Iridaceae | Plantz Africa

Iridaceae Family: Iridaceae Common names: Iris

Introduction

This is a large family of deciduous or evergreen perennials, many with brightly coloured flowers, which is well represented in South Africa.

Description

The plants are deciduous or evergreen perennials (rarely shrubs) with a rhizome or corm (rarely a bulb in some New World and Eurasian species).

The leaves are usually two-ranked with the blade oriented vertically to the stem and thus sheathing it at the base. This results in the characteristic fan-like arrangement found in genera like Iris. This type of leaf lacks distinct upper and lower leaf surfaces. In many South African species the leaf has a thickened midrib and often variously thickened or winged margins that may also be crisped. In some species the leaves are needle-like with narrow longitudinal grooves. Species of Moraea are unusual in the family in having channelled leaves with a distinct upper and lower surface.
The flowers are arranged in various ways, either in small clusters between large bracts, or in a spike (rarely solitary), with each flower held between two small or large bracts. The flowers are radially or bilaterally symmetrical with six tepals (petals). These may be similar to one another or different, usually with the upper larger. They are usually brightly coloured, sometimes with contrasting spots and stripes, and may be very fragrant. The petals are either separate or joined at the bottom into a short or long tube. The flowers of many Iridoideae, such as all *Aristea* species, last less than a single day, but in most species they last for three or four days.

The three stamens are inserted at the base of the petals or just within the tube (if present), opposite the outer three tepals. They are either symmetrically clustered in the centre of the flower when this is radially symmetrical, or arched together under the upper tepal or onto the lower tepal in bilaterally symmetrical flowers. In some species of *Moraea* the stamen filaments are joined into a tube.

The ovary is inferior (superior in the Tasmanian *Isophysis*) with three locules each containing several to many ovules attached to the centre. Each flower has a single style that usually has three branches near the tip, each of these sometimes forked as well. In some genera (*Dietes, Ferraria* and most species of *Moraea*), the style branches are flattened and petal-like.

The fruit is a dry capsule that usually splits open along three sides to release the seeds. These are very variable in shape. In most genera they are tetrahedral or variously angled and without obvious adaptations for dispersal. Winged seeds adapted to wind dispersal characterise *Gladiolus* and *Tritoniopsis*, and also occur in some species of *Hesperantha*. Globular seeds with shiny coats that are relatively long-lived occur in several genera of Ixioideae. *Chasmanthe aethiopica* has fleshy seeds adapted to dispersal by birds, and several other species that grow in more wooded places, like *Chasmanthe* and some freesias, have reddish or
black seeds that mimic fleshy seeds.

**Distribution and habitat**

**Distribution description**

Nearly worldwide but rare in tropical lowlands and at high latitudes. Iridaceae are best represented in southern Africa, especially the winter-rainfall region in the southwest. Other centres of diversity are temperate South and Central America (several small genera) and the Mediterranean (*Iris* and *Crocus*). About 1 800 species distributed among some 65 genera are recognised worldwide, just over half of them in southern Africa, where 38 genera are known. In the Cape Floral Region alone, 707 species and 27 genera are recorded.

The family is best represented in open, seasonal habitats. The richest areas for species in southern Africa are the montane grasslands of eastern South Africa, Swaziland and Lesotho, and the succulent karoo and fynbos of the Northern and Western Cape. Fewer species occur in savanna or the semi-arid central karoo, and very few in forest.

The species grow in all sorts of soils, derived from granite, basalt, dolerite, clay, limestone and sandstone, as well as rarer rocks like serpentine. Most species favour loamy soils, often among rocks where drainage is good, but some grow in marshes and others in pure sand. Species grow from just above the high tide mark (*Gladiolusguienzii*) to the top of the interior escarpment at over 3 000m.

The largest genus in the family is *Gladiolus* (about 255 species), followed by *Iris* (about 225 species) and *Moraea* (about 200 species). Many species are very localised in occurrence. In the lowlands of the Western Cape in particular, farming and urban sprawl are threatening many species with extinction.

**Derivation of name and historical aspects**

**History**

The family name is based on the genus *Iris*, the largest and best known genus in Europe. The
The genus *Iris* dates from 1753, when it was coined by Swedish botanist, Carl Linnaeus. Its name derives from the Greek goddess, Iris, who carried messages from Olympus to earth along a rainbow, whose colours were seen by Linnaeus in the multi-hued petals of many of the species.

**Class: Angiosperm (Monocotyledon) Order: Asparagales**

The family is currently divided into four subfamilies, but the results from DNA analysis suggest that several more should be recognised:

- **Subfamily Isophysidoideae** contains the single genus *Isophysis*, from Tasmania. It is the only member of the family with a superior ovary, and has a star-like yellow to brownish flower.

- **Subfamily Nivenioideae** contains six genera from South Africa, Australia and Madagascar, including the only true shrubs in the family (*Klattia, Nivenia* and *Witsenia*), as well as the only saprophyte (*Geosiris*). *Aristea* is also a member of this subfamily. It is distinguished by having flowers in small, paired clusters among large bracts, slender styles that are divided into three slender branches, and nectar (when present) produced from glands in the ovary walls. The flowers are always radially symmetrical, with separate tepals (petals), and the rootstock is a rhizome. See drawing of *Ariste Ecklonii* below.
Subfamily Iridioideae is distributed throughout the range of the family and contains the large genera *Iris* and *Moraea*. It is the only subfamily that is represented in South America. The species have flowers in solitary clusters among large bracts, styles that are often petal-like or crested, and nectar (when present) is produced from glands on the tepals. Most species have separate petals and the rootstock is usually a rhizome, or rarely a bulb. The flowers are almost always radially symmetrical. *Bobartia*, *Dietes* and *Ferraria* belong to this subfamily. See drawing of *Ferraria glutinosa*. 
Subfamily Ixioideae, which contains nearly two-thirds of the species, is mostly African. This subfamily contains most of the familiar genera apart from Iris and Moraea, including Ixia, Gladiolus, Crocus, Freesia and Watsonia. It is easily recognised by bearing flowers in a spike-like inflorescence (sometimes solitary), with the tepals joined into a short or long tube. Nectar is produced from glands in the ovary wall and is secreted directly into the base of the floral tube. The flowers are either radially symmetrical or more usually bilaterally symmetrical, and two-lipped. The rootstock is either a rhizome or more commonly a corm. Several tribes are recognised in Iridoideae and Ixioideae. See drawing of Hesperantha petitiana and Schizostylis coccinea.
Ecology

Members of Iridaceae occur in a great variety of habitats. About the only place they do not grow is in the sea itself, although *Gladiolus gueinzii* occurs on the seashore just above the high tide mark within reach of the spray. Most species are adapted to seasonal climates that have a pronounced dry or cold period unfavourable for plant growth and during which the plants are dormant. As a result most species are deciduous. Evergreen species are restricted to subtropical forests or savannah, temperate grasslands, and perennially moist fynbos. A few species grow in marshes or along streams, and some even grow only in the spray of seasonal waterfalls.
The above-ground parts (leaves and stems) of deciduous species die down when the bulb or corm enters dormancy. The plants thus survive periods that are unfavourable for growth by retreating underground. This is particularly useful in grasslands and fynbos, which are adapted to regular burning in the dry season. At this time the plants are dormant and their bulbs or corms are able to survive the heat of the fires underground. Veld fires clear the soil surface of competing vegetation, as well as fertilise it with ash. With the arrival of the first rains, the dormant corms are ready to burst into growth, sending up flowers and stems before they can be shaded out by other vegetation. Many grassland and fynbos irids flower best after fires, and some fynbos species will only flower in the season after a fire.

The family has a very diverse pollination ecology. Most species are pollinated by various species of solitary bees but many are adapted to pollination by sunbirds. These species typically have red to orange trumpet-like flowers that secrete large amounts of nectar. Other species are adapted to pollination by butterflies and moths, carrion flies and long-proboscid flies, and even monkey-beetles.

**Uses**

**Use**

Several genera are important in horticulture, both as cut flowers and as garden plants. The most important cut flowers are *Gladiolus, Iris* and *Freesia*. In Northern Hemisphere gardens several species of *Iris* are grown (especially forms of *Iris germanica*, the bearded iris) and various cultivars of *Crocosmia*, while in South Africa species of *Dietes, Watsonia, Ixia* and *Sparaxis* are best known. The evergreen *Dietes*, with its tufts of narrow, grass-like leaves and prolific Iris-like flowers, is especially used in commercial plantings.

The genus *Crocus* is grown commercially as the source of the spice saffron, which is the dried stigmas of the flowers. These are harvested by hand, hence the enormous price fetched by the spice. The corms of a few common species of *Lapeirousia* and *Moraea* formed part of the traditional diet of some African tribes.
Growing Iridaceae

Grow

The species vary greatly in their ease of cultivation and in their cultivation requirements. Generally speaking, species from the east coast, which has a less seasonal climate, are easiest in gardens. Species from the summer-rainfall regions require a dry winter resting period, while those from the winter-rainfall region require a cool, moist winter growing season and a dry summer.

To search for more members of the family Iridaceae on this site, enter Iridaceae into the search box above.

Credits

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