

(often nearly a metre tall) and its branching is strict rather than spreading (P.J. de Lange, pers. comm.).

Acknowledgements

Peter de Lange shared his knowledge of the species (and the problems therein), and Josh Salter advised on microtechnique.

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The scent of *Viola odorata* (Violaceae)*

Rhys Gardner

For a long time I used to go to bed early, and, unperturbed by the sounds downstairs of yet another dinner party, already aware that we do not receive wisdom but must discover it for ourselves, after a journey that no-one can take for us or spare us, would read myself to sleep with one or other of the volumes of Marcel Proust's great semi-autobiographical novel "Remembrance of Things Past". Such an unhurried, oblique and unworldly mode of botanical progress could not be expected to last long into the twenty-first century, accreted wisdom or not; from such habits that save us, however, the nourishing, kindly, marzipan-like odour of success has at last arisen.

That is: recently I had begun to sketch my garden's several kinds of violets: *Viola odorata*, *V. tricolor*, *V. reichenbachiana* and *V. hederacea*. Only the first has a scent, so it was natural to ask, which of the flower's parts might be responsible?

Early in his story Proust (1964: 229) describes childhood memories of the countryside in spring: "And every year, when we arrived at Combray, on Easter morning, after the sermon, if the weather was fine, I would run to see ... the river flowing past, sky-blue already between banks still black and bare, its only companions a clump of daffodils, come out before their time, a few primroses, the first in flower, while here and there burned the blue flame of a

violet, its stem bent beneath the weight of the drop of perfume stored in its tiny horn."

Clearly, little Marcel had taken close notice of these plants, observing the posture of the flower and the storage of nectar in the corolla spur, thrust up into the crook of the peduncle. But it is not true that the nectar is perfumed, and a less than inordinately prolonged search of the literature failed to give the answer required.

The simple experiment of cutting the flower into its various parts, and placing them separately in glass jars, did, however: the scent is supplied by the corolla's spreading petals and not (or hardly at all) by the corolla's spur, the nectar, or the staminal projections.

The flowering plants have not been widely surveyed for the way in which they produce scent, but it seems likely that most make it in specialised 'osmophore' areas on the adaxial surface of the petals; these areas are not visible to the naked eye (Vogel 1990).

Some features of the *V. odorata* flower are illustrated in Fig. 1, p. 106.

* In memory of Eric Godley (1919–2010), floral biologist and Proustian.

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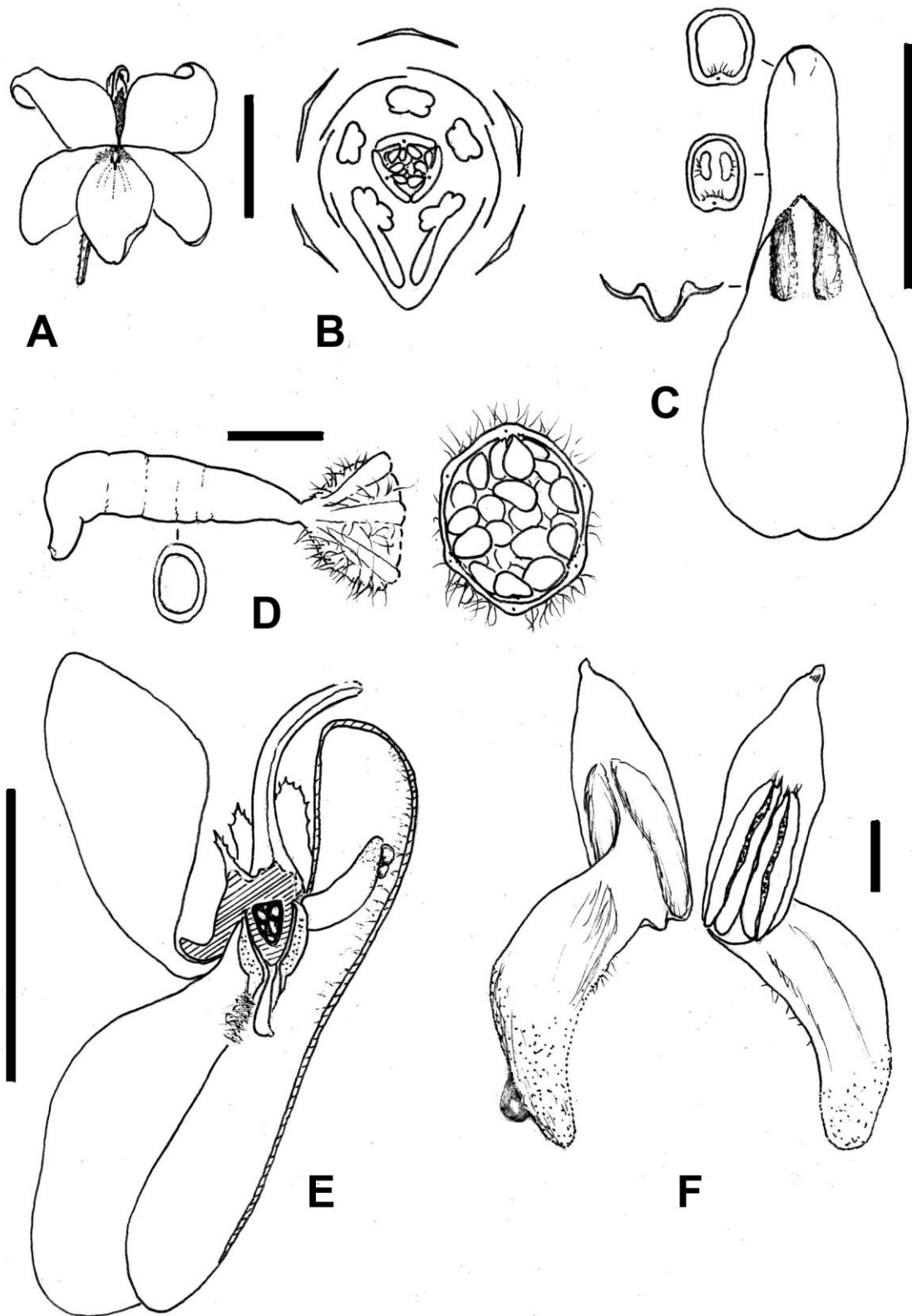


Fig. 1. *Viola odorata*. **A.** Flower in face view. Lateral petals spreading to reflexed, the lower petal angled downwards, its spur directed upwards into the crook of the peduncle. Scale bar 1 cm. **B.** Floral diagram. Note the projections of the two lower stamens into the spur of the lower petal. **C.** Lower petal, somewhat flattened. Lower cross-section at side shows the two raised ridges at the base of the petal's "blade" (widened part); central section shows the two staminal projections. Scale bar 1 cm. **D.** Style in side view; ovary in median cross-section. Stigma is a small circular opening at the downturned tip of the style. Style is hollow along its entire length. Seeds are numerous on three parietal placentae. Scale bar 1 mm. **E.** Flower in longitudinal section. Two of the five stamens shown, the lower one spurred; anthers stippled, each apically with a flat, slightly concave, triangular projection that clasps the style. Note also the group of hairs on the lateral petal, projecting sideways to help close up the upper half of the entry to the nectar-bearing spur. Scale bar 1 cm. **F.** Lower pair of stamens, showing the staminal "spurs". Left (abaxial view), showing a nectar drop on the distal, papillose part of the spur. Right (adaxial view) showing anthers opening slit-wise; pollen grains are somewhat coherent. Scale bar 1 mm.