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THE GENUS SAXIFRAGA L. IN THE MADEIRAN ARCHIPELAGO.

By D. A. WEBB * & J. R. PRESS **

RESUMO. As três espécies de *Saxifraga*, *S. maderensis* D. Don, *S. pickeringii* Simon e *S. portosanctana* Boiss., do Arquipélago da Madeira são tratadas no presente trabalho e os seus caracteres comparados e confrontados. São considerados como pertencendo à Série Ceratophyllae e relacionadas com as espécies Ibéricas. A diferença entre *S. maderensis* e *S. pickeringii* é examinada e como resultado disto a última passa a ser considerada como uma variedade da primeira.

Three species of saxifrage have been described from the Madeiran archipelago. The earliest is *S. maderensis*, described by David Don (1821) from plants in the Banks herbarium in the British Museum (Natural History), London, collected by Masson. This was followed by *S. portosanctana*, described by Boissier (1856) from plants collected by P.B. Webb as *S. maderensis*. Finally Simon (1973) described from Madeira *S. pickeringii* from his own collections.

All three are chasmophytes, growing in crevices of vertical rocks, which are usually shady and often moist, on the higher parts of the islands. *S. maderensis* is widespread in the upper parts of the main island, Madeira; *S. portosanctana* is recorded only from the two main peaks of Porto Santo, and *S. pickeringii* from three stations of limited extent, all near the centre of Madeira.

All these plants share the following characteristics: stems somewhat woody, freely branched so as to form large cushions; leaves somewhat coriaceous, with the lamina nearly always glabrous but abundantly supplied with sessile glands on the upper surface which render it viscid,

* Trinity College, Dublin 2, Irlanda.

** British Museum (Natural History), Cromwell Road, London SW7 5BD, Inglaterra.

lobed, but not usually divided more than half-way to the base; petiole longer than the lamina or only slightly shorter; flowering stems arising from the axils of leaves of the previous year's growth, bearing several cauline leaves and a fairly lax cyme; ovary semi-inferior; petals white, longer than the sepals.

These characters indicate clearly that all the Madeiran plants belong in the series *Ceratophyllae* (Willkomm) Pawlowska ['grex' *Ceratophyllae* (Willkomm) Engler & Irmscher) and that their closest relatives are species such as *S. trifurcata* Schrader and *S. cuneata* Willd., natives of northern Spain.

S. portosanctana shows little variability (as might be expected from an endemic of such narrow range) and is clearly entitled to specific rank. It differs from the plants of the neighbouring island in being completely glabrous (or at most with some sessile glands on petiole and pedicels, with a stalk not long enough to be called a hair), in its more fleshy leaves, in its lamina considerably longer than broad, with a narrowly cuneate base, divided apically into not more than 9 segments, which are all obtuse, and in its long, narrow petals, which are usually $10-11 \times 3-4$ mm. The plants of Madeira, in contrast, nearly always have some hairs at the base of the petiole or on the pedicels and hypanthium; a lamina at least as broad as long, with a cordate, truncate or more rarely cuneate base and divided in 9-38 segments of which some, at least, are acute to shortly apiculate; and petals of which the length is never more than twice the breadth. From all Spanish species, except *S. trifurcata* and *S. cuneata*, *S. portosanctana* is distinguished by its axillary inflorescences; both these have relatively broad petals, and in *S. trifurcata* the leaf-segments are numerous and strongly mucronate, while in *S. cuneata* the lamina is somewhat broader than long and the segments are broadly triangular.

It is when we turn to consider the differences between *S. maderensis* and *S. pickeringii* that difficulties arise. The most important of the distinctions mentioned by Simon may be summarized thus:

S. pickeringii has leaves with a broadly flabellate lamina tapered gradually in a not very clearly defined petiole which is about as long as the lamina; it has sepals 4-5 mm long and petals $8-10 \times 3-4$ mm. *S. maderensis*, on the other hand is said to have a more or less reniform lamina, sharply distinct from the petiole, which is 2-4 times as long as the lamina, sepals 1.5-2 mm long and petals $4-6 \times 2-3$ mm.

It would seem however, that Simon has greatly underestimated the variability of both taxa. There are plants with the general appearance of *S. maderensis* in which the lamina is shortly but distinctly cuneate at the base; in others, even if the lamina is reniform, the petiole is only slightly longer than the lamina. As regards both sepal and petal size, these seem to be extremely variable; in a plant received from Kew as *S. pickeringii* and now in cultivation at Dublin and Cambridge, which has rhombic-flabellate leaves with a strongly cuneate base, the sepals measure only

3.5 mm, while in a typical plant of *S. maderensis*, also in cultivation at Dublin, they measure 5×3 mm. Others which show in the shape of the leaf-lamina, and to some extent in other characters, a condition intermediate between the two taxa exist at Kew (R.P. Murray, June, 1865: Pico Grande) and at the British Museum (Natural History) (R.P. Murray, 1895, near the summit of Pico do Areeiro; also Short and Hampshire, 1980, cultivated plants grown from specimens collected between Pico do Areeiro and Pico Ruivo).

In the light of these facts it seems impossible to maintain *S. pickeringii* as a distinct species. In its extreme form however, it is so different from the average plant of *S. maderensis* that it should be given some sort of taxonomic recognition. To designate as a subspecies a very small population growing in the middle of the area occupied by the species in its typical form (which is in any case endemic to a fairly small island) would run contrary to the modern conception of a subspecies. We therefore think it best to name it as a variety thus:

Saxifraga maderensis*, var. *pickeringii (C. Simon) D.A. Webb & Press, stat. nov.

Basionym: *Saxifraga pickeringii* C. Simon, *Bocagiana* 33 : 4 (1973).

Var. *pickeringii* differs from var. *maderensis* in the following characters, all of which are, however, somewhat variable:

	var. <i>pickeringii</i>	var. <i>maderensis</i>
Lamina of basal leaves	Rhombic - flabellate, with distinctly cuneate base	Reniform to semi-circular, with cordate-truncate or very shortly cuneate base
Petiole of basal leaves	2 mm wide in upper part; base dilated and with numerous hairs	1 mm wide in upper part; base sometimes dilated, sparsely to moderately hairy
Leaf segments	Acute to shortly apiculate	Obtuse to acute
Number of flowers in inflorescence	Not more than 6	Up to 13
Length of petals	8-12 mm	(4-)6-10 mm

In conclusion it may be of interest to record that despite their southern provenance these plants are remarkably hardy. *S. portosanctana* and *S. maderensis* var. *pickeringii* have been successfully cultivated in the open in Dublin for over two years, and in January 1987 they withstood temperatures of -6 C. without any sign of injury. *S. maderensis* has been similarly cultivated in London since 1984, surviving similar temperatures without protection of any kind. It is, however, of less robust growth, and would probably benefit from being grown under glass. All three taxa are of considerable decorative value and deserve to be more widely grown than they are.

REFERENCES

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