Botany and origins of serradella

John Sylvester Gladstones

N. R. McKeown
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Botany and origins of serradella

J. S. Gladstones and N. R. McKeown

The name serradella is given to the species of Ornithopus, a genus of annual legumes native to the Mediterranean region and central and north-west Europe. "Ornithopus" means bird's foot, to which the pod clusters of the common birds-foot of England, O. perpusillus, have a remarkable likeness.

No wild counterpart is known for the commonly cultivated O. sativus (French, or pink-flowered serradella), but botanists think that it is closely related to O. isthmocarpus which grows wild in Morocco, Spain and Portugal, and that the cultivated varieties may in fact have developed from O. isthmocarpus or something very like it.

French serradella is cultivated in France, whence seed has from time to time been imported commercially into Australia; also on the poor sandy soils of the Baltic coastal region in northern Europe, extending into the western U.S.S.R. Here it provides high quality forage on soils too poor for most other forage plants. Having an erect growth habit and fully permeable (soft) seeds, French serradella is adapted as an annual forage crop rather than as a self-regenerating pasture.

Yellow serradella, O. compressus, is by far the commonest and most widespread of the species in the wild state. It occurs in all regions bordering the Mediterranean which have non-calcareous soils and an annual rainfall exceeding about 400 mm, extending northwards along the Atlantic coast as far as the Channel Islands. In Morocco, Spain and southern Italy it grows from sea level to altitudes of about 1500 metres, on acid sands to neutral loams. It covers almost all soil types on which sub. clover is found, plus a wide range of sandy and gritty soils from which sub. clover is absent. However, although more widespread than sub. clover in the wild state, the stands where they occur are usually sparser.

Yellow serradella has a high reputation in Mediterranean countries as a pasture plant, but its deliberate cultivation there is restricted to a few small areas, mainly in central western Spain. One of the main areas is around the village of Serradilla del Arroyo, south-east of Ciudad Rodrigo in Salamanca Province. Possibly the plant took its name from the village, or might it have been the other way around? Serradillo in Spanish means "little saw", which aptly describes the fine, saw-like leaf of serradella. Another village called serradilla is located further south in Caceres Province, and the plant grows wild but does not appear to be cultivated there.

The other Ornithopus species are much more restricted. Slender serradella, O. pinnatus, occurs over much of the same geographical range as yellow serradella, but is confined to altitudes below about 600 m, and almost exclusively to acid sands of very low fertility. The species is distinctive in its smoothness, with an almost complete absence of hairs in all parts. Also, the pods are very slender and more or less cylindrical instead of flattened as in all the other species. The flowers are yellow, but are duller than those of yellow serradella, and somewhat variegated.

In Western Australia, slender serradella is quite widely naturalised in the Albany district, growing particularly along roadsides inland to about the 800 mm isohyet. It is also naturalised in the Margaret River district. Although not commercialised, slender serradella makes some contribution on a few sandy soils where other improved legumes have failed.

O. isthmocarpus, which some botanists consider to be merely a subspecies of O. sativus, has likewise not yet been developed as a commercial pasture plant. Unlike French serradella, but like all other serradella species, it has impermeable (hard) seeds. O. isthmocarpus is confined strictly to the sandy coastal lowlands of western Morocco and of southern Spain and Portugal: a distribution closely resembling that of the sandplain lupin Lupinus cosentinii.

O. perpusillus, the common birds-foot, is mainly distributed in central and north-west Europe, but is occasionally found as far south as Morocco. The plants are very fine and usually small, but otherwise resemble French serradella and have small, pink flowers. O. perpusillus is a fairly common volunteer on poor soils through much of its range, but it is not regarded as a true commercial pasture plant.

### Species of serradella and their distributions

<table>
<thead>
<tr>
<th>Botanical name</th>
<th>Common name</th>
<th>Distribution</th>
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</thead>
<tbody>
<tr>
<td>Ornithopus sativus Brot.</td>
<td>French serradella</td>
<td>Known only in cultivation: mainly western and northern Europe.</td>
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<tr>
<td>O. isthmocarpus Cosson (or O. sativus ssp. isthmocarpus Cosson)</td>
<td>Moroccan serradella</td>
<td>Coastal Morocco, coastal S. Spain and Portugal.</td>
</tr>
<tr>
<td>O. compressus L.</td>
<td>Yellow serradella</td>
<td>Pan-Mediterranean to 1500 m. Atlantic coast from Central Morocco to Isle of Wight. Madera, Canary Is. Cultivated in Spain, W. Australia.</td>
</tr>
<tr>
<td>O. pinnatus (Mill.) Druce</td>
<td>Slender serradella</td>
<td>Pan-Mediterranean to 600 m. Atlantic Coast from Central Morocco to Scilly Is. Acid, sandy soils.</td>
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