

## Occurrence of *Hedychium* Koenig (Zingiberaceae) in Tamenglong District of Manipur, Northeast India

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### Abstract

The genus *Hedychium* Koenig (Zingiberaceae) is one of the economically and medicinally important genera of Zingiberaceae. The present paper 14 species and 5 varieties of *Hedychium* have been recorded for the Tamenglong district of Manipur, India. These plants are mostly used as ornamentals and some are used either as food or as medicine. Recorded species are enumerated here along their nomenclature, vernacular names, brief descriptions, phenology, reference to voucher specimens and photographs.

*Key words:* *Hedychium*, Zingiberaceae, Manipur, Tamenglong district, Manipur

### INTRODUCTION

The genus *Hedychium* Koenig has about 80 species, mostly distributed in Indo-Malayan region (Sabu 2006). The genus forms the most beautiful gingers of the family Zingiberaceae. They are commonly known as “ginger lily” or “butterfly lily”, owing to the resemblance of their labellum and lateral staminodes with that of the wings of the butterflies. A number of common names are used in reference to members of this genus, like kahili ginger, garland flower, and ginger lily.

This genus was first described as a single species by Koenig in Retzius (1783). However, many more species were included under the genus by other researchers over the past years. Baker (1972) has accounted 24 species from the British India. Rao & Verma (1972) have recorded 25 species from Assam, North East India. Singh (1990) has reported only two species of *Hedychium* namely; *H. coronarium* and *H. ellipticum* in his Thesis “*Flora of Tamenglong District*” with ethnobotanical notes but no detail account of *Hedychium* have been recorded. The current studies have revealed the presence of many other species of *Hedychium* in Tamenglong district, Manipur which was not reported earlier.

The genus *Hedychium* can be distinguished from other genera of Zingiberaceae by: rootstock with elongated leafy stems and usually with distichous oblong or lanceolate leaves; bracts large, closely imbricate or rarely in lax terminal spikes; calyx tubular, 3-toothed; labellum suborbicular, large, tip usually 2-cleft, claw long or short, lateral staminodes various; filament narrow or usually long and rarely absent; anther dorsifixed, base divaricate and connective appendage obsolete; lip large 2-fid; ovary 3-celled; ovules many, superposed; style long, filiform; stigma subglobose; capsule globose, 3-valved.

### Study Area

Tamenglong district, Manipur is situated in the western side of the state. The district encompasses an area of 4,391 sq km and stretches across the latitudinal parallel of 24°59' N and the longitudinal meridian of 93°30' E with an altitude of ±1260 m. Temperature ranges from 4- 31°C in different seasons of the year. This district is entirely composed of hills, ranges and narrow valleys. The hilltops and valley sides are dotted with small hamlets, located at strategic points. The present studies include different sub-divisions of the district; Nungba, Tamei, Tamenglong and Tousem.

### METHODOLOGY

The works have been carried out during 2008 – 2010. The specimens for the study were collected through extensive field studies in different parts of Tamenglong district. Collected specimens were made into mounted herbarium sheets following the procedure of Jain & Rao (1977). Some species of *Hedychium* are maintained as live collections in the Botanical Garden of NEHU, for future studies. Documentation on uses of some species was made with the help of local people

24 Occurrence of *Hedychium* in Tamenglong district of Manipur having medicinal knowledge through open discussion and consultation. The specimens were identified in the laboratory using available literature (Baker 1890; Kumar 2001; Noltie 1994; Rao & Verma 1972; Wu & Larsen 2000) and were matched in ASSAM and NEHU herbaria. Specimens will be deposited in NEHU Herbarium after the completion of the works.

## RESULTS

During recent field studies in the Tamenglong district of Manipur, as much as 14 species and 5 varieties of *Hedychium* were recorded and are namely *H. coccineum* var. *longifolium*; *H. coccineum* var. *squarrosom*; *H. coccineum* var. *carneum*; *H. coronarium* var. *chrysoleucum*; *H. coronarium* var. *subditum*; *H. dekianum*; *H. ellipticum*; *H. flavescens*; *H. forrestii*; *H. gardnerianum*; *H. gracile*; *H. marginatum*; *H. rubrum*; *H. spicatum*; *H. stenopetalum*; *H. thrysiforme* and *H. urophyllum*. It is also one of the important ornamental, edible and medicinal genera in Manipur. Several of its species, like *H. coronarium*, *H. coccineum*, *H. gardnerianum* and *H. rubrum* to mention a few are cultivated as ornamentals for their beautiful flowers and appreciable sweet fragrance. Some species, e.g. *H. coronarium*, are edible and available in local markets from as early as the end of March and throughout the rainy season. Some species such as *H. coronarium*, *H. dekianum*, *H. rubrum*, *H. spicatum* etc are well recognized medicinally.

Recorded species and varieties of *Hedychium* are enumerated below along with their brief descriptions, vernacular names, distribution, phenology and reference to the voucher specimens. Photographs of the collected species are also provided in Plates 1 and 2.

### Enumeration:

***Hedychium coccineum*** Buchanon-Hamilton ex J. E. Smith, var. *longifolium* (Roscoe) Baker in Hooker f., Fl Brit. India 6: 231. 1892. *H. longifolium* Roscoe, Monandr. Pl.t. 59. 1828; Naik & Panigrahi. Bull. Bot. Surv. India 3: 70. 1961.

**Vernacular Name:** English: *Orange ginger, red ginger lily, scarlet ginger*; Manipuri: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing puang*.

Plants erect  $\pm$  2 m high aerial part withers off during winter. Spikes 20 – 40 cm long, dense-flowered; corolla tube longer than bracts, lobes 4 x 0.2 – 0.3 cm, acuminate, convolute; lip suborbicular, 4 x 3.5 cm, clawed, bilobed; filament longer than lip, red.

**Flowering & Fruiting:** July – November

**Exsiccatus:** Tamenglong district, Nungba subdivision, *P. Daimei TML 024*, dated 10.08.2009

**Distribution:** C. & E. Himalaya, E. India, Bangladesh, Nepal, Sri Lanka

**Note:** Generally cultivated in gardens as an ornamental.

***Hedychium coccineum*** var. *carneum* (Roscoe) Baker in Hooker f., Fl Brit. India 6: 232. 1892. *H. carneum* Roscoe, Monandr. Pl.t. 57. 1828.

**Vernacular Name:** English: *White Ginger lily*; Manipuri: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing*.

Leaves 3.7 – 5 cm long. Flowers white, tinged with pale red, lip orbicular, 1.3 – 2 cm long and broad; fertile stamen longer than lip; filament pale red.

**Flowering & Fruiting:** July – September

**Exsiccatus:** Tamenglong district, Tamenglong subdivision, *P. Daimei TML 014*, dated 17.05.2009

**Distribution:** C. & E. Himalaya, E. & NE. India, Nepal, China, Brazil

***Hedychium coccineum*** var. *squarrosom* Baker in Hooker f., Fl. Brit. India 6: 231.1892; Kumar, Zin. Sikkim 47. 2001.

**Vernacular Name:** English: *Red ginger lily*; Ruangmei: *Puangshing* or *Bungshing haengmei*.

Leafy shoots  $\pm$  1 m high. Leaves glabrous 25 – 40 x 2 – 3 cm, 14 – 15 times longer than broad. Flowers bright crimson.

**Flowering & Fruiting:** June – December

**Exsiccatus:** Tamenglong district, Tamenglong subdivision, *P. Daimei TML 010*, dated 15.05.2009

**Distribution:** E. Himalaya, Upper Myanmar, Sri Lanka.

**Note:** Cultivated as an ornamental in gardens.

*Hedychium coronarium* Koenig in Retzius, Observ. 3: 73. 1783; Baker in Hooker f., Fl. Brit. India 6: 225. 1892; Rao & Verma, Bull. Bot. Surv. India 11: 121. 1969, 14: 128. 1972; Noltie, Fl. Bhutan 3(1): 201. 1994; Kumar, Zin. Sikkim 47 – 50. 2001; Sabu, Zin. & Cos. South India 196. 2006.

**Vernacular Name:** English: *White ginger lily*; Hindi: *Dolan champa*; Manipuri: *Takhellei angouba*; Ruangmei: *Puangshing* or *Bungshing phuanmei*.

Spikes 8 – 18 cm long, cone-like; bracts obtuse or acuminate, 3 – 9 flowered, moderately dense. Flowers white, looks like butterflies, with pale yellow or yellowish-green blotch at mouth. Filament white with pale yellow anther.

**Flowering & Fruiting:** July – October

**Exsiccatu:** Tamenglong district, Nungba subdivision, *P. Daimei TML 019*, dated 07.12.2009

**Distribution:** India, Myanmar, Bangladesh, Nepal and Sri Lanka.

**Note:** Grown throughout India and Malaysia for its highly scented flower. Flowers are usually worn behind the ear by women folk in Manipur. The young flowers and shoots are eaten as vegetables. Rhizomes are used as analgesic. The juice from matured seeds is used as shampoo.

*Hedychium coronarium* var. *chrysoleucum* (Hooker) Baker in Hooker f., Fl. Brit. India. 6: 226. 1892. *H. chrysoleucum* Hooker in Crutis, Bot. Mag. t. 4516, 1850; Rao & Verma, Bull. Bot. Surv. India 11:122. 1969; 14: 128. 1972.

**Vernacular Name:** English: *Yellow ginger lily*; Manipur: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing*.

Leafy shoots ± 1.5-2 m; lamina lanceolate, acuminate, 25 – 30 x 4.5 – 6 cm. Flowers fragrant, white, throat of lip masked with large brilliant orange-yellow; filament yellow.

**Flowering & Fruiting:** May – October.

**Exsiccatu:** Tamenglong district, Tamei subdivision, *P. Daimei TML018*, dated 07.12.2009

**Distribution:** India, Myanmar, Bangladesh, Nepal and Sri Lanka.

**Note:** Cultivated for its beautiful flowers; flowers usually worn behind the ear by women folk in Manipur.

*Hedychium coronarium* var. *subditum* (Turill) Naik in Bull. Bot. Surv. India. 3: 71. 1961. Rao & Verma, Bull. Bot. Surv. India 14: 129. 1972. *Hedychium subditum* Turill, Kew Bull. 1914: 370. 1914.

**Vernacular Name:** English: *Ginger lily*; Manipuri: *Takhellei*

Lamina lanceolate, 30 x 6 – 9 cm. Flowers yellow, lip deeply obcordate (bilobed), narrowed into a distinct claw; filament with anther distinctly longer than lip.

**Flowering & Fruiting:** July – August

**Exsiccatu:** Tamenglong district, Khoupum, Nungba subdivision, *P. Daimei TML 030*, dated 02.09.2010

**Distribution:** Endemic to N.E. India

*Hedychium dekianum* A.S Rao & D.M. Verma in Bull. Bot. Surv. India 11: 122.1969; 14: 129. 1972.

**Vernacular Name:** English: *White ginger lily*; Manipuri: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing*.

Quite similar to *H. chrysoleucum* but distinct but can be distinguished by leafy shoots 1-2 m high; lamina lanceolate, 30 – 50 x 5 – 15 cm, pubescent beneath; bracts lax in spike, closely convolute; flowers broad, white with pale yellow blotch at the mouth; filament long, exceeding the lip.

**Flowering & Fruiting:** July – September

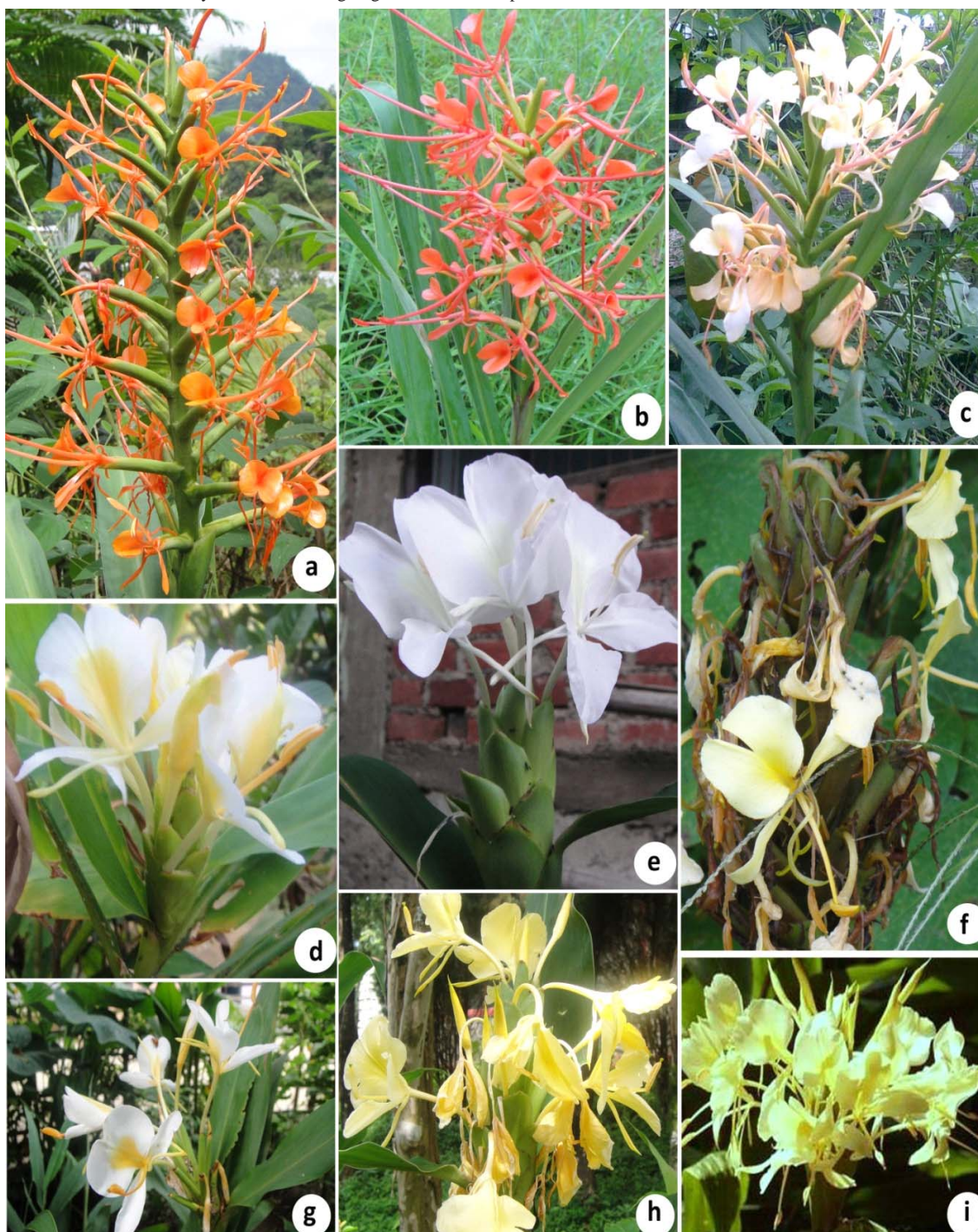
**Exsiccatu:** Tamenglong district, Khoupum, Nungba subdivision, *P. Daimei TML 026*, dated 31.08.2010

**Distribution:** Endemic to North East India.

**Note:** Rhizomes are used in cuts and wounds.

*Hedychium ellipticum* Buchanon-Hamilton ex J.E. Smith in Rees, Cyclop.17: 2. 1811; Baker in Hooker f., Fl. Brit. India 6: 228. 1892; Rao & Verma, Bull. Bot. Surv. India 11: 121. 1969, 14: 128. 1972. Noltie, Fl. Bhutan 3(1): 202. 1994.

**Vernacular Name:** Manipuri: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing*.



**Plate 1. Figures a – I:** (a) *H. coccineum* var. *longifolium* (b) *H. coccineum* var. *squarrosum* (c) *H. coccineum* var. *carneum*; (d) *H. coronarium*; var. *chrysoleucum*; (e) *H. coronarium*; (f) *H. coronarium* var. *subditum*; (g) *H. dekianum*; (h) *H. flavum*; (i) *H. flavescens*.

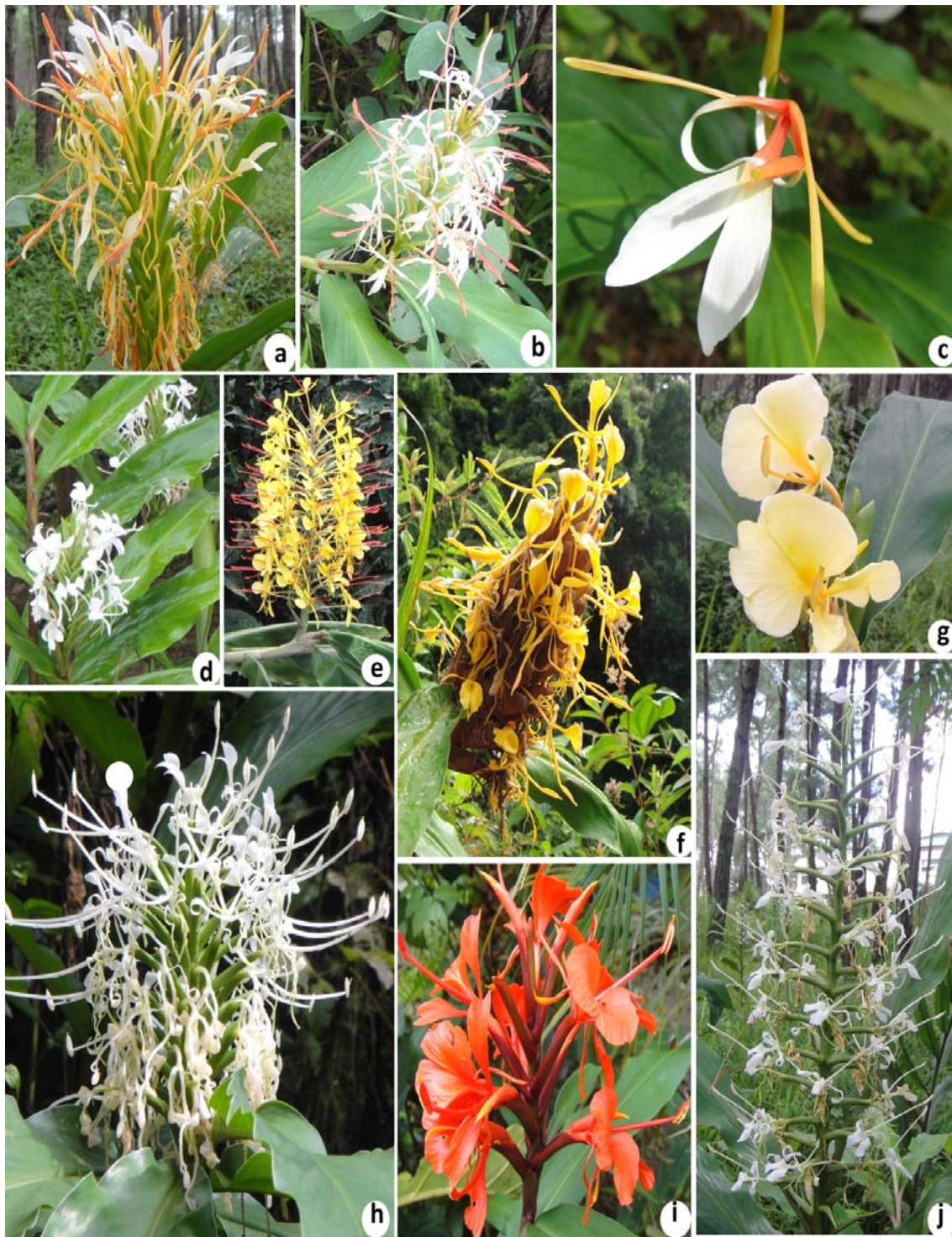
Stems  $\pm$  1.2 m high. Leaves sessile, lamina elliptic, shortly acuminate, 20 – 25 x 6 – 14cm. Flowers fragrant, white, turning yellow with age. Stamens orange-red.

**Flowering & Fruiting:** June – October

**Exsiccatus:** Tamenglong district, Khoupum, Nungba subdivision, *P. Daimei TML 027*, dated 31.08.2010

**Distribution:** India and Bhutan.

*Hedychium flavescens* Carey ex Roscoe, Manandr. Pl.t. 50 1828. Baker in Hooker f., Fl. Brit. India 6: 226. 1892; Sabu, Zin. & Cos. South India 199. 2006.



**Plate 2. Figures a – j:** (a) *H. ellipticum*; (b) *H. gracile* (c) *H. spicatum*; (d) *H. forrestii*; (e) *H. gardnerianum*; (f) *H. marginatum*; (g) *H. Urophyllum*; (h) *H. thrysiforme*; (i) *H. rubrum*; (j) *H. stenopetalum*.

**Vernacular Name:** English: *Yellow ginger lily*; Hindi: *Haladi sugandhi*; Manipuri: *Takhellei hangampal*; Ruangmei: *Puangshing* or *Bungshing ginmei*

Leafy shoots 2 – 3 m high. Leaves sessile or very shortly ( $\pm 5$  mm) petiolate; leaf sheath slightly pubescent; lamina lanceolate-acuminate, 20 – 50 x 4 – 10 cm, abaxially pubescent, caudate-acuminate base attenuate. Bracts imbricate, oblong to ovate, 4 – 5-flowered; flowers yellow or yellow-white, fragrant; calyx 3.5 – 4 cm, split on one side; corolla tube slender 7 – 9 cm long, lobes linear, 3 – 3.5 cm; lateral staminodes wider than the corolla lobes; labellum erect, creamy yellow

with dark yellow patch at base, broadly obcordate, bilobed, narrowed into a distinct claw at the base; stamen slightly longer than the labellum, 5 – 6 cm long. Style filiform; stigma funnellform, margin bearded.

**Flowering & Fruiting:** August – October

**Exsiccatus:** Tamenglong district, Khoupum, Nungba subdivision, *P. Daimei TML 028*, dated 01.09.2010

**Distribution:** China, India (N.E. & S. India), Nepal and Sri Lanka. **Note:** Roots and tubers are used in headache, high blood pressure, dizziness and vomiting.

**Note:** Roots and tubers are used in headache, high blood pressure, dizziness and vomiting.

*Hedychium forrestii* Diels, Notes Roy. Bot. Gard. Edinburgh 5: 304. 1912; Wu, Larsen K. in Wu & Raven, Fl. China. 24: 375. 2000.

**Vernacular Name:** English: *White Ginger lily*; Manipuri: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing phuanmei*.

Pseudostem 1 – 1.5 m, reddish brown. Leaves sessile or shortly petiolate, large, glabrous. Spike lax; bracts convolute; flowers white, with a pale yellowish-green blotch in the mouth; lateral staminodes oblong, ca. 3.5 × 1.5 cm; labellum orbicular, ca. 3 cm wide; stamen quite longer than lip; filament white.

**Flowering & Fruiting:** August – December

**Exsiccatus:** Tamenglong district, Tousem subdivision, *P. Daimei TML 021*, dated 29. 06.2010

**Distribution:** N.E. India, E Himalayas, China, Myanmar, Thailand, Vietnam

*Hedychium gardnerianum* Sheppard ex Ker-Gawler in Edwarth, Bot. Reg. 9: t. 774. 1824; Baker in Hooker f., Fl Brit. India 6: 230. 1892; Rao & Verma, Bull Bot. Surv. India 14: 133. 1972. Noltie, Fl. Bhutan 3(1): 203. 1994.

**Vernacular Name:** English: *Kahili ginger* or *Kahili ginger lily*, *Himalayan ginger*, *Wild ginger*, *Yellow ginger*; Ruangmei: *Puangshing* or *Bungshing ginmei*

Leafy shoots 1 – 2 m, robust. Lamina lanceolate, acuminate, 40 – 50 x 10 – 15 cm. Bracts large, oblong, 5 x 2 cm, rolled-tightly around the flowers; calyx tube shorter than the bracts; corolla tube little longer than bracts with petals, 3.5 – 5 cm long; lip centrally tinged orange; lateral staminodes yellow, narrowly spatulate; stamen bright reddish-orange, far exceeding the lip, ± 6.5 cm long. Fruit a 3-valved capsule, orange red within; seeds brownish crimson.

**Flowering & Fruiting:** July – November

**Exsiccatus:** Tamenglong district, Nungba subdivision, *P. Daimei TML 016*, dated 09.08.2009

**Distribution:** West Bengal, Sikkim, N.E. India, Nepal and Bhutan.

**Note:** It is widely cultivated in many countries for its showy flowers.

*Hedychium gracile* Roxburg in Pl. Cor. 3: 48, t. 251. 1820; Rao & Verma, Bull Bot. Surv. India 14: 132. 1972. *H. glaucum* Roscoe, Monandr. Pl. t.53. 1828. *H. gracile* var. *glaucum* Baker in Hooker f., Fl Brit. India 6: 229. 1892;

**Vernacular Name:** Manipuri: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing*

Plants stout, grows somewhat inclined holding inflorescence upright. Leafy shoots ± 1 m; lamina 10 – 25 x 2.5 – 8 cm, subsessile, oblong-lanceolate, caudate-acuminate, glabrous or puberulous beneath. Spikes 10 – 20 cm, moderately dense flowered; bracts 1.5 – 2.5 x 0.4 – 0.6 cm, oblong-lanceolate, convolute, glabrous, 1- flowered; flowers white; filament red, longer than lip.

**Flowering & Fruiting:** July – November

**Exsiccatus:** Tamenglong district, Nungba subdivision, *P. Daimei TML 017*, dated 09.08.2009

**Distribution:** N.E. India, E. Himalayas, Nepal, Bangladesh

*Hedychium marginatum* Clarke in J. Linn. Soc. 25:75, t. 31. 1890; Baker in Hooker f., Fl Brit. India 6: 225. 1892; Rao & Verma, Bull Bot. Surv. India 11: 126. 1969; 14: 129. 1972.

**Vernacular Name:** Manipuri: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing zin gingutmei*.

Stems ± 1.5 m high. Lamina lanceolate, 20 – 40 x 3 – 6 cm, finely acuminate, base narrowed to a short petiole, villous beneath, upper surface hairy at the base only. Spikes cone like; bracts imbricate,

oblong, reddish brown; flowers deep yellow turning orange when dry; calyx  $\pm$  2.5 cm long; corolla tube 4.5 – 5 cm long, lobes 2.5 cm long, yellow; staminodes oblanceolate, lip obovate, cuneate, 2 x 1 cm, 2-fid; stamens yellow, longer than the lip.

**Flowering & Fruiting:** July – October

**Exsiccatu:** Tamenglong district, Khoupum, Nungba subdivision, *P. Daimei TML 029*, dated 02.09.2010

**Distribution:** Endemic to N.E. India.

**Note:** Often cultivated in gardens for their beautiful flowers.

*Hedychium rubrum* A.S Rao & D.M. Verma in Bull. Bot. Surv. India 11: 126.1969; 14: 133. 1972.

**Vernacular Name:** English: *Red ginger lily*; Manipuri: *Takellei angangba*; Ruangmei: *Puangshing* or *Bungshing haengmei*.

Plants  $\pm$  0.5-1.2 m high. Leaves sessile; lamina lanceolate, 17 – 32 x 3 – 6.2 cm, subcaudate, glabrous above, lower surface hairy along midrib, purplish when young; spikes lax; bracts purplish green, cylindrical, having 1 or 2 flowers in each; flowers red; corolla tube equaling the bracts, lip suborbicular, shortly clawed, deeply bilobed. filament  $\pm$  5 cm long, red, longer than lip.

**Flowering & Fruiting:** July – September

**Exsiccatu:** Tamenglong district, Khoupum, Nungba subdivision, *P. Daimei TML 025*, dated 31.08.2010

**Distribution:** Endemic to N.E. India.

**Note:** Decoction of rhizomes is used in bronchitis and stomach complaints. The name Red Ginger lily derived from its flower colour.

*Hedychium spicatum* Buchanon-Hamilton ex J.E. Smith in Rees, Cyclop.17:3.1811; Baker in Hooker f., Fl Brit. India 6: 227. 1892; Naik & Panigrahi, Bull. Bot. Surv. India 3: 72. 1961; Noltie, Fl. Bhutan 3(1): 203.1994.

**Vernacular Name:** English: *Spiked Ginger Lily*; Hindi: *Sandharlika* or *Kapur kachri* Manipuri: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing*.

Stems 1 – 2 m high. Lamina oblong, 30 – 40 x 5 – 8 cm, acuminate, base cuneate. Flowers fragrant, white, tinged yellow/ reddish at base; corolla tube 5 – 6 cm; petals linear, 2 - 3 cm long; lateral staminodes narrowly lanceolate,  $\pm$  equalling petals; stamen shorter than lip; filament 2 – 2.5 cm long, pale red, curved; anther 6 – 8 mm, linear. Capsules subglobose, glabrous, 3 valved, deep red, valves roll when open.

**Flowering & Fruiting:** Early June – December

**Exsiccatu:** Tamenglong district, Tamenglong subdivision, *P. Daimei TML 015*, dated 17.05.2009

**Distribution:** N.E. India, E. Himalayas, Nepal, Bhutan

**Note:** Rootstocks are used in stomach disorder, inflammation, pains and in liver complaints.

*Hedychium stenopetalum* Loddiges, Bot Cab. t. 1902. 1833; Baker in Hooker f., Fl Brit. India 6: 231. 1892; Rao & Verma, Bull Bot. Surv. India 14: 133. 1972; Noltie, Fl. Bhutan 3(1): 204. 1994.

**Vernacular Name:** Manipuri: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing phuanmei*

Shoots over 2 m high. Lamina sessile, linear-lanceolate to oblong-lanceolate, 40 – 70 x 7 – 15 cm, acuminate, dark green, densely hairy beneath. Spikes 40 – 60 cm long, lax-flowered; bracts markedly divaricate, oblong, convolute, 3.5 – 5 cm, coriaceous, each subtending 3 – 5 flowers. Flowers white with pale yellow or yellowish- green blotch in the mouth; stamens 5 – 6 cm long, white.

**Flowering & Fruiting:** July – October.

**Exsiccatu:** Tamenglong district, Khoupum, Nungba subdivision, *P. Daimei TML 031*, dated 02.09.2010

**Distribution:** N.E. India, Bhutan, Bangladesh, North Myanmar

**Note:** Rhizomes are used in headache, high blood pressure, dizziness and vomiting.

*Hedychium thyriforme* Buchanon-Hamilton ex J.E. Smith in Rees, Cyclop.13: 4. 1811; Baker in Hooker f., Fl Brit. India 6: 230. 1892; Rao & Verma, Bull Bot. Surv. India 14: 132. 1972. Noltie, Fl. Bhutan 3(1): 201. 1994.

**Vernacular Name:** Manipuri: *Takhellei*; Ruangmei: *Puangshing* or *Bungshing phuanmei*

30 Occurrence of *Hedychium* in Tamenglong district of Manipur

Shoots 1 – 2 m high. Lamina subsessile, lanceolate to narrowly elliptic, 30 – 60 x 5 – 12 cm, acuminate, sometimes sparsely pubescent beneath and on margins; ligule entire or emarginate, 1.5 – 2.5 cm, pubescent. Spikes short and much compact; bracts convolute, 1 – 2 flowered; flowers fragrant, white, lip obovate, clawed, with yellow blotch at the base, deeply lobed, lobes acute; filament very long, 5 – 6 cm, white; anther 0.8 – 1 cm long.

**Flowering & Fruiting:** August – November.

**Exsiccatus:** Tamenglong district, Khoupum, Nungba subdivision, *P. Daimei TML 032*, dated 02.09.2010

**Distribution:** N.E India, Nepal, Bhutan, Bangladesh

*Hedychium urophyllum* Loddiges, Bot. Cab. T. 1785. 1833; *H. coronarium* var. *urophyllum* Baker in Hooker f., Fl Brit. India 6: 226. 1892; *H. coronarium* var. *urophyllum* A.S. Rao & D.M. Verma, Bull Bot. Surv. India 11: 122. 1969, 14: 128. 1972.

**Vernacular Name:** English: *Yellow ginger lily*, Manipuri: *Takhellei*

Lamina oblong-lanceolate, 25 – 30 x 8 – 12 cm. Flowers yellow with a deeper yellow blotch at the mouth; calyx shorter than bract; corolla tube exceeding the bract by 2 – 5 cm; staminodes spatulate, 3.5 – 4.5 x 1.5 – 2.5 cm; lip suborbicular, 4.5 – 5 cm broad, slightly bilobed with undulating margin; filament stout with the anther, distinctly shorter than lip.

**Flowering & Fruiting:** May – September

**Exsiccatus:** Tamenglong district, Tousem subdivision, *P. Daimei TML 021*, dated 29.06.2010

**Distribution:** Endemic to N.E. India.

## DISCUSSION

During the present investigation, 14 species and 5 varieties of *Hedychium* Koenig was recorded from the Tamenglong district of Manipur, India. Out of these, 9 species and 2 varieties of *H. coccineum* and *H. coronarium* viz., *H. coronarium* var. *subditum*, *H. dekianum*, *H. ellipticum*, *H. flavescens*, *H. gardnerianum*, *H. gracile*, *H. marginatum*, *H. rubrum*, *H. stenopetalum*, *H. thysiforme*, have been collected from different localities of Nungba subdivision. 2 varieties of *H. coccineum* viz., *H. coccineum* var. *squarrosom*, *H. coccineum* var. *Carneum* and *H. spicatum* were found in Tamenglong subdivision, and from Tamei subdivision 1 species i.e., *H. coronarium* and 1 variety of *H. coronarium* i.e., var. *chrysoleucum* were collected and 2 species viz., *H. forestii* and *H. urophyllum* have been recorded from Tousem subdivision. This indicates that the vegetation of the subdivision Nungba region is much suitable to support different species of *Hedychium* because unlike others, in this subdivision there is less jhum cultivation due to availability of more plain land for cultivation. So there is less forest clearing as compare to other 3 divisions where there are lots of forests clearings (forest fire, cutting of trees etc) are carried out for jhum cultivation as well as for road construction.

Not only the diversity in *Hedycium* is so high in such a small area, there are quite a few endemic species included in this list. Plants like *Hedycium coronarium* var. *subditum*, *H. dekianum*, *H. marginatum* and *H. urophyllum* are endemic to the Northeastern part of India only. Again, *H. spicatum* is endemic for the region Eastern Himalaya and Northeast India. On the other hand, three more species and one variety, namely *H. coccineum* var. *longifolium*, *H. ellipticum*, *H. gracile* and *H. thysiforme* are endemic for the Indian subcontinent only. So, out of the 18 species and varieties of *Hedychium* recorded from the Tamenglong district of Manipur, nine i.e. 50 % are endemic. Four species, i.e. 22.22 % species and varieties are endemic each for the Northeast India and Indian subcontinent regions. And, one species (i.e. 5.56 %) is endemic for the Eastern Himalaya and extending to Northeast India.

Some species belonging to this genus are economically important since those are used in medicine, as food and also as ornamental plants. In fact all the species *Hedychium* growing in N.E. India are either already used as ornamental or are potential ornamentals. Therefore, conservation of all these species of this through sustainable used and management including in situ and ex situ modes of conservation. This will help in uplifting the socioeconomic condition of the people in the region.



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