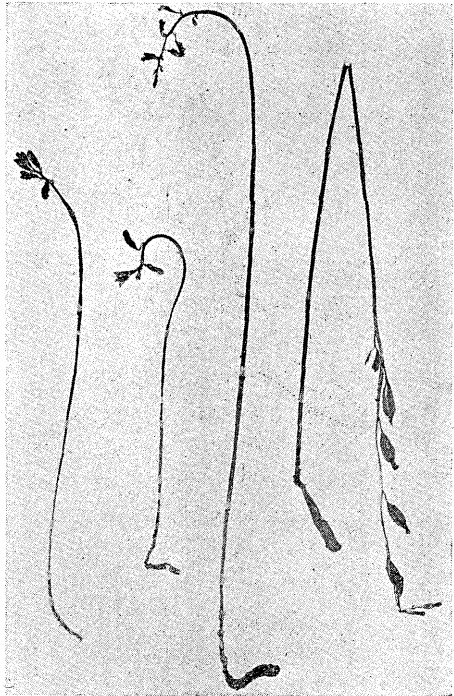


Fig. 2. *Gastrodia Stapfii* HAYATA. (right, leg. FUKUYAMA in Herb. SEGAWAE. the other, leg. FUKUYAMA in 1935 \times ca. $\frac{1}{2}$).

1891, no. 310—in Herb. Univ. Imp. Tokyo.); ins. Iriomote, sine loco speciali (leg. G. KOIDZUMI, Jul. 1–20, 1923—in Herb. Univ. Imp. Kyoto.); ibidem, in laurisilvis ad Komi (leg. N. FUKUYAMA, Jun. 24, 1938—in Herb. Orch. KÔKICHI SEGAWAE Tokyo.).

Mr. FUKUYAMA first pointed out that *G. lutea* FUKUYAMA is identical with *G. Stapfii* HAYATA in May of 1939 on the labels of his specimen, but he has not published his opinion up to this time.

5) ***Gastrodia dioscoreirhiza*** HAYATA, Icon. Pl. Formos. 6, 93 (1916).

Syn. *G. Taiwaniana* FUKUYAMA in Bot. Mag. Tokyo 48, 299 (1934), syn. nov.

Nom. jap. *Nagaimo-yagara* (HAYATA, 1917), Taiwan-ake-yagara (FUKUYAMA, 1934).

Spec. exam. Taiwan: prov. Taihoku, Giran-gun, Sôseikyaku (leg. B. HAYATA, Mai. 12, 1916—typus *G. dioscoreirhizae* in Herb. Univ. Imp. Tokyo.); prov. Sintiku, in silvis laurilignosus montis Minami-sôtenzan prope Kappan-zan ad. circ. 2000 ped. alt. (leg. N. FUKUYAMA, no. 3976, Mart. 24, 1933—typus *G. taiwanianae* in Herb. Orch. FUKUYAMAE).

I found that the type specimen of *G. dioscoreirhiza* HAYATA has monstrous tuber, and the flowers not fully developed. With these items excluded, the discrepancy of the original descriptions between *G. dioscoreirhiza* HAYATA and *G. taiwaniana* FUKUYAMA has no stand. As HAYATA did not describe of the lip, I dissected one of the flowers on the type specimen, and found that it coincides quite well with that of *G. taiwaniana*.

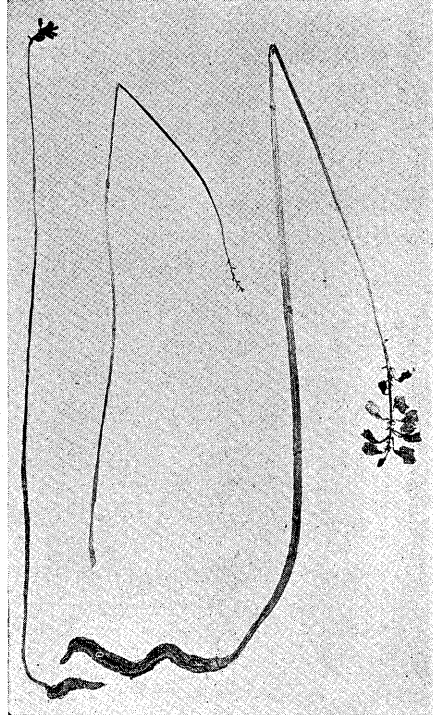


Fig. 3. *Gastrodia dioscoreirhiza* HAYATA. (right, the dropped flowers in the course of drying are artificially restored. all leg. FUKUYAMA no. 3976 × ca. 1/3).

1) *G. taiensis* TUYAMA **ねんばんやがら** (新和名) 新種. 本種ハ *G. exilis* HOOKER (カーシア産), *G. Dyeriana* KING et PANTLING (シッキム ヒマラヤ産), *G. siamensis* ROLFE (タイ産), *G. malayana* RIDLEY (マレー半島産) 等附近産ノ何レトモ著シク異ルモノデアル。*G. exilis* ハ小型ノ直立シタ花ヲ有シ、ソノ筒部ハ比較的ニ少サク、萼片、花瓣及ビ唇瓣ニハ共ニ深い波状縁ガアリ、唇瓣ノ中央ニ三角形ノ薄板狀體ガ 2 個立チ、基部ニハ腎臟形ノ肉質體ガ 2 個アル。*G. Dyeriana* ハ本種ヨリ稍細イ花ヲ點頭シテ生ジ、唇瓣ハヨリ廣ク、先端ハ本種程急ニ細マラズ、ソノ左右ハ波状縁ヲナシ、舷部ニ薄板狀體ハナク、縦ニ走ル 4 條ノ低い隆起ヲ有スルノミデアル。*G. siamensis* ハ稍細ク彎曲シタ花冠筒部ヲ有シ、花瓣及ビ萼片ニハ深い波状縁ガアリ、唇瓣ハ殆ンド圓型デ、上方ニ 2 個ノ截狀圓形ノ薄板狀體ヲ有シ、下部ニ 2 個ノ腎臟形ノ肉質體ヲ有スル。*G. malayana* ハ花瓣モ萼片モ舌狀披針形デ唇瓣ハ 3 裂スル。本種ハ以上ノ中、*G. Dyeriana* ニ一見似テ居ルガ、花冠筒部ハヨリ廣ク、唇瓣ニハ明瞭ナ薄板狀體 2 個ヲ具ヘル點其他デ明カニ別種デアル。

2) *G. Hayatae* TUYAMA **ふぎれやがら** (新和名) 新種. 本種ハ前述ノ *G. exilis*, *G. siamensis* ト共ニ花冠片ガ深い波状縁ヲ有スル點デ、屬ノ中デ明瞭ナ一群ヲナスモノデアル。本種ハ *G. exilis* トハイササカ産地モ隔離シテキルガ、*G. siamensis* トハ同ジタイ國ノ Doi step デ採ラレタモノナノデ、始メハ全く同一ノ種デハナイカト思ツタガ、花部ノ諸構造ガ大分異ルノデ一新種トシタ。本種デハ唇瓣ハ長橢圓形デ、前項ニ書イタ様ニ *G. siamensis* ノソレニ比シテ非常ニ細ク、又唇瓣ノ先端ガ急ニ細マツテ長ク突出スルコト、舷部ノ先端ニアル 2 個ノ薄板狀體ハ突出部ノ先端迄長ク流レテキルコト、舷部ノ周縁ニ波状縁ノ見ラレナイコト等ハ *G. siamensis* ト異ル點デアル。一方、*G. exilis* ハ流レナイ三角狀ノ薄板狀體ヲ有シ、舷部ハ稍卵形デ、周縁ガ細波狀ヲナス點デ本種ト區別ガデキル。又 *G. exilis* ハ本種ト異ツテ、花梗ヨリ短ク小サイ苞ヲ有スル。本種ノ花ハ *G. siamensis* ヨリ小形デ *G. exilis* ヨリ大分大キイ。又花冠筒部全體ハ稍下方ニ彎曲シテキルガ、コレハ明カニ彎曲シテキル *G. siamensis* ト全然彎曲シテキナイ *G. exilis* トノ中間型ヲ示スカノ様デアルガ、上述ノ様ニ唇瓣ノ形ハ兩者ト全然異ル。本種ノ種名ハタイ及ビ佛印デ大量ノ採集ヲ勇敢ニサレタ故早田文藏博士ニ獻ジタ。和名ハ花蓋片ノ深い波状縁ニ基ク。

3) *Gastrodia elata* BLUME **おほのやがら** 新分布. 瀨川孝吉氏ノ御厚意デ同氏所藏ノ臺灣産ノ *Gastrodia* 屬ノ標本ヲ見ル事ヲ得タ。ソノ中ニ新高郡ボクロウ社産ノ標本ガアツタガ、ソレハ全く内地産ノおほのやがらト同一種ニ屬スルモノト思フ。本種ハ臺灣ニハ新記録デアツタカラココニ報告シタ。本種ハ今迄北海道、本州、四國、九州、朝鮮、滿洲、沿海州、湖北省、四川省、西藏カラ報告サレテキルカラ、臺灣ノ高地ニアツテモ分布上不思議デハナイ。SCHLECHTER 氏ハ雲南省カラ本種ニ近イ *G. Mairei* ヲ發表シテキルガ、非常ニ本種ニ近イモノデ、別種トハ思ハレナイ。小生ハ湖北省産ノモノヲ剖シテ見タガ、全然内地産ノ *G. elata* ト同一デアツタ。ソレデ SCHLECHTER 氏ノ豫

想ノ様ニ支那西部産ノ *Gastrodia* ガ皆 *G. Mairei* トスルナラバ、益、*G. Mairei* ハ *G. elata* ニ近イモノト思ハレル。瀨川氏ノ標本ノ中ニハボクロー社デ採ツタ他ノ一ツノ個體ガアリ、コレニハ根莖ニ單細胞ノ毛ガ散生シテキル。*G. elata* ノコノ様ナ型ノモノハ未ダ記録サレテキナイノデ、新品種トシテ、forma *pilifera* TUYAMA うぶげおにのやがら (新和名) ト命名シタ。*G. elata* ハ Rhizomorph ノ助力ナシニハ、根莖カラ水分サヘ吸收出來ナイモノトサレテキタガ、本品種デハ幾分デモ根莖ノ毛ニヨツテ水ヲ吸收シ得ルモノト思ハレル。

4) *G. dioscoreirhiza* HAYATA **ながいもやがら、たいわんあけやがら** 新異名附加。

早田博士ノ本種ニ關スル原記載中ニ、根莖ハ長サ 20-30 cm、徑 10-20 cm トアルガ、現ニ東京帝大理學部植物學教室ニアル基準標本ニヨルト徑ノ方ハ 10-20 mm ノ誤植デハナイカト思ハレル。又同所ニ“*Scapi complanati* . . .” トアルノハ、平壓サレタ乾燥標本ニ就テソノ儘ノ状態ヲ書カレタモノデ、上ノ根莖ニ關スル恐ラクハ誤植ト思ハレル記相文ニヨル特徴ト共ニ強調スルコトハ出來ナイ點デアル。SCHLECHTER 氏ガ FEDDE 氏ノ Repertorium Beihefte, 4, 156 (1919) 中デ特ニコノ 2 點ヲ歌ツテ他ノ同屬ノ種ト區別出來ルトシテキルノハ、標本ヲ見ナカツタメデアル。ソレニシテモ基準標本ノ根莖ハ異常ニ大形デアツテ、早田博士ニヨツテ“*vermiciforme recurvum* . . .” ト書カレタコトニヨツテ示唆サレル様ニ、畸型的ノモノデアル。又根莖ノ上ノ鱗片ノ形狀ヤ配列ノ點デモ明カニソノコトヲ示シテキル。シカシ花莖ノ部ハ根莖部ノ畸型的ノモノニ關ハラズ、正常デアルト思ハレルガ、確カニ未ダ花ハ充分ニ成熟シテキナイモノデアル。以上述ベタ畸型的ノ點ト未熟ノ點トヲ考慮ニ入レレバ、*G. dioscoreirhiza* HAYATA ト *G. taiwaniana* FUKUYAMA トノ記相文ノ上ノ差ハ下ニ述ベル 2 點ノ他ニハ總テ滅却サレル。事實福山伯明氏ノ御好意ニヨツテ、後者ノ基準標本ヲ借リテ見テ、前者ノ基準標本ト比較シテ見ルト成程ト領カレル。又前者ノ唇瓣ハ未ダ記載サレテ居ナイノデ、基準標本ノ花ノ一ツ (未ダ蕾ノ状態ノモノ) ヲ解剖シテ見タ所、ヨク後者ト一致スルヲ見タ。上ニ述ベタ 2 點トハ福山氏ノ指摘セラレタ兩者ノ相違點デ、中央萼片ノ先端ノ小凹入ガ前者ニハ無ク、後者ニアルコト及ビ萼片ノ背面ノ小突起ガ前者ニアツテ、後者ニナイコトデアル。第一ノ小凹入ハ他ノ多クノ *Gastrodia* ニ見ラレルモノデアルガ、*Gastrodia* ノ萼片ハ一般ニ不定型のデアルノデ誠ニ見逃サレ易イモノデ、早田博士ノ記相文ニモ脱落シタモノト思ハレル。第二ノ小突起モ又他ノ多クノ *Gastrodia* ニ見ラレルモノデ、萼片ノ背面特ニ先端ニ近ク散生スル厚膜大型ノ單細胞カラナル突起デ、往々コノ部ハ他ノ部ヨリ透明デアアルガ、蕾ノ状態ノ時ノ方ガ突起トシテハ明瞭デアルノデ、開花シタモノデハ時ニ稍ニ不明瞭ニナリ、マシテ強ク平壓シテ乾燥シタモノデハ見エナイ場合ガアル。

コノ様ニ考ヘルトコノ兩種ハ同種ニ屬スルモノデアリ、出版年代カラ考ヘテ *G. taiwaniana* ハ *G. dioscoreirhiza* ノ異名トシナケレバナラナイ。前者ノ方ガ記相文モ基準標本モ立派デアアルガ、止ムヲ得ナイ。前者ハ新竹州、角板山附近デ昭和 8 年ニ福山氏ニヨリ、後者ハ臺北州、双生脚デ大正 5 年ニ早田博士ニヨリ採集サレタノデアツテ、産地ハ

近イ所デアル。

本種ノ特徴ハ割合高イ花莖ノ上方ニ鐘形ノ中形ノ花ヲ稍ニ密集シテ生ジ、唇瓣ノ基部ハ箭狀心脚ヲ呈シ、舷部ノ上方ニ稍ニ下方ニ流下スル 2 個ノ薄板狀體ヲ有スルコトニアル。本種ハ塊莖ニ單細胞ノ毛ヲ密ニ生ズル點ハ 是るざきやつしらんノ類ト同様デアルガ、花期ノ後ニソノ頸部カラ纖細ナ繁殖用ノ根ヲ發出スルカ否カハ未ダ不明デアル。

5) *G. Stapfii* HAYATA **こんじきやがら、りうきりやがら** 新異名追加。本種ハ初メ明治 24 年ニ田中節三郎氏ニヨツテ與那國島及ビ石垣島デ採集サレ、早田博士ニヨツテ明治 44 年ニ記載發表サレタモノデアル。後小泉博士ハ西表島デ大正 12 年ニ採集サレ、福山伯明氏モ又昭和 13 年ニ同地デ採集サレタ。一方福山氏ハ紅頭嶼デ昭和 9 年ニ *G. lutea* FUKUYAMA ヲ發見採集シテ發表シタガ、更ニ翌年ハ火燒島デモ採集サレタ。更ニコノ 2 種ハ福山氏ニヨツテ同種ニ屬スルコトガ確認サレ、昭和 14 年ニ同氏ハ *G. lutea* ヲ *G. Stapfii* ノ異名トシテ標本ノ上ニソノ様ニ記シタガ、未ダ未發表ノ儘デアツタ。小生モ又兩種ハ同一種ニ屬スベキモノト認メ、福山氏カラ發表ヲ托セラレタノデココニ記シタ。本種ノ分布ハ臺灣ノ東岸ノ孤立島群カラ八重山諸島ニ及ブ分布ヲ示シナガラ臺灣本島ニハ及バナイ型ノモノデアツテ、他ノ二三ノ同様ナ分布型ノモノト並行シテ分類地理學的ニ面白イモノデアル。

本種ノ花序ノ先端ガ點頭氣味ニナル事、及ビ本屬ニ一般ニ見ラレル唇瓣ノ基部ノ肉質體ガ爪部ノ兩縁カラ唇瓣ノ舷部ノ基部ノ縁ニ沿ツテ三日月形ニ伸ビテキルコトハ、他ノ附近産ノ種ニ見ラレナイ特徴デアル。又花冠筒部ノ前方ガ深ク切レ込シテ且開イテキルタメニ、短イ唇瓣ガ外部カラ見ラレル事モ著シイ。根莖ニハ毛ガ全然ナク、恐ラク *G. elata* ト同様ノ生理作用ヲ營ムモノト思ハレル。

本篇ハ中井猛之進教授ノ御校閱ヲ賜ツタモノデアル。記シテ深く感謝ノ意ヲ表シマス。臺灣産ノ標本ヲ見ル上ニ、福山伯明、瀬川孝吉兩氏ニハ特別ノ便宜ヲ圖ツテ頂イタ。又小泉源一教授ハ京都帝大理學部植物學教室ノ標本ノ閱覽ヲ許可サレタ。ココニ厚ク謝意ヲ表シマス。

(東京帝國大學理學部植物學教室)