**Taiwania, 56**(3): 231-239, 2011

# A New Species and a New Record of *Hedychium* J. König (Zingiberaceae) from Thailand

**Chayan Picheansoonthon[1,2] and Pornpimon Wongsuwan[2]**

*1. The Academy of Science, The Royal Institute of Thailand, Sanam Suea Pa, Sriayudhaya Road, Khet Dusit, Bangkok 10300, Thailand.*
*2. Pharmaceutical Botany and Pharmacognosy Research Unit, Faculty of Pharmaceutical Sciences, Khon Kaen University, Khon Kaen 40002, Thailand.*
* *Corresponding author. Email: chayan@kku.ac.th*

(Manuscript received 31 December 2010; accepted 2 June 2011)

ABSTRACT: *Hedychium siamense* Picheans. & Wongsuwan, a new species from peninsular Thailand is proposed. The distribution of *H. neocarneum* T.L. Wu, K. Larsen & Turland, previously known only from south China, is extended to Thailand and Lao PDR. Full descriptions and illustrations of both taxa are given. Relationships with their closely related species are also discussed.

KEY WORDS: *Hedychium neocarneum*, *Hedycium siamense*, new record, new species, Thailand, Zingiberaceae.

## INTRODUCTION

The genus *Hedychium*, established in 1783 by J. König, is one of the medium-size genera in the Zingiberaceae. Members of the genus could be easily recognized by its showy, numerous-flowered terminal spikes, some of which have been cultivated worldwide. Several species are medicinal plants in many Asian countries. Several taxa occurred throughout its distribution range have or may have horticultural potential.

Previous attempt to revise the genus *Hedychium* J. König (Zingiberaceae) in Thailand resulted in an account of 17 species (with one unknown taxon) (Sirirugsa and Larsen, 1995). Since then, two new species, *H. khaomaenense* Picheans. & Mokkamul and *H. thaianum* Mokkamul & Picheans. were added (Picheansoonthon and Mokkamul, 2005). Later, however, Larsen and Larsen (2006) preliminarily listed 22 species for Thailand.

Based on our recent study, 24 taxa (22 species and two varieties) were recognized for Thailand, including a newly-recorded Malayan taxon, *H. malayanum* Ridl. (Picheansoonthon and Wongsuwan 2008). More recently, two new taxa, *H. muanwongyathiae* Picheans. & Wongsuwan and *H. phuluangense* Picheans. & Wongsuwan, were added (Picheansoonthon and Wongsuwan, 2009).

From herbarium specimen investigation and intensive field studies throughout Thailand and Malay Peninsula during the past decade, we have completed our revision of this genus by further recognized a new species from peninsular Thailand and a new record from north and northeast Thailand, with complete descriptions and illustrations (Wongsuwan, 2010).

## TAXONOMIC TREATMENTS

1. ***Hedycium siamense*** Picheans. & Wongsuwan, *sp. nov.* Figs. 1 & 2

Type: Thailand: Changwat Ranong, Klong Naka Wildlife Sanctuary, Mueng Chone, N 09°19.082´, E 98° 30.943´, alt. 943 m, 21 November 2008; *Picheansoonthon & Wongsuwan* 73, in spirit no. 32 (holotype BKF).

*Hedychio cylindrico* similis, *ligula glabra, corollae tubo glabro, bracteis unifloris, labello obovato apice bilobato differt.*

Epiphytic, perennial herb with tuberous rhizomes. Pseudostems 48-81 cm high, leaf sheaths green, bladeless sheaths 1-2. Ligules oblong, 5.7-6.4 by 2.2-2.8 cm, apex acute-acuminate, membranous, glabrous, pale greenish. Leaves elliptic-lanceolate, 22.2-27.5 by 9.9-10.5 cm, base cuneate, apex acute or shortly acuminate, margin slightly undulate, both surface glabrous. Inflorescence a terminal spike, cylindrical, erect, ca. 14.5 cm long, hairy; peduncle ca. 5.3 cm long, hairy; bracts imbricate, overlapping, broadly ovate, 5.5-5.6 by 3.7-4.1 cm, apex obtuse-acute, green with brownish, lower half sparsely hairy, each subtending a cincinnus of 1 flower; bracteoles tubular, 5.2-5.4 by 2.1-2.3 cm, apex acute, split on one side to a depth of 1.3- 1.5 cm, hairy, greenish. Flowers white; calyx tube slender 4.4-4.6 cm long, apex acute or 2-dentate, hairy; corolla tube 9.4-10.5 cm by 3-4 mm, hairy, 3 -lobed,



臺灣大學學術期刊資料庫

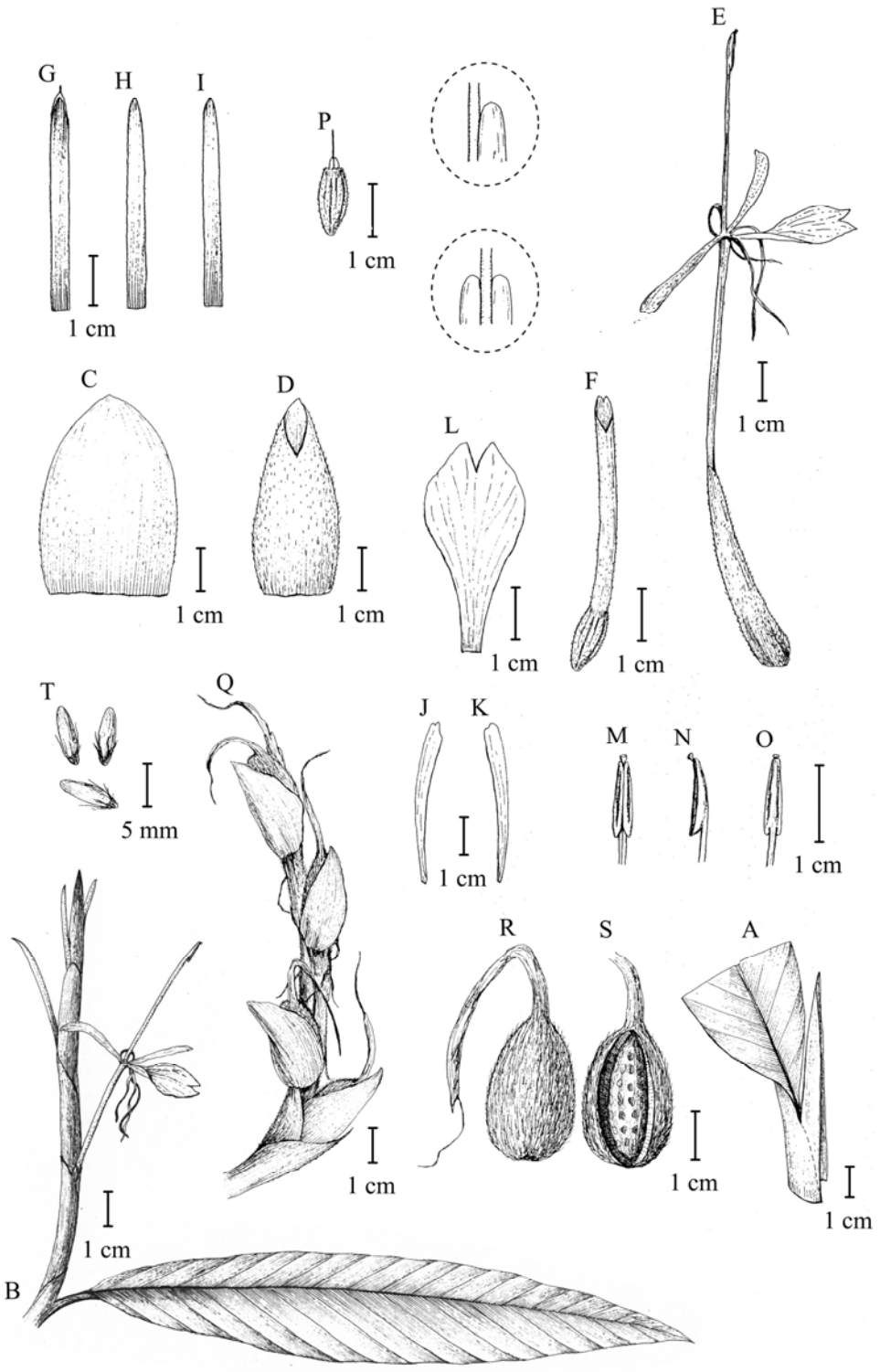



**Fig. 1.** ***Hedychium siamense*** **Picheans. & Wongsuwan. A: Part of a leaf with a ligule. B: An inflorescence with a leaf. C: Bract. D: Bracteole. E: A flower with the bracteole attached. F: Calyx tube with an ovary. G: Dorsal corolla lobe. H, I: Lateral corolla lobes. J, K: Staminodes. L: Labellum. M, N, O: Part of the filament showing the anther, and stigma (front, side and rear views). P: Ovary, part of the style, and stylodial glands. Q: Infructescence. R: Fruit. S: Fruit with part of the pericarp removed revealing red aril of the seeds. T: Seeds. Drawn by Chalermchoke Boonchit.**



臺灣大學學術期刊資料庫




**Fig. 2. *Hedychium siamense* Picheans. & Wongsuwan. A: The plant in the type location. B: Part of the pseudostem showing the lower part of leaves and ligules. C: An inflorescence. D: Detail of a flower and the bract. E: An infructescence. F: A fruit with part of the pericarp removed revealing the red aril of the seeds. Photographed by Supachai Koonterm (A) and Pornpimon Wongsuwan (B-F).**

lobe linear, 4.4-5.4 cm by 4-5 mm, apex hooded, lower half hairy; lateral staminodes narrowly lanceolate-oblong, 3.8-4.5 cm by 5-6 mm. apex emarginate; labellum shorter than stamenodes, obovate, 3.2-3.4 by 1.9-2.2 cm, base attenuate into a 0.8-1.2 cm by ca 3 mm claw, apex bilobed; filament 4.6-5.5 cm long, anthers dorsified, 0.9-1.0 cm long, base divaricate, yellowish; ovary ca. 1.3 cm by 7-8 mm, brownish, hairy; epigynous glands 2, ca. 3 mm long, yellowish; stigma densely ciliate, greenish. Fruits broadly ellipsoid to broadly ovoid, (3.1-)3.3-4.4 by (1.9-)2.2-2.8 cm, trilobe, hairy, greenish, crowned with persistent calyx. Seeds numerous, oblong ca. 5 by 2-3 mm, reddish aril.

Distribution: Thailand, Changwats Kanchanaburi [Amphur Thong Pha Pum, Mueng Pilok], Ranong [Klong Naka Wildlife Sanctuary, Mueng Chone (Type)] and Tak [Amphoe Maesod, Doi Muser]

Ecology: Tropical evergreen rain forest, at the altitude of *ca*. 943 m.

Phenology: Flowering in November, fruiting from November to December.

Note: Previously, six *Hedychium* species were accounted for peninsular Thailand: *H. collinum* Ridl. [*H. paludosum* M.R. Hend, J. Malayan Branch. Roy. Asiat. Soc. 5: 273. 1927, *syn. nov*.], *H. khaomaenense* Picheans. & Mokkamul, *H. gomezianum* Wall., *H. longicornutum* Griff. ex Baker, *H. malayanum* Ridl., and *H. roxburghii* Blume [*H. samuiense* Sirirugsa & Larsen, Nord. J. Bot. 15: 301. 1995, *syn. nov*.]. This new taxon is the seventh species enumerated for the region and can be easily recognized by its cylindrical spikes with tightly imbricate, 1-flowered bracts. It is closely related to *H. cylindricum* Ridl., An Indonesian



臺灣大學學術期刊資料庫

**Table 1. Comparison of key morphological characters of *Hedychium siamense*, *H. cylindricum*, *H. khaomaenense* and *H. malayanum*.**

| Character \ Taxon | *H. siamense* | *H. cylindricum* | *H. khaomeanense* | *H. malayanum* |
|---|---|---|---|---|
| 1. Leaf shape | elliptic-lanceolate | elliptic-lanceolate | elliptic | elliptic-oblong |
| 2. Leaf surface | glabrous | glabrous | hairy along the midrib | hairy along the midrib |
| 3. Ligule | oblong, 5.7-6.4 cm long, glabrous, pale greenish | oblong, 4.5-5.2 cm long, hairy, greenish | oblong, 3.1-4.0 cm long, glabrous, reddish | ovate-oblong, 5.2-5.6 cm long, sparsely hairy, pale greenish |
| 4. Inflorescence | lax-flowered | dense-flowered | lax-flowered | lax-flowered |
| 5. No. of flower(s) per bract | 1 | 2 | 1-2 | 1-2 |
| 6. Bract | broadly ovate, apex obtuse-acute, lower half sparsely hairy | obovate, apex obtuse-acute, hairy | ovate to oblong, apex acute or obtuse, glabrous | broadly ovate, apex rounded or acute, sparsely hairy |
| 7. Bracteole | tubular, apex acute, hairy | tubular, apex acute, hairy | tubular, apex acute, glabrous | tubular, apex acute, hairy |
| 8. Calyx tube | shorter than bract, hairy | about the same as a bract, hairy | longer than bract, glabrous except ciliate apex | longer than bract, glabrous |
| 9. Corolla tube | 9.4-10.5 cm long, lower half hairy | 8.0-9.3 cm long, glabrous | 13.4-13.8 cm long, glabrous | 9.0-11.5 cm long, glabrous |
| 10. Staminode | narrowly lanceolate-oblong, apex emarginate | lanceolate, apex acute | lanceolate, apex acute | narrowly lanceolate-oblong, apex acute |
| 11. Labellum | obovate, apex bilobed | boradly obovate-sub orbicular, deeply bilobed | broadly obovate, deeply bilobed, apex of each lobe shortly acuminate | obovate, deeply bilobed |
| 12. Length of anther (cm) | 0.9-1 | *ca.* 1 | 1.4-1.5 | 0.8-1 |
| 13. Ovary | brownish, hairy | brownish, hairy | greenish, glabrous | greenish, glabrous |
| 14. Fruit | broadly ellipsoid to broadly ovoid, trilobed, hairy, greenish | - | oblong, glabrous, red | broadly ellipsoid to broadly ovoid, glabrous, pale reddish/greenish |

speceies, but can be easily distinguished by its glabrous ligules, hairy corolla tubes, strictly 1-flowered bracts, obovate labella with bilobed apeces. Of all the native Thai taxa, it is the closest species to *H. khaomaenensis* and *H. malayanum*, but can be differentiated from the latter two species by its strictly 1-flowered bracts. Comparison of key morphological characters of this new species and its two closely related taxa is shown in Table 1.

The presence of this new taxon at the type location has long been known by some Thai ginger researchers. However, the type location is well protected in the wildlife sanctuary, and is not easily accessed. During the past five years, we visited the type location seven times, we finally obtained the flowering and fruiting specimens for taxonomic and molecular studies.

Living specimens of this new species were also obtained from two other locations. The first one was donated to us by Mr. Poonsak Watcharakorn, a Thai horticulturist and plant collector, claimed to be collected from Pilok Mine in Thong Pha Pum National Park of Changwat Kanchanaburi. The other one was found selling in Doi Musue's hilltribe market, and was claimed to be collected from the forest around Doi Musue. Both living specimens were brought to our living specimen collection, and were bloomed several times in cultivation. Morphological and molecular studies of these two specimens, compared with the type specimen, confirmed that they are all identical (Wongsuwan, 2010).

Specimens studied: ***Hedychium siamense***: **Thailand**, Changwat Ranong, Klong Naka Wildlife Sanctuary, Mueng Chone, 943 m, 21 xi 2008; *P. Wongsuwan* 130, 49-in spirit, 57-in spirit (BKF). ***Hedychium cylindricum***: **Indonesia**: Sumatra, Bogor, 14 viii 1928, *J. A. Lörzing* 13489 (K); Sumatra, Berasayi Woods, *H. N. Ridey* s.n. (Type K); Cultivated material: Kew, 21 xi 1978, *Burtt & Martin* B5382 (K); Trail from Medan road to ton of Sihaiak colcano, 15 ii 1932, *Walter N. & Catherine M. Bangham* 1041 (K); 28 i 1927, *H.H. Bartlett* 6506 (L); Borneo, 1 ii 1932, *J. Clemens & M.S. Clemens* 18170 (L); same locality, 5 viii 1981, *R. Geesink* 9235 (L); same locality, 25 ii 1964, *RSNB* 4540 (L). ***Hedychium khaomaenense***, **Thailand**, Changwat Nakhon Si Thammarat, Yong Waterfall National Park, Khao Maen, 1,123 m, 23 vii 2003, *Picheansoonthon & Mokkamul* 544 (holotype BKF, paratypes SING, PEK); same locality, 3 vii 2008; *P. Wongsuwan* 64, 48-inspirit (BKF). ***Hedychium malayanum***: **Thailand**, Cultivated material: KKU, 22 iv 2003, *Picheansoonthon* 168 (BKF); Cultivated material: KKU, 15 viii 2008, *P. Wongsuwan* 64 (BKF); **Peninsular Malaysia**, Pahang, Fraser's Hill, x 1921, *Ferguson-Davie* s.n. (holotype K, isotype SING); Cultivated material: Lim Chong Keat's private collection, 9 ix 2005, *Picheansoonthon* 181 (BKF).



臺灣大學學術期刊資料庫

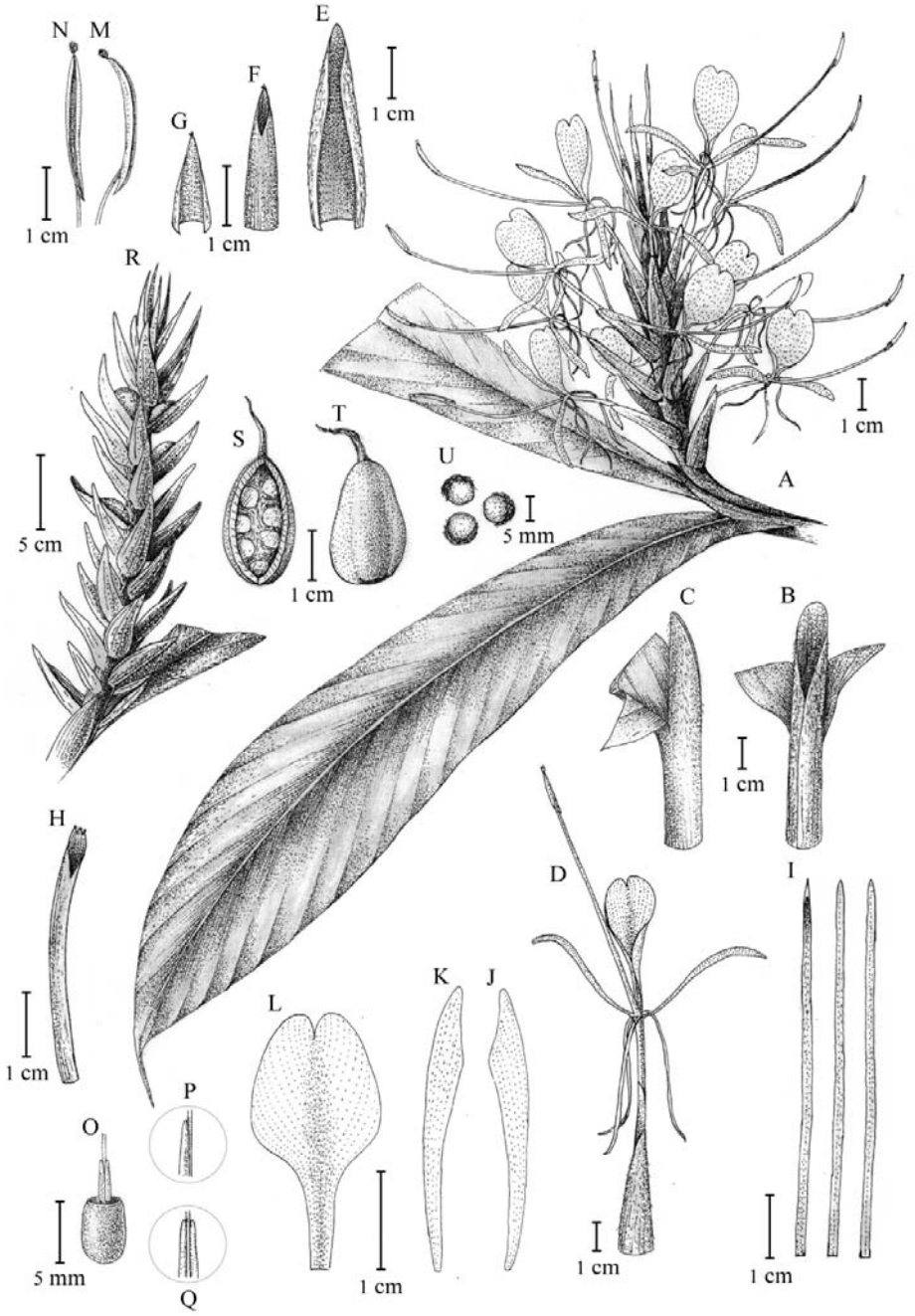



**Fig. 3.** ***Hedychium neocarneum*** **T. L. Wu, K. Larsen & Turland. A: An inflorescence. B, C: Ligule (front and side views). D: Flower with the bract attached. E: Bract. F: The first bracteole. G: The second bracteole. H: Calyx tube. I: Corolla lobe. J, K: Staminode. L: Labellum. M, N: Part of a filament showing the anthers, and a stigma (side and front views). O: Ovary, part of the style, and stylodial glands. P, Q: stylodial glands (side and rear views). R: Infructescence. S: Fruit with part of the pericarp removed revealing seeds and aril. T: Fruit. U: Seeds. Drawn by Chalermchoke Boonchit.**

2. ***Hedychium neocarneum*** T. L. Wu, K. Larsen & Turland, Novon 10: 91. 2000; T. L. Wu & K. Larsen in Z. L. Wu & P. H. Raven, Fl. China 24: 376. 2000. – *H. carneum* Y.Y. Qian, Acta Bot. Austron Sin. 9: 48. 1994; Not Loddiges, Bot. Cab. 7: t. 693. 1823. Figs. 3 & 4. *New record for Thailand.*

Type: China: Yunnan Province, Simao Xian, alt. 1,000-1,900 m; *Y.Y. Qian 1832* (holotype SMAO).



臺灣大學學術期刊資料庫




**Fig. 4. *Hedychium neocarneum* T. L. Wu, K. Larsen & Turland. A: The plant habit. B: A ligule. C: Part of an inflorescence. D, E: Close-up of flowers. F: An infructescence. Photographed by Pornpimon Wongsuwan.**

Terrestrial, perennial herb. *Pseudostems* 0.6-1.5 m high, leaf sheaths greenish, bladeless sheaths 2-4. *Ligules* oblong, 2.3-4 by 1.3-2.8 cm, apex bilobed-rounded, membranous, pubescent, greenish. *Leaves* sessile; blade elliptic-oblong, 16.5-32.4 by 7.2-12 cm, base cuneate, apex acute-acuminate, margin entire-slightly undulate, upper surface glabrous, lower surface pubescent. *Inflorescences* a terminal spike, erect, 11.2-24.5 cm long; peduncle 3.3-4.8 cm long, hairy; bracts, folded, green, obovate-lanceolate, 3.4-4.2 by 1.6-2.8 cm, apex acute, pubescent, each subtending a cincinnus of 2-4 flowers; first bracteole ovate-broadly ovate, 2.3-3 cm by 6-7 mm, apex acute, pubescent, greenish; second bracteole ovate, 1.3-1.6 cm by 4-8 mm, apex acute, pubescent; *Flowers* white to pale yellow, fragrant; calyx tubular, 3.9-4.6 cm by 3-4 cm, apex 3-dented, pubescent except apex; corolla tube slender, 5.3-5.8 cm by *ca.* 3 mm, 3-lobed, lobes linear, 3.7-5 cm by 2-3 mm, apex hooded, yellowish; lateral staminodes oblanceolate, 2.8-3.3 cm by 4-5 mm, base attenuate into a 3-5 by 2-3 mm claw, apex rounded; labellum elliptic-suborbicular, 2.4-2.6 by 1.5-2.4 cm, base attenuate into 6-8 by 3-4 mm claw, white with yellow-red patch at base, apex 2-cleft, 0.4-1 cm; filament pale salmon red, 4.1-5.3 cm long; anther dorsifixed, base divaricate, 1.1-1.2 cm by 2-3 mm, yellowish; ovary 4-5 by 3-4 mm, 3-loculed, placentation axile, pubescent; epigynous glands 2, slender, *ca.* 3 by 1 mm, yellowish; stigma densely ciliate, green. *Fruits* ovoid to oblong, 2.7-3 by 2.1-2.2 cm, pubescent, green. *Seeds* numerous, ellipsoid to globose, 4-9 by 4-6 mm, reddish orange.

Distribution: China [Yunnan Province, Simao Xian]; Thailand: Changwats Nan [Doi Phu Ka National Park], Pitsanulok [Phu Hin Rongkla National Park],



臺灣大學學術期刊資料庫

**Table 2. Comparison of key morphological characters of *Hedychium neocarneum*, *H. gardnerianum* and *H. stenopetalum*.**

| Taxon / Characters | *H. neocarneum* (Thai specimens) | *H. neocarneum* (Chinese specimens) | *H. gardnerianum* (Butanese specimens) | *H. stenopetalum* (Thai specimens) |
|---|---|---|---|---|
| 1. Leaf shape | elliptic-oblong | lanceolate, rarely oblanceolate, oblong or ovate | lanceolate or lanceolate-oblong | lanceolate-oblong |
| 2. Leaf surface | pubescent | villous | - | hairy |
| 3. Ligule | oblong, 2.3-4.0 cm long, pubescent, greenish | oblong, 1.5-6.0 cm, cm long, villous | oblong, 1.5-2.5 cm long, glabrous | ovate-oblong, 4.3-5.9 cm long, hairy, greenish or reddish |
| 4. Inflorescence | dense-flowered | dense-flowered | dense-flowered | lax-flowered |
| 5. No. of flower(s) per bract | 2-4 | (1-)2-4 | 1-2 | (2-3)-7-11 |
| 6. Bract | obovate-lanceolate, apex acute, pubescent | oblong or lanceolate, villous | oblong- lanceolate, apex obtuse, glabrous | lanceolate to obovate, apex acute, hairy |
| 7. Frist bracteole | ovate-broadly ovate, apex acute, pubescent | ovate or oblong, pubescent | oblong, apex obtuse or 3-dented | triangular,apex acute, hairy |
| 8. Calyx tube | longer than bract, pubescent | about the same as a bract, villous | about the same as a bract, pilose | about the same as a bract, hairy |
| 9. Corolla tube | 5.3-5.8 cm long, glabrous | 5.3-6 cm long, glabrous | 5.0-5.5 cm long, glabrous | 6.2-6.4 cm long, glabrous |
| 10. Staminode | oblanceolate, apex rounded | linear-oblanceolate | oblanceolate, apex acute | oblanceolate-oblong, apex emarginate |
| 11. Labellum | elliptic-suborbicular, white with yellow-red patch at the base, apex 2-cleft | suborbicular, white with flesh red at the base, apex 2-cleft | obovate to sub-orbicular, bright yellow, apex emarginate | sub-orbicular to orbicular, white with pale greenish patch at the base, apex 2-cleft |
| 12. Filament | 4.1-5.3 cm long, pale salmon red | 5.2-5.7 cm long, flesh red | 5.1-6.4 cm long, bright red | 4.9-7.4 cm long, white-yellowish |
| 13. Length of anther (cm) | 1.1-1.2 | 1.1-1.4 | 1.0-1.5 | 1.2-1.5 |
| 14. Ovary | pubescent | sparsely villous | glabrous | hairy |
| 15. Fruit | ovoid to oblong, pubescent, green | long ovoid, yellow | ovoid | ovoid to oblong, hairy, green |

Loei [Phu Ruea National Park and Phu Luang Wildlife Sanctuary]; and Laos PDR – *new record* (Vientiane Province, 29 kms south of Kasi Town; and Champasak Province, the Bolaven Plateau).

Ecology: Lower montane scrub, at the altitude of 1,000-1,500 m.

Phenology: Flowering from June-August, fruiting from July-September.

Note: In hebarium specimens, this taxon is resembled *H. gardnerianum* Sheppard ex Ker Gawl. and *H. stenopetalum* Lodd. in their inflorescences with not-imbricate bracts and the labella, leading to the confusion in some previous publications. This species, however, can be easily recognized by its oblanceolate staminodes, elliptic-suborbicular labellum with yellow-red patch at the base and 2-cleft apex, and pale salmon red filament, twice as long as the labellum. Comparison of some key morphological characters of these 3 taxa is given in Table 2, whereas photographic illustrations of the latter two taxa are shown in Fig. 5.

We have also encountered several large populations of this taxon in northeastern Thailand, particularly in Phu Luang Wildlife Sanctuary (Changwat Loei). Some herbarium specimens previously collected from these areas were identified as "*H. gardnerianum*". Also, very large populations of this species were also found in southern Laos, particularly on the Bolaven Plateau. The distribution range of this species is, therefore, extended from Yunnan Province in southern China to northeastern Thailand, and central and southern Laos.

Specimens examined: ***Hedychium neocarneum***: **China**, Yunnan Province, Simao Xian, 1,000-1,900 m, *Y.Y. Qian* 1832 (holotype SMAO). **Laos**, Champasak, 900 m, 25 viii 2007, *P. Wongsuwan* 55 (BKF). **Thailand**, Changwat Nan, Doi Phu Kha National Park, 1,500 m, 16 ix 1999, *P. Srisanga & Puff.* 1090 (QBG); same locality, 23 ix 2000, *P. Srisanga* 1660 (QBG); same locality, 5 ix 2001, *P. Srisanga* 2152 (QBG); same locality, 1,400 m, 21 viii 2001, *P. Srisanga & C. Maknoi* 2003 (QBG); Changwat Loei, Phu luang Wildlife Sanctuary, 1,000-1,500 m, 29 ix 2007, *P. Wongsuwan* 59, 60, 13-in spirit (BKF); Phu Ruea National Park, 1,000-1,500 m, 26 vii 2008, *P. Wongsuwan* 73, 22-in spirit (BKF); same locality, 2 viii 2009, *P. Wongsuwan* 112 (BKF). ***Hedychium gardnerianum***: Cultivated material: Kew, 28 viii 1987, *Schilling* 2623 (K). ***Hedychium stenopetalum***: **Bhutan**. 17 viii 1926, *F.K.W.* 7307 (K ). **India**, Eastern Circle, Shillong, 17 xii 1969, *J. Joseph* 48802 (CAL). **Vietnam**, Ha Giang, 4 x 1999, *NTH* 3277 (K); Tonkin, 30 xii 1937, *E. Polilane* 26943 (P); Annam, Kontum, 14 vi 1924, *E. Poilane* 10924 (P); same locality, 21 xii 1946, *E. Poilane* 35994 (P). **Laos**, Pakson, 17 ix 1928, *E. Poilane* 15593 (P); same locality, 11 xi 1938, *E. Poilane* 28359 (P). **Thailand**. Changwat Mae Hong Son, Pang Mapha, 4 ix 2008, *P. Wongsuwan* 96 (BKF), 47-inspirit (BKF); Changwat Chiang Mai, Doi Sutep, 22 ix 1912, *A.F.G. Kerr* 2699 (K); same locality, 4 vii 1912, *A.F.G. Kerr* 2632 (K); Doi Phra Kao, 1,500 m, 18 viii 1931, *H.B.G. Garrett* 696 (K); Ban Pha Mon, 2 x



臺灣大學學術期刊資料庫

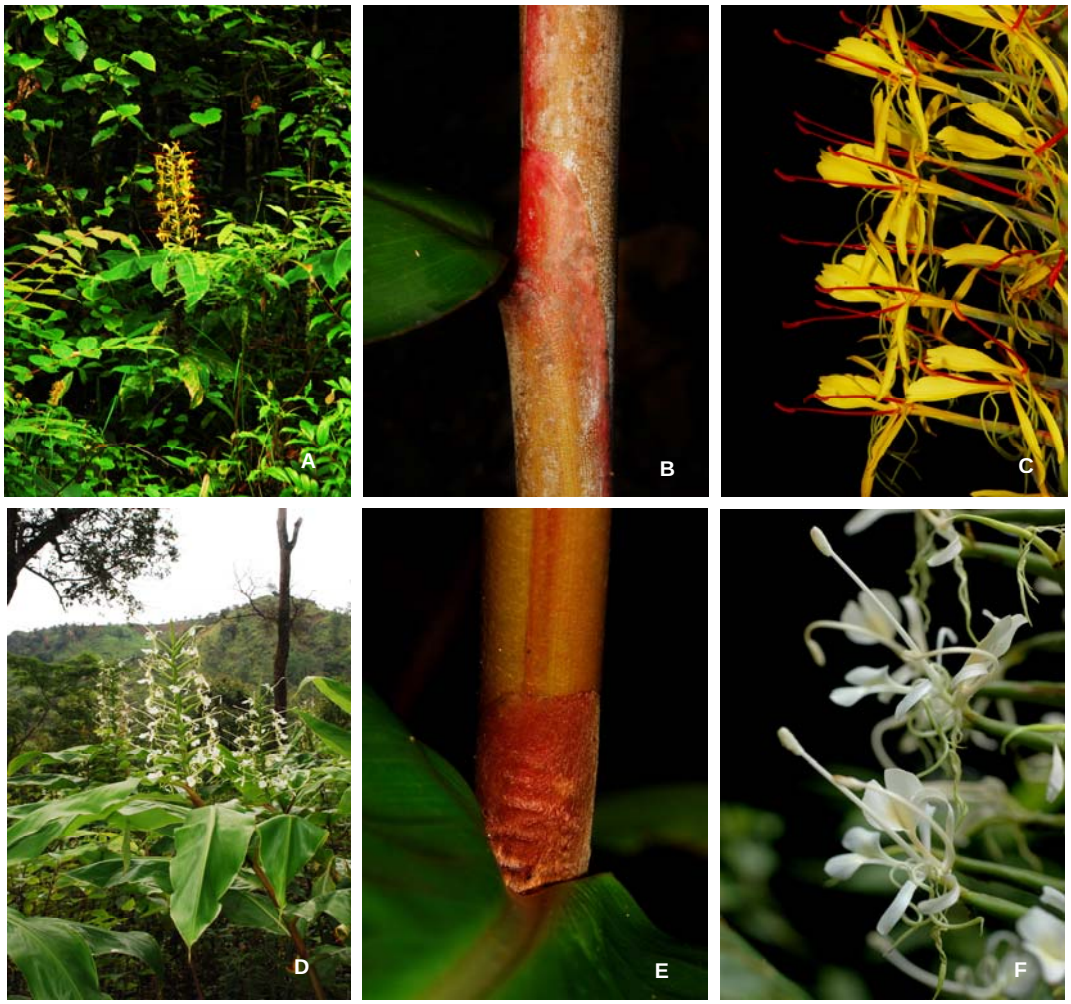



**Fig. 5. A-C: *Hedychium gardnerianum* Sheppard ex Ker Gawl. A: The plant habit. B: A ligule. C: Close-up of flowers. D-F: *H. stenopetalum* Lodd. D: The plant habit. E: A ligule. F: Close-up of flowers. Photographed by *Chayan Picheansoonthon* (A-C) and *Pornpimon Wongsuwan* (D-F).**

1971, *J.E. Vidal* 5287 (P); Mae Tang, 1,200-1,450 m, 7 xii 1977, *T. Santisuk* 1525 (K); Mae Sa, 1,300-1,400 m, 18 ix 1995, *K. Larsen, S.S. Larsen, C. Tange & D. Sookchaloem* 46651 (BKF); Mae Sa valley, 900-1,000 m, 19 x 1998, *P. Sirirugsa* 1177 (PSU); Siriphum waterfall, 12 viii 2007, *P. Wongsuwan* 48 (BKF); Chiang Mai, Mae rim, Pong Yang, 10 viii 2008, *P. Wongsuwan* 78 (BKF), 36-inspirit (BKF); Doi Angkhang, 10 vii 2008, *P. Wongsuwan* 80 (BKF), 40-inspirit (BKF); same locality, 26 ix 2009, *P. Wongsuwan* 114 (BKF); Changwat Tak, Lan Sang National Park, 21 iv 1985, *C. Niyomcham* 914 (K).

## ACKNOWLEDGEMENTS

This research project is a part of the five-year project entitled “Studies on fundamental botanical knowledge and DNA fingerprints of the Thai medicinal Wan”, financially supported by the Thai Traditional Medical Knowledge Fund of the Ministry of Public Health. The authors would like to thank Dr. J. F. Veldkamp (Leiden) for the Latin diagnosis; donating the living specimens; staffs of BK, BKF, QBG, PSU, Mr. Poonsak Watcharakorn for sharing information and K, P and SING for herbarium accesses; head and staffs of Klong Naka Wildlife Sanctuary (particularly the Kampuan Unit) for making our fieldtrips possible; and staffs of our research unit: Mr. Chalermchoke Boonchit, Mr. Supachai Koonterm, Mr. Jeeradej Mayoe, Mr. Piyapong Yupparach, for field assistance.

## LITERATURE CITED

**Holttum R. E.** 1950. Zingiberaceae of the Malay Peninsula. The Gardens’ Bulletin (Singapore) **13**: 72-78.

**Larsen K. and S. S. Larsen.** 2006. Gingers of Thailand. Chiang Mai: Queen Sirikit Botanic Garden. pp. 68-74, 165.

**Picheansoonthon C. and P. Mokkamul.** 2005. Two new species of *Hedychium* Koenig (Zingiberaceae) from Thailand. Folia malaysiana **6**: 17-26.

**Picheansoonthon C. and P. Wongsuwan.** 2008. Note on the genus *Hedychium* J. König (Zingiberaceae) in Thailand. J. Royal Inst. Thail. **43**: 237-252.



臺灣大學學術期刊資料庫

**Picheansoonthon C. and P. Wongsuwan.** 2009. Two new species of *Hedychium* (Zingiberaceae) from Thailand. J. Jpn. Bot. **84**: 330-337.

**Ridley H. N.** 1924. Flora of the Malay Peninsula. Volume 4. London: L. Reeve & Co., Ltd. pp. 233-285.

**Sirirugsa P. and K. Larsen.** 1995. The genus *Hedychium* (Zingiberaceae) in Thailand. Nord. J. Bot. **15**: 301-304.

**Wongsuwan P.** 2010. Taxonomy and molecular study of genus *Hedychium* (family Zingiberaceae) in Thailand. Master Thesis, The Graduate School, Khon Kaen University. 175 pp.

# 泰國蝴蝶薑屬（*Hedychium*, 薑科, Zingiberaceae）的新種及新紀錄種

**Chayan Picheansoonthon[1,2] and Pornpimon Wongsuwan[2]**

*1. The Academy of Science, The Royal Institute of Thailand, Sanam Suea Pa, Sriayudhaya Road, Khet Dusit, Bangkok 10300, Thailand.*

*2. Pharmaceutical Botany and Pharmacognosy Research Unit, Faculty of Pharmaceutical Sciences, Khon Kaen University, Khon Kaen 40002, Thailand.*

* 通信作者。*Email: chayan@kku.ac.th*

(收稿日期：2010 年 12 月 31 日；接受日期：2011 年 6 月 2 日)

摘要：本文提出泰國半島的一個新種 *Hedychium siamense*；並將過去僅知道分布中國南部的肉紅薑花（*H. neocarneum*）之分布範圍擴展到泰國和寮國人民民主共和國。兩種植物的完整描述及手繪圖均於文中呈現；並與其關係密切之物種進行討論。

關鍵詞：肉紅薑花、*Hedycium siamense*、新紀錄、新種、泰國、薑科。



臺灣大學學術期刊資料庫