Rhizomatous herbs; rhizome usually fleshy, sympodial, each element terminating in a leafy or flowering shoot. Leaf shoots with few to many blades, either arranged spirally and with tubular sheaths (Costoeideae) or distichously arranged, sheaths then usually open on opposite lamina (Zingiberoideae). Inflorescence occasionally surrounded by sterile bracts, terminal on leaf shoot or borne directly on rhizome at base of leaf shoot or remote from it. Flowers zygomorphic, hermaphrodite or (rarely) unisexual, solitary in axils of bracts or in cincinni, with or without bracteoles. Calyx tubular, often unilaterally split. Corolla tube usually slender; petals 3, often subequal. Labellum: (anterior staminode) often large and showy; lateral staminodes usually present, either as conspicuous petaloid organs (Zingiberoideae/Hedychieae) or as small subulate teeth (Zingiberoideae/Hedychieae) or as small subulate teeth (Zingiberoideae/Alpineae). Fruit fleshy berry. Seeds numerous (Zingiberoideae/Alpineae). Epigynous glands (stylodes) for at least half its length. Characters: subdivision of ovary, number of thecae, number of stamens, type of stamens, number of petals, number of staminodes, and type of ovary.

Over 40 genera and about 1000 species occurring mainly in the tropics of the Old World but with some representatives in South and Central America. Four genera, all belonging to the subfamily Zingiberoideae, are found in the African continent but only one, Siphonochilus (tribe Hedychieae), is native in the FSA area. Three species of Hedychium (tribe Hedychieae) and Alpinia zerumbet (tribe Alpineae) have become naturalised in certain areas.

The Zingiberaceae is notable for its spice plants and includes ginger, Zingiber officinale; cardamom, Elettaria cardamomum; and turmeric, Curcuma longa. Cultivated races of Curcuma are common in the Indian markets of KwaZulu-Natal and are not infrequent in gardens; they are used medicinally or powder from the tubers is used as a cosmetic.

### Key to species

1a Inflorescence borne separately from leaf shoot; flowers purple-pink, blotched with yellow in centre of labellum, sometimes unisexual

1. Siphonochilus

1b Inflorescence terminal on leaf shoot; flowers yellow and white or red and yellow, hermaphrodite

2a Inflorescence erect; corolla tube 50–90 mm long, slender, lateral staminodes petaloid

2. Hedychium

2b Inflorescence pendulous; corolla tube under 20 mm long; lateral staminodes reduced to small subulate teeth

3. Alpinia

### 1. Siphonochilus


*Cienkowskia* Schweinf.: t. 1 (1867), non Regel & Rach: 48 (1859).


*Cienkowskia* Y.K.Kam: 8 (1980).


Distributed from KwaZulu-Natal northwards to Ethiopia and the Nile lands and across the continent to Nigeria and the Gambia; also in equatorial West Africa. About 20 species have been described but the genus is badly in need of revision and the number is probably rather less. Two species are recorded from southern Africa.

*Siphonochilus* was raised partly on account of the unisexual flowers found in *Kaempferia natalensis*. This in itself is insufficient to warrant generic distinction but recent research has shown the separation of the African species from *Kaempferia* to be entirely justifiable. Spearing & Mahanty (1964) report that the African plants have a basic chromosome number of 14, that of Asiatic *Kaempferia* is 11. Morphologically, *Siphonochilus* differs in the absence of bracteoles, and in having lateral staminodes that are connate to the labellum for about half their length, non-ciliate rimmed stigma and stub-like rather than needle-shaped epigynous glands.

### Editor’s note

Hedychium coronarium and *Siphonochilus kirkii* have been added by Mrs C. Archer, with the author’s consent.

**Cienkowskiia aethiopica** Schweinf.: t. 1 (1867).

**Kaempferia aethiopica** (Schweinf.) Benth.: 642 (1883).

**K. ethelae** J.M. Wood: 94, t. 34 (1898); Wright 314 (1913); Marloth 167 (1915). Type: Cult. B.G. Durban, xi-1897, Wood 7667 (NH), originally from Mozambique, Vila de Manica (Massikessi), Benningfield.

**K. natalensis** Schlecht. & K.Schum. in K.Schum.: 72, fig. 10e, f (1904); J.M. Wood & Franks: 112 (1911c); Wright 315 (1913); Marloth 167, t. 53 (1915). Type: KwaZulu-Natal, Inanda, comm. viii-1879, Wood 544 (K!).


**Cienkowskiella aethiopica** (Schweinf.) Y.K. Kam: 10, t. 3 (1980).
Rhizome aromatic; fibrous roots bearing narrowly elongate tubers. Leaf shoots 300–1000 mm. Leaves 4–12, sessile, 300–400 × 50–90 mm (those at base of leaf shoot smaller), narrowly lanceolate, acuminate, glabrous; ligule 3–10 mm, membranous, entire; sheaths striate, glabrous. Inflorescences borne separately from leaf shoot, often precocious, basal part embedded in soil. Flowers 2–6, on a 10–20 mm bract-covered peduncle; floral bracts 25–30 × ± 15 mm, obtuse, glabrous; pedicels 10–20 mm long. Hermaphrodite flowers: calyx 20–30 mm, unilaterally split, shallowly 3-lobed, lobes rounded, sometimes with aristate point. Corolla tube white, 30–40 mm long, thick-walled. Petals white with pink tips, 60–80 mm long, lanceolate-acuminate. Leaf shoots smaller, narrowly lanceolate, acuminate, up to 170–310 × 55–100 mm. tapering at base into a false petiole up to 250 mm long (including leaf sheath); ligule obsolete; sheaths succulate when dry. Inflorescences 1–4, borne separately from leaf shoot; 1–(5–)20-flowered; peduncle 200–350 mm long, terete, glabrous; bracts greenish, oblong to narrowly obovate, obtuse, the lower up to 65 × 20 mm, the upper very much smaller, up to 22 × 12 mm. Flowers hermaphrodite. Calyx campanulate, 8–15 mm long, shallowly 3-lobed, each lobe with a subterminal subulate projection ± 1 mm long. Corolla tube ± 8 mm long; petals narrowly obovate to narrowly oblong, acute, 22–26 mm long, whitish, tinged with green or mauve. Labellum 3-lobed, lateral lobes rhomboid, mauve, ± 30 × 20 mm, median lobe broadly spathulate, emarginate, ± 45 × 45 mm, mauve with a central yellow mark with or without a dark purple mark on each side. Stamens ± 25 mm long; thecae ± 5 mm long, curved; connective prolonged into oblong petaloid crest, ± 15 × 6 mm. Ovary ± 6 mm long, trigonous; stigma peltate. Fruit obovoid, trigonous, winged at angles, crowned with remains of calyx. Seed whitish, trigonous, ± 5.5 × 3.0 mm, with basal elaiosome.

The description of the female flower is taken from Wood & Franks (1911a).

Occurs in Northern Province, Mpumalanga, Swaziland and KwaZulu-Natal (Figure 2). Widespread throughout tropical Africa. It seems likely that the species never occurred naturally in the Flora area but that it was introduced from tropical Africa and widely cultivated (Williams et al. 1996). In 19th century Natal, S. aethiopicus was often dug up and the tubers sold as horse medicine; nowadays it is found only in the vicinity of Zulu dwellings, where it was presumably originally planted. In traditionally Zulu practice the plant is used in the treatment of colds and chest complaints, to ward off snakes and lightning, and as a remedy for malaria. It is known as the Natal Ginger.

Vouchers: Hilliard & Bartt 6884A (E); Holt, NH 28507 (NH), Medley Wood, NH 11250 (NH).

S. aethiopicus is a very polymorphic species, size, colour and depth of the lobing of the labellum may vary within a single population and considerable variation occurs in tuber length and in the size of the ligule.

The type plant of Kaempferia natalensis had only female flowers; Wood & Franks (1911a), when establishing Siphonochilus, recorded hermaphrodite flowers to be rare. In other respects the Natal plants cannot be separated from their more northerly counterparts.

**2. Siphonochilus kirkii** (Hook. f.) B.L.Bartt in Notes from the Royal Botanic Garden Edinburgh 40: 372 (1982); Lock: 15, t. 4 (1985). Type: Tanzania, cult. at Kew, Kirk s.n. (K, holo.).

*Cienkowskia kirkii* Hook f.: t. 5994 (1872).
*Kaempferia kirkii* (Hook. f.) Wittm. & Perring: 57, t. 1364 (1892); Baker 294 (1898); K. Schum.: 68 (1904).


*K. montagui* F.M.Leight.: 57 (1932). Syntypes: Zimbabwe, nr Mazowe [= Mazowe], Montagu s.n. sub NBG88821 (NBG); Wise s.n. sub NBG3326 (NBG).

Roots bearing small fusiform tubers ± halfway along length. Leaf shoots 200–400 mm. Leaves 5–7, glabrous; lamina undevolved in basal 1–3 or ovate to elliptic acuminate, up to 170–310 × 55–100 mm, tapering at base into a false petiole up to 250 mm long (including leaf sheath); ligule obsolete; sheaths succulate when dry. Inflorescences 1–4, borne separately from leaf shoot; 1–(5–)20-flowered; peduncle 200–350 mm long, terete, glabrous; bracts greenish, oblong to narrowly obovate, obtuse, the lower up to 65 × 20 mm, the upper very much smaller, up to 22 × 12 mm. Flowers hermaphrodite. Calyx campanulate, 8–15 mm long, shallowly 3-lobed, each lobe with a subterminal subulate projection ± 1 mm long. Corolla tube ± 8 mm long; petals narrowly obovate to narrowly oblong, acute, 22–26 mm long, whitish, tinged with green or mauve. Labellum 3-lobed, lateral lobes rhomboid, mauve, ± 30 × 20 mm, median lobe broadly spathulate, emarginate, ± 45 × 45 mm, mauve with a central yellow mark with or without a dark purple mark on each side. Stamens ± 25 mm long; thecae ± 5 mm long, curved; connective prolonged into oblong petaloid crest, ± 15 × 6 mm. Ovary ± 6 mm long, trigonous; stigma peltate. Fruit obovoid, trigonous, winged at angles, crowned with remains of calyx. Seed whitish, trigonous, ± 5.5 × 3.0 mm, with basal elaiosome.

Note: the above description is based on Lock (1985).

Occurs in the Caprivi Strip, Namibia (Figure 2). Widespread throughout tropical Africa.

Vouchers: Hardy 7110 (PRE), Killick & Leistner 3016 (PRE).
Hedychium J. König in Retz., Observationes botanicae 3: 73 (1783); Benth. & Hook.f.: 642 (1883); K.Schum.: 40 (1904). Type species: Hedychium coronarium J. König.

Plants up to 3 m tall. Inflorescence terminal on a frond-like leaf shoot; bracts broad and imbricating and concealing main axis or narrow and enfold ing flowers. Flowers 1–6 per bract, each subtended by a tubular bracteole. Corolla tube long, slender, usually exceeding calyx. Petals strap-shaped. Labellum: narrowed at base with a conspicuous, usually bilobed limb; lateral staminodes petaloid; filament usually long and slender; anther connective cre stance. Ovary trilocular with axile placation. Fruit globose or oblong, often bright red or orange within.

About 45 species, mainly eastern Himalayan, but a few known from southern India, Thailand, Malaysia and Indonesia. Several are widely cultivated throughout tropical and subtropical zones and are valued for their perfume and prolific flowers.

Key to species

1a Bracts broad and imbricating, concealing main axis; petaloid parts white or yellow, filament white or yellow.
1b Bracts narrow, not concealing main axis; petaloid parts yellow, filament bright red.

2a Flowers yellow; stamen longer than labellum
2b Flowers white or yellow; filament white or yellow.

3. HEDYCHIUM

Hedychium flavescens (L.) Willd.

Plants 2–3 m high. Leaves sessile, up to 600 × 80 mm, lanceolate-acuminate, lightly pubescent below, ligule 10–20 mm, entire, pubescent. Inflorescence up to 200 × 80 mm; bracts 50 × 35 mm, broadly ovate, rather obtuse, membranous at margins, unevenly pubescent. Flowers yellow. Calyx up to 45 mm, pubescent, unilaterally split. Corolla tube ± twice length of calyx. Petals linear, ± 40 × 20 mm. Labellum: broadly obovate, narrowed at base, bilobed above, 80 × 25 mm at broadest part; lateral staminodes 25–30 mm, spathulate. Stamen up to 40 mm long. Ovary silky pubescent. Fruit.

H. flavescens is native to the eastern Himalayas. As a garden escape it has become naturalised in many countries and has been found in the Pietermaritzburg area.

3. Hedychium gardnerianum Ker Gawl.

This very handsome species is also a native of the eastern Himalayas. The sweetly scented inflorescence is the largest found in Hedychium. It is naturalised around Kloof, inland from Durban.

3. ALPINIA Roxb.


Plants up to 120 mm tall, more usually 2–4 m. Inflorescence terminal on a frond-like leaf shoot. Flowers borne singly or in cincinni; bracts and/or bracteoles present or not. Labellum: often showy, lateral staminodes present as small subulate teeth or reduced to small swellings or absent; anther connective crested or not. Fruit usually spherical.

A large genus of at least 200 species widely distributed throughout SE Asia with representatives in Queensland and Japan.

1. Alpinia zerumbet (Pers.) B.L.Burtt & R.M.Sm.

Vouchers: Rhind s.n. (PRE); Schlieben & Mendelsohn 12618 (cultivated) (PRE).

H. coronarium is widely cultivated in the tropics and subtropics. It has become naturalised in the Pietermaritzburg area (Figure 2), the seeds being dispersed by birds.
Plants up to 3 m. Leaves sessile or shortly petiolate, up to 600 × 100 mm, lanceolate acuminate, margins pubescent, undersurface sometimes so; ligule pubescent. Inflorescence pendulous, up to 300 mm long, axis pubescent. Flowers white red and yellow, borne in 2-flowered cincinni; bracts absent; bracteoles glistening white with pink tips, open to base but encircling flower buds, quickly deciduous. Corolla tube shorter than 20 mm calyx. Petals white, dorsal much broader than laterals. Staminodes: labelllum up to 40 mm long, broadly ovate, bifid at apex, yellow, mottled and striped with red; lateral staminodes slender, subulate, up to 10 mm long; anther massive, ecristate. Ovary densely pubescent. Fruit spherical, up to 20 mm diam., orange.

A. zerumbet, the Shell Ginger, is found in tropical gardens all over the world. It is probably truly native to NE India, Burma and Indo-China. It is reported to have escaped from gardens in the Hluhluwe area of Zululand.

Excluded species

Kaempferia stenopetala K.Schum. in Das Pflanzenreich Heft 20 Zing. 69 (1904); Wright: 314 (1913).

This name was based on an unlocalised collection from Natal (Medley Wood 1942: K!). It is almost certainly the Asiatic K. rotunda L. widely cultivated in the east to those found in Asia. It has not been found elsewhere.

REFERENCES


