Poaceae

Annual to perennial herbs, shrubs, or (bamboo) trees. Stems (culms) solitary or clumping, simple or branched, often with creeping rhizomes or stolons. Leaves in two ranks, narrow, with usually open sheath, sessile or (bamboo) shortly petiolate. Inflorescence a spike, raceme or panicle of spikelets; spikelets of 2 to numerous flowers (florets) subtended by hyaline scales; florets bisexual or unisexual, the sepals and petals absent and replaced by 2-3 rudimentary lodicules; scales of floret comprising an outer bract (lemma) and an inner bract (palea), the whole spikelet with the 2 lowermost bracts (glumes) empty. Stamens (1-) 3 (-6). Ovary 1-celled; ovule one. Fruit a 1-seeded grain (caryopsis).


_Cymbopogon nardus_ (Linnaeus) Rendle from Sri Lanka, known as CITRONNELLE or CITRONELLA GRASS, is a clumping plant to 2 m with a very congested, usually interrupted panicle; it is infrequently grown as an ornamental in private gardens in French Guiana (de Granville, 1985).

*Key to Genera*

1. Herbs with fragile stems, not woody, reed-like or cane-like; inflorescence of 2 spike-like racemes; stamens 3
   
   3. _Ischaemum_

1. Shrubby or tree-like plants, often woody, with reed-like or cane-like stems; inflorescence a panicle; stamens 2 or 6.
   
   2. Leaves alternate, uniformly distributed along the stem; internodes of stem often hollow; inflorescence a full-round panicle; flowers bisexual; stamens 6 1. _Bambusa_
   
   2. Leaves arranged in a distichous fan near apex of the stem; internodes of stem solid; inflorescence with secund branches, i.e. branches produced only on one side of inflorescence-axis; flowers unisexual, the plants monoecious; stamens 2

1. _Bambusa_ Schreber

Perennial clumping plants from thick rhizomes. Stems (culms, canes) woody, cylindrical, jointed, with hollow or solid internodes, erect, sometimes spinose. Leaves with sheathing base and short petiole, narrow, the leaf-blade jointed at insertion on sheath. Inflorescence a panicle; flowers (florets) borne in spikelets which are often clustered in glomerules on the panicle-branches. Spikelets sessile, 2- to many-flowered, comprising either bisexual or unisexual florets; glumes small; rachilla jointed below the florets. Stamens 6. Fruit a one-seeded grain (caryopsis).

Fig. 258. *Bambusa vulgaris* (Poaceae).
Key to Species

1. Plants dwarf to shrubby; culms 3-5 (-9) m x 2-3 m, with almost solid internodes; panicle lax, with few spikelets; spikelets 3- to 5-flowered; auricles of leaf-sheaths absent

   1. B. glaucescens

1. Tall trees; culms to 18 m x 12.5 cm, with hollow internodes; panicle ample, with many spikelets; spikelets 4- to 12-flowered; auricles of leaf-sheaths present, large

   2. B. vulgaris

1. Bambusa glaucescens (Willdenow) Siebold ex Munro, Transactions of the Linnean Society of London 26: 89 (1868). (Synonyms: B. multiplex sensu auth., non (Loureiro) Raeuschel ex J.A. and J.H. Schultes, B. nana Roxburgh). DWERGBAMBOE (Surinam); HEDGE BAMBOO, ORIENTAL HEDGE BAMBOO. Plants dwarf to shrubby. Culms much-branched from the base, 3-5 (-9) x 2-3 cm, unarmed. Leaves linear or linear-lanceolate, to 18 x 1.6 cm. Panicle lax, with few spikelets; spikelets 3- to 5-flowered.

   Range: Asia. A dwarf cultivar is grown as an ornamental in the Promenade Gardens, Georgetown, Guyana; taller plants are grown in Surinam (Ostendorf, 1962).

2. Bambusa vulgaris Schrader ex J.C. Wendland, Collectio Plantarum 2(2): 26, t.47 (1808). SURINAAMSE BAMBOE (Surinam), PRING GADING (Surinamese Javan); BAMBOU (French Guiana); COMMON BAMBOO. Tall trees. Culms branched, to 18 m x 12.5 cm, unarmed. Leaves linear-lanceolate, to 25 x 3.5 cm. Panicle ample, with many spikelets; spikelets 4- to 12-flowered.

   Range: Asia. Typical green-stemmed plants, as well as var. striata Gamble with stems striped with yellow-green, are cultivated in Surinam (Ostendorf, 1962). Green-stemmed colonies occur as ornamental and shade plantings along hotel roads in Cayenne, French Guiana.

2. Gynernium Willdenow ex Palisot de Beauvois

Dioecious perennial reeds from creeping rhizomes. Stems clumping, solid, becoming woody, often branching from the base. Leaves sheathing, narrow, forming an ascending, distichous fan at apex of culms. Inflorescence a terminal, plumose panicle with branches drooping and secund on the main rachis at maturity. Spikelets several-flowered; lemmas of the pistillate flowers silky, of the staminate spikelets glabrous. Stamens 2. Fruit a one-seeded grain (caryopsis).

1. Gynernium sagittatum (Aublet) Palisot de Beauvois, Essai d'une Nouvelle
Fig. 259. *Gynerium sagittatum* (Poaceae).
Fig. 260. *Saccharum officinarum* (Poaceae).
Agrostographie 138, t.26, fig.6 (1812). (Synonym: G. saccharoides Humboldt & Bonpland). ROSEAU FLECHE (French Guiana); WILD SUKERRIET, INDIAANSCH PIILGRAS, PEIRI, PIILRIET (Surinam); KAMAROEA (Surinamese Carib); WILD CANE, ARROW GRASS. Culms (stems) with persistent, imbricate leaf-sheaths below, to 10 m x 2.5 cm. Leaves linear-lanceolate, serrulate, to 2 m x 6 cm, forming an ascending, distichous fan at apex of culms. Panicle densely flowered, c. 90-180 cm, the branches drooping and secund on the main rachis at maturity.

Range: West Indies, Mexico, Central and South America, including the three Guianas. Grown as an ornamental at the Promenade Gardens and occasionally as an ornamental dooryard accent plant in Georgetown, Guyana; and infrequently in private gardens in French Guiana (de Granville, 1985A).

This plant is a tall, cane-like grass which superficially resembles sugar cane (Saccharum officinarum Linnaeus). Sugar cane, which is cultivated in the Guianas, has leaves fairly well distributed along the stem rather than all in a discrete fan at the stem-apex, and a full-round (not secund) panicle.

3. Ischaemum Linnaeus

Perennial or sometimes annual, tufted, erect or creeping plants from long stolons. Stems (culms) branching, sometimes decumbent at the base. Leaf-sheaths compressed, open, with small ligule; leaf-blades narrow. Inflorescence terminal or axillary, of spike-like racemes which may be solitary, fasciculate or digitate, fragile, compressed; spikelets paired, one sessile and one pedicellate, 2-flowered; sessile spikelet with 4 glumes, the second and fourth glume awned or awnless, the third glume awned, the first lemma enclosing a male floret, the second lemma enclosing a bisexual or female floret; pedicellate spikelet similar or reduced. Stamens 3. Fruit a 1-seeded caryopsis.

1. Ischaemum indicum (Houttuyn) Merrill, Journal of the Arnold Arboretum 19(4): 320 (1938). (Synonym: I. ciliare Retzius). INDIA DUCK-BEAK GRASS. Perennial. Stems (culms) geniculate or ascending, rooting at the lower nodes, 15-90 cm. Leaves linear-lanceolate, pubescent, 5-30 x 5-7.5 cm. Racemes 2(3-4), 3-6.5 cm; spikelets to 4.5 mm, the lower lemma c.3.5 mm, keeled, cleft at apex, with an awn 8-12 mm.

Range: India, Sri Lanka; Southeast Asia to Fiji. Used for a short lawn grass at the Botanic Gardens, Georgetown, Guyana. As noted by A.C. Smith, Flora Vitiensis Novae (1979), there are large and small forms of this variable plant, which is "a useful pasture and lawn grass, but is sometimes a weed of cultivation. However, it smothers weeds and therefore is useful for pastures when management standards are low."

Pontederiaceae

Perennial aquatic or semi-aquatic herbs, free-floating or rooted to substrate. Leaves in a basal rosette, or alternately to spirally arranged along a stem, sheathed, petiolate, the petiole sometimes inflated. Inflorescence a terminal spike, raceme or panicle. Flowers bisexual, regular or irregular (zygomorphic); perianth of 6 segments united at the base into a tube and with 6 spreading lobes above. Stamens (3) 6; filaments borne on perianth-tube.
Fig. 261. *Eichhornia crassipes* (Pontederiaceae).
Ovary superior, (1-) 3-celled. Fruit a loculicidal capsule with numerous seeds, or a dry indescent, 1-seeded structure.

1. *Eichhornia* Kunth

Floating or partly submerged, perennial aquatic herbs, often forming plantlets at the tips of stolons. Leaves in a basal cluster; petioles sometimes inflated. Inflorescence a terminal spike or panicle. Flowers bisexual, slightly irregular, funnelform, with a tubular base and a limb of 6 spreading perianth-segments. Stamens 6, unequal, often 3 short and 3 long, the filaments glandular-pubescent. Ovary superior, 3-celled. Fruit a capsule; seeds many.

1. *Eichhornia crassipes* (Martius) Solms-Laubach in A. and C. DeCandolle, *Monographiae Phanerogamarum* 4: 527 (1883). WATER HYACINTH. Floating plant with feathery fibrous root system and thick stolons. Petioles markedly inflated and bulbous at the base, to 33 cm; leaf-blades ovate to orbital or reniform, shining, to 16 x 14 cm. Inflorescence a loosely many-flowered spike of 6-35 flowers, to c.35 cm. Flowers glandular-pubescent outside, to c.6 x 5-10 cm, violet or bluish-purple, the upper perianth-segment (lobe) with a darker violet patch with a yellow center.

Range: Tropical America, including the three Guianas. Grown as an ornamental at the Botanic Gardens, Georgetown, Guyana.

This plant can become a weed in situations where its multiplication is unrestricted. It is a freshwater plant which cannot for long physiologically tolerate either brackish or salt water. As noted by Otto Degener in *Flora Hawaïensis* (1946), "Actually three types of plant occur: one bears short styles and 3 medium size and 3 long stamens; another bears medium size styles and 3 short and 3 long stamens; the third bears long styles and 3 short and 3 medium size stamens."

An undetermined species of *Pontederia* Linnaeus, which has non-inflated petioles, occurs in pools at the Botanic Gardens, Georgetown, Guyana. If an indigenous plant it may be either *P. rotundifolia* Linnaeus or *P. subovata* (Seubert) Lowden, *Rhodora* 75(803): 478 (1973).

**Strelitziaceae**

Perennial, caespitose, rhizomatous herbs, or trees with woody, ringed trunks. Leaves simple, distichous or nearly so, glabrous, long-petiolate. Inflorescence terminal or lateral (axillary), shortly to long-pedunculate, of a racemiform axis bearing monochasial cymes resembling spikes of flowers enclosed in large, boat-shaped bracts. Flowers bisexual, individually bracteolate, slightly to strongly irregular (zygomorphic); perianth-segments 6; sepals 3, free or partly fused; petals 3, of which 2 are sometimes fused. Stamens 5 or 6; anthers linear. Ovary inferior, 3-celled. Fruit a loculicidal, 3-valved, woody or leathery capsule; seeds numerous, with aril of tufted orange or blue hairs.

Key to Genera

1. Flowers orange and dark purple; woody trunk absent

3. Strelitzia

1. Flowers white, cream or greenish-white; woody trunk sometimes present at maturity.
2. Inflorescence terminal, long-pedunculate, much longer than the leaves

1. Phenacospermum

2. Inflorescence axillary, subsessile or shortly pedunculate, shorter than the leaves

2. Ravenala

1. Phenacospermum Endlicher

Caespitose herbs, a hard woody stem rare or absent. Leaf comprising a short basal sheath, petiole and blade; leaves distichous, borne in an apical cluster; leaf-blades entire, banana-like. Inflorescence terminal, erect, usually long-pedunculate, with alternate, conspicuous, boat-like bracts subtending spikes of flowers; individual flowers within each bract subtended by a bracteole. Flowers bisexual, irregular (zygomorphic); outer segments or sepals 3, with 2 partly fused and 1 free; inner segments or petals 3, with 2 partly fused and 1 free. Stamens 5, free. Ovary inferior, 3-celled. Fruit a 3-valved, loculicidal capsule; seeds many, arillate; aril a dense tuft of orange-red filaments.

1. Phenacospermum guyannense (L.C. Richard) Endlicher ex Miquel, Botanische Zeitung 3: 345 (1845). (Synonym: Ravenala guyannensis (L.C. Richard) O.G. Petersen). ACAROUANY, BANANIER SAUVAGE (French Guiana); HARITSI (Surinamese Arawak); GROTE PALEOELOE, PALEOELOE (Surinamese Creole). Clumping, large herb or tree up to 12 m, acaulescent or with trunk to 3 m x 15 cm. Leaves with petiole to 150 cm, and elliptical leaf-blade to 300 x 75 cm. Inflorescence to 3 m, including the shaft-like peduncle. Bracts (spathes) c.3-8 per inflorescence, to c.45 cm, green or greenish-yellow. Flowers opening at night, creamy-white, to 28 cm. Stamens 5. Capsule to 20 cm, hard, cylindrical. Seeds black, with red aril.

Range: Tropical South America, from Bolivia to the three Guianas. Grown as a specimen planting in Guaya at the Botanic Gardens, Georgetown (Ted Hubbard, pers. comm., 1985); as an ornamental on grounds of a private farm near Timhehi, Guaya; in Laluni, Guyana (Ramsaroop, 1988); and (flowering in 1990) in an enclosed courtyard of the casino renovation area of the Torarica hotel, Paramaribo, as well as grouped in ornamental settings within several fenced roadside farm gardens near Zanderij Airport, Surinam.

Old inflorescences are sometimes used in dry floral arrangements in Surinam (Dr. Marga Werkhoven, pers. comm., 1989).

Fig. 262. *Phenakospermum guyannense* (Strelitziaceae).
The stems of *Phenakospermum* die after fruiting (Anonymous, 1986), but the plant can be propagated by division of the young plants or suckers formed at the base of the clump, as well as by seeds. It is a species which often occurs in secondary successional communities at forest edges, and its size, small or large, is believed to depend on ecological conditions (J. Zarucchi, pers. comm., 1983). Plants having a ligneous trunk and foreshortened peduncle were separated into the genus *Musidendron* Nakai (1948), which was not maintained by later botanists. Studies on the nocturnal pollination of *Phenakospermum* by bats in French Guiana have been conducted by Dr. W. John Kress, Smithsonian Institution, Washington, D. C. (Kress, 1991). The chromosome number has been determined by Dr. Peter Goldblatt, of the Missouri Botanical Garden, St. Louis, to be the same as its close relative *Ravenala* (2n=22).

The correct spelling of the specific epithet of this plant, "guyannense", is often ignored in favor of the more familiar spelling "guianensis" or similar orthographic variants.

*Phenakospermum* was stocked for sale in the nursery of the Botanic Gardens, Georgetown, Guyana in 1887 (Jenman, 1888). It was only sparingly grown in European glasshouses and conservatories of the 1800's (Lemaire, 1860), and it remains only occasionally grown outdoors in tropical botanical gardens, such as Bogor, Java (1957); Kaneoke, Hawaï (1984); Waimea, Hawaï (1986); the garden of Roberto Burle-Marx, Rio de Janeiro, Brazil; and the Jardim Botanico, Rio de Janeiro. It is worthwhile to note that this species, which exhibits an ornamental potentiality still in the infancy of recognition, is grown elsewhere at Marie Selby Botanical Gardens (Sarasota, Florida); National Aquarium (Baltimore, Maryland); Farms of Costa Flores, Costa Rica; Flamingo Gardens (Fort Lauderdale, Florida); Bill Harris residence at Castaways, Mero in Dominica (plant grown from seed collected on the Adrian Thompson flower-farm near Timehri, Guyana in 1985 by R. DeFilipps); and, as of 1975, at Longwood Gardens, Kennett Square, Pennsylvania (Longwood Gardens, 1975). Grown for experimental studies by Dr. W. John Kress at the greenhouse of the Department of Botany, National Museum of Natural History, Smithsonian Institution, and at the U.S. National Botanical Garden in Washington, D.C., at the present time.

2. *Ravenala* Adanson

Caespitose trees with palm-like trunk. Stem (trunk) simple, ringed. Leaf comprising a basal sheath, in a flattened, fan-shaped, semi-circular crown; leaf-blades entire, banana-like, usually frayed by the wind. Inflorescence an axillary, shortly pedunculate racemiform axis with distichous, conspicuous, boat-like bracts subtending spikes of flowers; individual flowers within each bract subtended by a bracteole. Flowers bisexual, irregular (zygomorphic); outer segments or sepals 3, free, equal in size; inner segments or petals 3, free, with 2 petals longer and similar to the sepals, and 1 shorter petal. Stamens 6, free. Ovary inferior, 3-celled. Fruit a 3-valved, loculicidal capsule; seeds many, arillate; aril blue.

1. *Ravenala madagascariensis* Sonnerat, *Voyage aux Indes Orientales* 3: 223 (1782). TRAVELLER'S TREE; ARBRE DU VOYAGEUR (French Guiana);
Fig. 263. *Ravenala madagascariensis* (Strelitziaceae).
Fig. 264. *Ravenala madagascariensis* (flower) (Strelitziaceae).
Fig. 265. *Ravenala madagascariensis* (habit) (Strelitziaceae).
REIZIGERSBOOM, WAAIERPALM, WAAIERPISANG (Surinam). Stems clumping, 9-12 (-18) m x c.30 cm. Leaves to c.3 m or more, comprising basal sheath c.60 cm, petiole 90 cm - 1.5 (-3) m, and elliptical leaf-blade 1.2-2.1 (-3) m; leaf-sheaths closely pressed together at core of the spreading fan of leaves. Inflorescence to c.60 cm. Bracts (spathes) c.7-9 (-12) per inflorescence, c.17.5 cm, pale green. Flowers whitish, 15-20 cm. Stamens 6, 10-12.5 cm. Capsule to 10 cm, hard, cylindrical. Seeds black, with blue aril.

Range: Madagascar. Grown as an ornamental at the Promenade Gardens and several places elsewhere in Georgetown, Guyana; in numerous roadside gardens, as well as on hotel and university grounds in Paramaribo and on grounds of CELOS buildings at Leysweg, Surinam; and in Cayenne, French Guiana.


Tropical gardeners often thin out a clump of suckers (young plants) until only one individual remains, which is cultured as a specimen tree. In contrast to Phenakospermum, the stem of Ravenala does not die back after the formation of the infructescence. The seeds of this bird-pollinated plant are edible. The base of the leaf-sheath collects potable water which reportedly was, in the early days of African exploration, tapped and drunk by thirst-maddened travellers wielding sharpened sticks.

3. Strelitzia Aiton

Perennial herbs, with palm-like woody trunks or acaulescent and rhizomatous. Leaves 2-ranked (distichous), terminal or all nearly basal, petiolate, often somewhat glaucous; sheaths open, partly clasping. Flowers in a terminal or lateral inflorescence comprising a 1- to 5-bracteate scape with 1 or a few cincinni of flowers inside; largest bract (spathhe) boatshaped, rigid; flowers appearing successively. Flowers bisexual, irregular (bilateral symmetry, zygomorphic); sepals 3, conspicuously colored and displayed in the form of a spreading bird’s crest, free, keeled; petals 3, with 1 small, and 2 united into an arrow-shaped structure ("tongue") enclosing stamens and style; stamens 5, anthers long-linear. Ovary inferior, 3-celled; style 3-parted into slender divisions at apex. Fruit a 3-celled, leathery capsule; seeds numerous, with aril of matted hairs.

1. Strelitzia reginae Aiton, Hortus Kewensis 1: 285, t.2 (1789). BIRD OF PARADISE, CRANE FLOWER. Plant to c.0.9-1.5 (-2.4) m, clumping, acaulescent. Petiole 25-100 cm; leaf-blades ovate to oblong-lanceolate, often undulate in the lower half, glaucescent beneath, 22-50 x 10-25 cm. Inflorescence-bract usually 1, green with purple or reddish margin, to 20 cm. Flower with 3 lanceolate, orange sepals c.7.5 cm, and arrow-shaped, azure blue or purplish-blue "tongue" of fused petals c.7.5 cm; smallest inner perianth-segment (petal) blue. Seed black, with aril of orange tufted hairs.

Range: East coast of southern Africa, from Patensie to Zululand. Grown as an ornamental at the Botanic Gardens, Georgetown (introduced via Cuba), and on private
Fig. 266. *Strelitzia reginae* (Strelitziaceae).
flower-farm grounds near Timehri, Guyana. Grown as an ornamental at the Gravenberch family property in Distrikt Para, Surinam, the plants introduced from Washington, D.C. in 1990 by Robert DeFilipps.


This bird-pollinated plant is named in honor of Charlotte, Queen of England and wife of King George III; she was, prior to marriage, Princess Sophie Charlotte of the house of Mecklenburg-Strelitz, in northern Germany. The queen was a devotee of botanical art and pastimes; her granddaughter, Princess Alexandrina Victoria of Kent, eventually ruled the British Empire as Queen Victoria, Empress of India.

Experiments on horticultural improvement of S. reginae were conducted in Italy by Bensa (1952), who calculated various correlations between superior flower production and factors of length and width of leaf-blade and petiole.

Strelitzia reginae was used at Kew in 1898 as the female parent in an artificial hybrid cross with S. alba (Linnaeus fil.) Skeels (Synonym: S. augusta Thunberg), one of the three white-flowered, tree-like species from South Africa (the others being S. nicolai Regel & Koernicke and S. caudata Dyer). The resulting hybrid plant was named Strelitzia x kewensis S.A. Skan, Kew Bulletin of Miscellaneous Information 1910: 65 (1910), and was c.3 m tall with sepals of a pale ochre yellow color and blue petals (Anonymous 1913, 1916).

Zingiberaceae

Perennials from often thickened rhizomes. Stems not branched. Leaves 2-ranked (distichous); sheaths open, tubular at base. Inflorescence a terminal spike, panicle or head, at apex of a leafy stem or arising on a separate peduncle from the subterranean rhizome, bracteate or without bracts. Flowers bisexual, bilaterally symmetrical (zygomorphic); perianth-segments 6; calyx of 3 sepals in a 3-lobed tube; corolla of 3 petals in a 3-lobed tube. Fertile stamen 1, not petaloid; sterile stamens (staminodes) present or absent, often the terminal one formed into a petaloid labellum, and the lateral ones petaloid or not.
Ovary inferior, 1- to 3-celled; ovules numerous. Fruit a capsule, or berry-like and indehiscent; seeds arillate.


Key to Genera

1. Inflorescence terminal on a leafy stem.
   2. Inflorescence an open, sometimes pendent raceme, the bracts prominent and red or pinkish, or absent; lateral staminodes small or absent
      1. Alpinia
   2. Inflorescence a dense spike, the bracts green; lateral staminodes petaloid
      3. Hedychium

1. Inflorescence terminal on a separate, leafless shoot.
3. Plant nearly acaulescent; inflorescence subsessile; leaves purple beneath; labellum lilac
   4. Kaempferia

3. Plant with tall stems; inflorescence on a peduncle up to 2m; leaves green beneath; labellum red or yellow.
   4. Bracts green when young, red with green margin when mature; corolla white or yellowish; labellum yellow; peduncle to 45 cm
      5. Zingiber
   4. Bracts red with white margin, or pink; corolla red; labellum red with yellow margin; peduncle to 2 m
      2. Etlingera

1. Alpinia Roxburgh

Perennials from rhizomes. Stems simple. Leaves 2-ranked (distichous). Inflorescence a terminal spike, raceme or panicle; bracts present or absent. Flowers bisexual, bilaterally symmetrical (zygomorphic); sepals usually united in a tube with 3 teeth or lobes; corolla-tube 3-lobed, often with a showy labellum or lip. Fertile stamen 1; sterile stamens (staminodes) small or absent. Ovary inferior, 3-celled. Fruit a capsule.


Key to Species

1. Leaves variegated with white or cream streaks
   2. A. vittata

1. Leaves green, not variegated.
   2. Flower-bracts present, red or pink; inflorescence erect; labellum white 1. A. purpurata
   2. Flower-bracts absent, the flowers subtended by bracteoles white with pink tip; inflorescence pendent; labellum yellow with red veins
      3. A. zerumbet

1. Alpinia purpurata Vieillard ex K. Schumann in Engler, Das Pflanzenreich 20(IV. 46): 323 (1904). BOKKEPOOT (Surinam); RED GINGER. Plant to 4(-5) m. Leaves green, to 35 x 15 cm. Inflorescence erect, to 50(-90) cm, often viviparous; flower-bracts bright red. Flowers, including the labellum, white.

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Fig. 267. *Alpinia zerumbet* (Zingiberaceae).
Range: Melanesia.


Key to Cultivars

1. Flower-bracts white to pale pink
1. Flower-bracts red.
   2. Inflorescence unbranched, narrowly cylindrical
   2. Inflorescence proliferous (at least below) into numerous leafy, flowering axes, giving an overall ovoid shape

1a. A. purpurata var. purpurata. RED GINGER. Range: Grown as an ornamental in the Promenade Gardens, Georgetown and in private gardens in Guyana; at the Palmentuin and on university and hotel grounds in Paramaribo, Surinam; and on hotel grounds in Cayenne, French Guiana.


2. Alpinia vittata Bull, Catalog no. 83: 4 (1873). (Synonym: A. sanderae Sander). VARIEGATED GINGER. Plant to 45 cm or more. Leaves variegated with white or cream streaks and bands, to 20 x 2.5 cm. Inflorescence pendent, to 15 cm; flower-bracts green tinged with pink. Flowers whitish or greenish, with whitish or greenish labellum.


3. Alpinia zerumbet (Persoon) Burtt & R.M. Smith, Notes from the Royal Botanic Garden Edinburgh 31(2): 204 (1972). (Synonyms: A. nutans misapplied, A. speciosa (Wendland) K. Schumann). SHELL FLOWER, SHELL GINGER. Plant to 3(-6) m. Leaves green, to 60(-70) x 12 cm. Inflorescence pendent, to 40 cm; flower-bracts absent, the flowers subtended by bracteoles lustrous cream-white with pink tip. Flowers pinkish-white, with yellow labellum veined or striped in red.


2. Etlingera Giseke
Perennials from thick rhizomes. Stems leafy. Leaves alternate and 2-ranked
Fig. 268. *Etlingera elatior* (Zingiberaceae).
(distichous). Inflorescence a dense cone-like head or spike borne on long peduncle and separate from the leafy stems; outer (lowermost) bracts sterile, forming an involucre; inner bracts progressively smaller, fertile. Flowers perfect, bilaterally symmetrical (zygomorphic), solitary in axes of inflorescence-bracts; sepals united in a 3-lobed calyx-tube; petals united in a 3-lobed corolla-tube, the upper lobe largest. Fertile stamen 1, filament-connective without a crest; lateral sterile stamens (staminodes) absent; terminal staminode a prominent petaloid labellum. Ovary inferior, 3-celled. Fruit an aggregate of berry-like individual fruits in a cluster.

1. *Etingera elatior* (Jack) R.M. Smith, *Notes from the Royal Botanic Garden Edinburgh* 43(2): 244 (1986). (Synonyms: *Nicolaia elatior* (Jack) Horaninow, *N. imperialis* Horaninow, *N. speciosa* (Blume) Horaninow, *Phaeomeria magnifica* (Roscoe) Schumann, *P. speciosa* (Blume) Merrill). TORCH GINGER; BRAZILIAANSE LELIE (Surinam). Leafy stems to 4(-6) m., forming clumps. Leaves linear-lanceolate, glabrous, to 85 x 18 cm. Leafless peduncle of inflorescence up to 2 m. Inflorescence a pyramidal or cone-like spike to 12.5 cm; outer bracts sterile, waxy, reflexed, red with white margin, or pink; inner bracts fertile, progressively smaller to 5 cm. Corolla red. Labellum of terminal staminode red, with yellow margin. Fruit reddish or yellowish; seeds black.

Range: Southeast Asia. Plants with red bracts are grown as ornamentals in the Promenade Gardens, Georgetown, Guyana; in Surinam (Ostendorf, 1962); and in French Guiana (de Granville, 1985, as *Alpinia coccinea*, "atoumo"). Plants with pink bracts are grown for ornament on Torarica hotel grounds and for cut flower arrangements in Paramaribo, Surinam.


3. *Hedychium* Koenig

Perennials from rhizomes. Stems simple. Leaves 2-ranked (distichous), sessile or nearly so. Inflorescence a terminal spike or panicle; bracts present. Flowers bisexual, bilaterally symmetrical (zygomorphic), in cincinnati in axils of inflorescence-bracts; sepals united in a calyx-tube with 3 unequal teeth; petals united in a long tube with 3 reflexed, narrow lobes. Fertile stamen 1, filament long, the connective not crested; anther not spurred at base; sterile stamens (staminodes) 3, the terminal one petaloid and bilobed at apex, the lateral 2 petaloid, unlobed. Ovary inferior, 3-celled. Fruit a loculicidal capsule.


1. *Hedychium coronarium* Koenig in Retzius, *Observationes Botanicae* 3: 73 (1783). WHITE GINGER; GEMBER LELIE, GANDASOELI (Surinam). Plant to 2(-3) m. Leaves lanceolate or oblong-lanceolate, appressed-pubescent beneath, to 50(-60) x 12.5 cm. Inflorescence an ellipsoid or ovoid spike to 20 x 11 cm; bracts imbricate, green, 4-6 cm. Flowers 2-6 per cincinnati in the axil of bract, very fragrant, white, the prominent petaloid staminodial labellum 2-lobed, obcordate, with filament to 35 mm. Seeds red, shiny.
Fig. 269. *Hedychium coronarium* (Zingiberaceae).
Range: Himalayan region of India and Burma. Grown as an ornamental in the Promenade Gardens, Georgetown and in roadside gardens of Guyana; in Surinam (Albina, along the Marowijne River and elsewhere) (Ostendorf, 1962); and in French Guiana (de Granville, 1985).


The aromatic rootstock (rhizome) yields an oil which, when distilled, has properties similar to ginger oil as a household carminative remedy for flatulence and gas pain (Pineda-Ocampo et al., 1954).

4. Kaempferia Linnaeus

Perennials from thick rhizomes and often thickened roots. Stems very short or plant acaulescent. Leaves basally clustered, or cauline and 2-ranked (distichous); sheaths open. Inflorescence a spike or head arising at base of plant or on leafy stem; bracts present. Flowers perfect, bilaterally symmetrical (zygomorphic), solitary in axils of inflorescence-bracts; sepals united in a calyx-tube often split along one side; petals united in a short or long corolla-tube with 3 spreading or reflexed lobes. Fertile stamen 1, filament very short, the connective usually crested; anther not spurred at base; sterile stamens (staminodes) 3, the terminal one a petaloid labellum and usually bilobed at apex, the lateral 2 petaloid. Ovary inferior, 3-celled. Fruit a loculicidal capsule; seeds arillate.

1. Kaempferia rotunda Linnaeus, Species Plantarum 3 (1753). RESURRECTION LILY. Plants to 50 cm, from tuberous roots. Leaves 2-5, erect, lanceolate or oblong, to 45 x 11 cm, often variegated in shades of light and dark green above, purple and puberulent beneath. Inflorescence a spike, arising at ground level from a sheathed axis produced by a leafless rhizome; sheaths purplish, to 7.5 cm. Flowers up to 16 per inflorescence, often fewer; corolla white, to 14 cm; labellum (of terminal staminode) lilac, deeply bilobed, to 7 x 4 cm; lateral staminodes white or pinkish, to 5 cm. Crest of filament-connective 2- to 4-lobed.


Flowers are produced when the plant is in leafless condition.

5. Zingiber Boehmer

Perennials from thick rhizomes. Stems leafy. Leaves 2-ranked (distichous). Inflorescence a dense spike on a peduncle and separate from the leafy stem; bracts imbricate. Flowers perfect, bilaterally symmetrical (zygomorphic), solitary in axils of inflorescence-bracts; sepals united in a 3-lobed calyx-tube; petals united in a 3-lobed corolla-tube, the upper lobe largest. Fertile stamen 1, filament-connective crested; lateral sterile stamens (staminodes) absent; terminal staminode a prominent petaloid labellum. Ovary inferior, 3-celled. Fruit a 3-locular, somewhat fleshy capsule.
Fig. 270. *Kaempferia rotunda* (Zingiberaceae).
1. *Zingiber zerumbet* (Linnaeus) J.E. Smith, *Exotic Botany* 2: 105, t.112 (1805). BITTER GINGER, WILD GINGER. Leafy stems to 2 m, forming clumps. Leaves lanceolate, pubescent beneath, to 100 x 7.5 cm. Leafless peduncle of inflorescence up to 45 cm. Inflorescence a dense spike to 13 cm; bracts green when young, dark red with green margin when mature. Corolla white or yellowish. Labellum of terminal staminode pale yellow, tinged deep yellow at the base.

Range: India. Grown as an ornamental on Torarica hotel grounds in Paramaribo, Surinam; and in French Guiana (de Granville, 1985).
Fig. 271. *Zingiber zerumbet* (Zingiberaceae).