

Pterodiscus S

an African Endemic



Pterodiscus currently comprises 13 accepted species which are found in Southern Africa and then further north into Tropical East Africa. This little-studied genus is in the Sesame family (Pedaliaceae), along with more familiar caudiciform genera such as *Sesamothamnus* and *Uncarina* and of course the source of Sesame seeds itself, *Sesamum*. It is closely related to the Devil's claw, *Harpagophytum* spp., which is also found in Southern Africa and has similar shaped flowers, an underground, thick, tuberous root system and deciduous annual stems. The main distinguishing characteristic found in most *Pterodiscus* species are the four-winged seeds similar to those of the African shrub *Combretum*, and their leaves which, when rubbed, have a pungent scent produced by glandular hairs on their surfaces.

The genus can be divided into two groups. Both share annual, thin stems, but one has above-ground caudexes, and comprises *Pterodiscus angolensis* (Fig. 1), *P. aurantiacus* (Fig. 2), *P. cinnabarinus* (Fig. 3), *P. luridus* (Fig. 4), *P. makatiniensis* (Fig. 5), *P. ngamicus* (Fig. 6), and the most recently described member of the genus, *P. somanei* (Fig. 7).

¹email: brachy@vodamail.co.za



1a. *Pterodiscus angolensis* has small, pale cream flowers with darker spots. **(b)** A decumbent *P. angolensis* stem showing the characteristic herringbone arrangement of leaves and developing series of fruit



2a. *Pterodiscus aurantiacus*, from Namibia and Angola, has striking orange flowers. Note the dark extra-floral nectaries at the base of the leaves. **(b)** Some Angolan forms of *P. aurantiacus* have much paler flowers.



3a. *Pterodiscus cinnabarinus*, in habitat near Tzaneen in South Africa. It also found in Zimbabwe, Botswana and Mozambique. **(b)** It has striking almost solid red flowers, though paler forms exist. Photo by Duncan McKenzie.



4a. *Pterodiscus luridus*, from South Africa and Namibia, showing the perennial caudex which can get quite large, characteristic of this group. **(b)** The flowers are smaller and pale pink.



5a. *Pterodiscus makatiniensis* growing alongside a geophytic *Euphorbia*, photographed in October 2019 in habitat in clay soils on the Makatini Flats, South Africa, which are south of Mozambique. **(b)** The flowers are a pleasant primrose-yellow.



6a. *Pterodiscus ngamicus* in habitat near Polokwane, South Africa. **(b)** A select form. **(c)** Plants from Rust de Winter have mottled petals and dark throat. This form occurs north of Pretoria as well as in the Limpopo Valley.



7a. (a) Flowers of *Pterodiscus somanei* from Southern Ethiopia, showing the dark purple tube and white petals. **(b)** *P. somanei* during dormancy, showing its large caudex. **(c)** A bed of *P. somanei* seedlings flowering just after a year from sowing.

The remaining species, *P. angustifolius* (Fig. 8), *P. brasiliensis* (Fig. 9), *P. elliotii* (Fig. 10), *P. kellerianus* (Fig. 11) *P. ruspolii* (Fig. 12) and *P. speciosus* (Fig. 113) have subterranean caudexes.

The leaves of most species are bright green, often with a grey underside due to glandular hairs. Many have a wavy margin, though if from dry areas like the

great Karoo, these may become more contorted with an almost geometrical pattern, e.g. *Pterodiscus luridus* in Fig 4. This is a pinnatilobate leaf shape. *Pterodiscus kellerianus* from the drier areas in Somalia and Kenya displays similar, quite decorative leaves.

During spring, annual stems grow from the caudex or swollen underground root and sets of opposite



8a. *Pterodiscus angustifolius* has canary yellow flowers, an underground caudex and occurs in Tanzania, Mozambique and Somalia. **(b)** *P. angustifolius* flower with, at last, an identified pollinator of *Pterodiscus*, a type of solitary bee.



9. The large, almost bluish-tinged pink flowers of the Angolan *Pterodiscus brasiliensis*.



10a. *Pterodiscus elliotii* from Zimbabwe has dark pink to maroon flowers. **(b)** Plants from Zambia have larger, almost maroon flowers.



11. *Pterodiscus kellerianus*, from dry areas in Somalia and Ethiopia, has dark pink flowers with a darker centre and interestingly-shaped leaves.



13. *Pterodiscus speciosus* occurs in South Africa as well as in Botswana. Plants have an underground caudex and can have large dark pink flowers.



12. The flower color and leaf shape are typical of *Pterodiscus ruspolii*. (b) The flowers of this plant, from Puntland, has a pinkish tinge. This species occurs in Ethiopia, Somalia and Sudan.



leaves develop. At the base of the leaves are two distinct extra-floral nectaries, or glands, as well as a set of flower buds. These glands can be seen as darker spots at the base of the leaves of *P. aurantiacus* in Fig. 2a. These glands produce nectar which attracts ants, and these seem to protect the plant, scaring away any potential pests. If the plants grow well there are continuous pairs of flowers and developing capsules from each leaf pair up to the stem tip (Fig. 1b). In autumn, the plants enter dormancy and the four-winged seed capsules mature. These capsules mature sequentially and whilst still green, fall onto the soil and dry. Wind disperses them via the wings which carry them to suitable niches to germinate, usually much later.

Not all the species have the winged seed capsules for seed distribution, however (Fig. 14). *Pterodiscus angustifolius* is a classic example here and there are no wings to the seed capsule. Instead there it has a

very thin covering and beneath this, sharp thorn-like projections enable animal distribution, as is the case with Devil's claw. The two sets of wings in *P. elliotii* are almost joined and here it appears as if the seed capsule is on its way to also be animal distributed, as there are also visible projections under the thin skin. Perhaps these seed are at present water-dispersed by runoff during heavy summer rains.

Fresh within the capsules almost never germinates immediately and almost no seed germinates the first year in nature. There is probably a seed inhibitor in the seed capsule or coat to prevent germination until conditions are ideal for germination or the capsules have become more widely dispersed. When germination is successful, seedlings grow rapidly and during the first year can also flower and set seed.

All 13 species described so far from Africa are presented here. One photo of a plant from Tanzania,



14. Examples of the winged seed capsules with give the genus its name — literally, *Pterodiscus* means “winged disc”. From left to right, *P. ruspolii* which has the biggest wings of all, *P. somanei*, *P. angolensis* and the smallest, *P. angustifolius* without any.

which appears to be a new species, is also included (Fig. 15). The flower colour of species varies as can be seen from the photos with some having strikingly bright colours. Hybrids (Fig. 16) lead to very attractive flowers with a mixture of colours from white to deep reds and oranges.

This group of plants should be seen more in collections because of their easy growth, striking flower colours and long flowering period. Cultivation of

these plants is not difficult and I have found that a well-drained, fertile, sandy loam suits all species. The containers should be around twice the size of the plants. If the container is too small, plants will not grow happily and become stunted early in the season. *P. somanei* seems to be very susceptible to over-watering and soon loses its roots if this happens. Most species also do best in full sunshine for at least half the day or the annual stems become too lanky. Watering



15. *Pterodiscus* sp. nova, originally from Specks in 2005 but unfortunately died a while later. The linear leaves and flowers are distinctive



16. A selection of *Pterodiscus* hybrids, showing a range of flower colours and patterns.

once a week is usually sufficient but the leaves will quickly show wilting when kept too dry. If the basic principles of regular watering, sunshine and a fertile well-drained soil is adhered to, few problems will arise. It has been found that even one year old seedlings of most species will flower at the end of the first growing season. At the end of the growing season the dead annual stems can be pruned back, and the plant is ready for the next season. Bonsai growers will also find this group of interest.

CHECKLIST OF PTERODISCUS DESCRIPTIONS

- Pterodiscus angustifolius* Engl., *Bot. Jahrb. Syst.* 19(1): 155 (1894).
Pterodiscus aurantiacus Welw., *Trans. Linn. Soc. London* 27(1): 53 (1869).
Pterodiscus brasiliensis Asch., *Verh. Bot. Vereins Prov. Brandenburg* xxx. (1888) 182.
Pterodiscus cinnabarinus Peckover, *Aloe* 52(1): 11 (2016).
Pterodiscus elliotii Baker ex Stapf, *Fl. Trop. Afr.* [Oliver et al.] 4(2.3): 542 (1906).
Pterodiscus kellerianus Schinz, *Bull. Herb. Boissier* iv. 453.
Pterodiscus luridus Hook.f., *Bot. Mag.* 95: t. 5784 (1869).
Pterodiscus makatiniensis Peckover, *Aloe* 52(1): 10 (2016).
Pterodiscus ngamicus N.E.Br. ex Stapf, *Fl. Trop. Afr.* [Oliver et al.] 4(2.3): 543 (1906).
Pterodiscus ruspolii Engl., *Bot. Jahrb. Syst.* 32(1): 112 (1902).
Pterodiscus somaliensis Baker ex Stapf, *Fl. Trop. Afr.* [Oliver et al.] 4(2.3): 544 (1906).
Pterodiscus somanei Peckover, *CactusWorld* 37(1): 72 (2019).
Pterodiscus speciosus Hook., *Bot. Mag.* 70: t. 4117 (1844).