

Propagating *Pelargonium sidoides*®

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THE HISTORIC AND CURRENT USE OF *PELARGONIUM SIDOIDES*

Umckaloabo is the name under which the ethanol extract of *P. sidoides* root is marketed in Europe. It is clear that the origin of the name is, however, not European but originated from two autonomous Zulu words: umkhuhlane (Fever and cough related diseases) and uhlabo (pleurisy-related chest pain). Both words refer to the symptoms for which the Zulu healers used this plant since before time began (Kolodziej and Kayser, 1998).

Present use in Germany, more than South Africa is centred on the treatment of acute and chronic infections of the ear, throat, nose and respiratory tract. This product was available in Germany since the early '80s on shelves carrying herbal remedies.

The existence of this plant and its healing ability was however known to western science as early as 1897 when an English national named Stevens, afflicted by tuberculosis, was treated in South Africa with a traditional Zulu remedy. On his return to England, he started to market the product. It was available in England until 1909 when a legal dispute with the British Medical Association caused the removal of the product from the shelves (Kolodziej and Kayser, 1998).

THE MORPHOLOGY AND GROWTH HABIT OF *P. SIDOIDES* AND HOW THIS IMPACT ON PROPAGATION

The basic growth habit of this plant is semi-decumbent. It is herbaceous and the simple leaves, are arranged in rosette form on the squat aerial branches on which the internodes are not visible. The leaf placement appears crowded. The rather diminutive branches are covered with vestiges of the petioles and stipules of the previous season's growth. *Pelargonium sidoides* is a geophyte and has condensed underground, root like stems which are the main locus of the active ingredients that makes this plant so popular (Dreyer and Marais, 2000; Van der Walt and Vorster, 1988).

Most *Geraniaceae* have visible stipules. The stipules of *P. sidoides* are narrowly triangular with acute apices and a membranous appearance. The leaf base tends to wrap around the aerial stem and stay behind even after the leaf had died. The stipules stay behind with the leaf basis (Dreyer and Marais, 2000; Van der Walt and Vorster, 1988).

The inflorescence of *P. sidoides* is branched and has 2–4 pseudo umbels. They each carry somewhere between 3 and 16 flowers. The pedicel is about 3mm long. The flowers are present all year round. Flower production peak in summer (Dreyer and Marais, 2000; Van der Walt and Vorster, 1988).

CURRENT PROPAGATION TECHNIQUES AND THEIR LIMITATIONS

Pelargonium sidoides can be propagated from seed, stem cuttings, root cuttings and leaf cuttings. Each of these methods has strengths and limitations for large scale propagation (Table 1).

Though the seed germinate with ease, it is currently not the solution for large scale propagation. The availability of large quantities of seed is problematic since pollination outside of the natural habitat of the plant is nearly non-existent.

Manning and Goldbatt (1995) list 28 species of *Geraniaceae* and *Iridaceae* that form part of a pollination guild of intensely purple and crimson flowers with long, slender perianth tubes pollinated exclusively by two long-tongued flies of the family *Nemestrinidae*. These flies forage for nectar while hovering and have mouth parts 20–50mm long. Given the length of the perianth tube of the flowers in this guild, their nectar is not available to bees, wasps and other flies, but only to the long proboscis flies.

Pelargonium sidoides is not one of the species listed in the guild, but it displays the same morphology as the other flowers in the guild. De Wet, Barker, and Peter (2006) also refers to pollination by long proboscis Nemestrinid flies in *P. reniforme*, a species very closely related to *P. sidoides*. This confirms the notion that the very low percentage of natural pollination in areas outside the natural habitat of this plant is the result of the absence of the natural pollinator and that bees and other potential pollinators are not interested because they are unable to reach the nectar. Pollination by hand is relatively simply and it has a high success rate. The main drawback is the cost associated with this time consuming and rather tedious task.

Table 1. Methods of propagation of *Pelargonium sidoides*.

Method	Strengths	Limitations
Seed	Easy germination	Limited supply, hand pollination
Stem cuttings	Reasonable availability	Tendency to rot as a result of short internodes
Root cuttings	Easy	Limited supply of roots
Leaf cuttings	Significant availability	Slow, need for stem tissue association
Tissue culture	Good success rate	Cost

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