

Lysimachia punctata L. and *L. verticillaris* Sprengel (Primulaceae) naturalised in the British Isles

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ABSTRACT

Four species of *Lysimachia*, *L. punctata* and *L. verticillaris*, and to a lesser degree *L. ciliata* and *L. vulgaris*, are much confused in gardens and when naturalised. *L. punctata* is easily distinguished from *L. verticillaris* by the absence of an orange area at the petal base, the leafy nature of all bracts, the leafy continuation of the inflorescence axis beyond the inflorescence, the more elongate rhizomatous habit and, in Britain, the absence of viable seed. These distinguishing characters seem not to have been previously noticed. *L. vulgaris* is native but is also found as a garden escape. The other three species are found occasionally as escapes from cultivation though *L. verticillaris* has not previously been recognised as distinct from *L. punctata*. *L. punctata* and *L. verticillaris* have chromosome numbers of $2n = 30$ while *L. ciliata* has $2n = c. 96$.

KEYWORDS: yellow loosestrife, chromosome number.

INTRODUCTION

This note was prompted by difficulties encountered in identifying yellow loosestrifes (*Lysimachia* spp.) both in cultivation and naturalised in the British Isles. I was very familiar with *L. punctata* L. naturalised and as a garden plant in Argyll where it is often found in ditches near abandoned crofts. However, at Ness Botanic Gardens on the Wirral a quite different plant was labelled *L. punctata*. The orange spot at the petal base, branched inflorescence branches, absence of continuation of the leafy axis beyond the inflorescence and the fact that it produced seed, easily distinguished this species from what I knew as *L. punctata* - which I had never seen to produce seed and therefore assumed to be self-incompatible. There were, therefore, two quite distinct taxa commonly being grown under the same name.

Originally I identified the plant in cultivation at Ness as *L. ciliata* L. because of the presence of the orange spot at the petal base (Ferguson 1972), but this identification was questioned by a visitor who provided a living specimen of *L. ciliata* which was clearly distinct from either of the two species already in cultivation and was named correctly.

There was clearly confusion in the literature. Huxley (1992) mentions *L. verticillata* (sic) as being very similar to *L. punctata*. Ferguson (1972) regards *L. verticillaris* Sprengel as synonymous with *L. punctata*, but Leblebici (1978) describes *L. punctata* and *L. verticillaris* as distinct, distinguishing them primarily on petiole length.

Accordingly a morphological study has been made of the upright *Lysimachia* species likely to be encountered native or naturalised in the British Isles and the following key devised, a summary of distinguishing characters being given in Table 1.

DISCUSSION

L. vulgaris is distinct with its terminal, panicate inflorescence, *L. ciliata* equally so with its flat flowers on long pedicels and its ciliate petioles and *L. terrestris* (L.) Britton with its smaller spotted flowers and bulbils. The other two species are much confused and usually grown under the name *L. punctata*. However, they are easily distinguished by the characters mentioned in Table 1. No previous mention seems to have been made of the orange area at the petal base in *L. verticillaris*, its

TABLE 1. DIFFERENTIAL CHARACTERS AMONG FOUR UPRIGHT SPECIES OF *LYSIMACHIA*

	<i>L. vulgaris</i>	<i>L. ciliata</i>	<i>L. punctata</i>	<i>L. verticillaris</i>
Petal base	pale	orange	pale	orange
Bracts at extreme tip of inflorescence	leafy	leafy	very leafy	subulate or leafy
Bracts in upper inflorescence	subulate	leafy, ovate	leafy, ovate	subulate
Inflorescence	panicle	panicle-raceme	raceme	raceme-panicle
Axillary branching in inflorescence	raceme - single flower	single flower or reduced raceme with bracteoles	2 flowers on ebracteolate pedicels	2 flowers or reduced raceme with bracteoles
Flower shape	campanulate	flat	campanulate	campanulate
Pedicel length	<2.5cm	>2.5cm	<2.5cm	<2.5cm

absence in *L. punctata*, or the fact that the inflorescence is usually terminal in *L. verticillaris*, lacking the leafy apical rosette to the racemose inflorescence which is always so conspicuous in *L. punctata*. All the bracts in *L. punctata* are leafy whereas only the lower and very rarely the extreme uppermost are leafy in *L. verticillaris*; the bracts in most of the upper part of the inflorescence are subulate and inconspicuous. This results in a much less leafy appearance to the inflorescence of *L. verticillaris*. On vigorous stems both species can produce lateral inflorescences similar to the primary one. *L. verticillaris* always produces axillary reduced racemes in the axils of bracts on the lower part of the raceme whereas bracts of *L. punctata* always bear paired flowers in their axils. These flowers are borne on ebracteate pedicels though the pedicels are often fused for part of their length. The inflorescences of *L. verticillaris* may therefore sometimes look almost paniculate or be a panicle of racemes. Another very evident difference in cultivation is that *L. verticillaris* forms clumps of stems which do not spread laterally to any great extent while *L. punctata* is strongly rhizomatous and forms dense, extensive patches.

The most obvious distinguishing character in living flowering specimens is the orange spot at the petal base in *L. verticillaris*. This character is much less obvious in herbarium specimens. However, some of the other characters mentioned, perhaps especially the nodal red coloration in *L. verticillaris*, may not be present in all specimens in the wild, only in the material introduced to cultivation. Many of the other distinguishing characters mentioned above are also much less evident on herbarium specimens though very obvious when living material is studied.

Difficulties of identification may also be encountered, with both herbarium and living material, because of the state of maturity of the specimens. In immature specimens, or those taken early in the flowering period, the state of the bracts in the upper parts of the inflorescence will not be evident. Supplementary characters given both in the key and table should, however, allow the correct identification of such specimens. Leblebici (1978) describes the two species as having non-overlapping ranges, *L. punctata* occurring in Europe and Western Turkey while *L. verticillaris* is found in north and east Turkey, Caucasia, Crimea and N. Iran.

L. verticillaris always produces liberal quantities of viable seed whereas *L. punctata* has never been seen to produce any seed, even when grown in close proximity to *L. verticillaris*. Therefore it seems that *L. verticillaris* is self-compatible while *L. punctata* is self-incompatible and that the two species do not normally interbreed. This lack of interbreeding supports the retention of the two taxa as distinct species. Both *L. verticillaris* and *L. punctata* have chromosome numbers of $2n = 30$ while *L. ciliata* has $2n = c. 96$ (counts made in the course of this study). *L. vulgaris* is recorded as having $2n = 56, 84$ (Ferguson 1972).

HABITAT REQUIREMENTS

It is interesting that Leblebici (1978) describes *L. punctata* and *L. verticillaris* as occupying wet

habitats in the wild and it is nearly always in wet situations that they are found naturalised. In gardens they are usually grown in herbaceous borders where they grow more or less satisfactorily as long as they are free from competition. At Tighnabruaich, Argyll in Scotland naturalised populations of *L. verticillaris* occur between the road and the shore (Grid ref. NR/990.738) alongside naturalised plants of *Persicaria campanulata* (Hook. f.) Ronse Decraene (*Polygonum campanulatum* Hook. f.), *Geranium* \times *oxonianum* Yeo, and *Rumex pseudoalpinus* Hoeftt, all species of wet habitats in their native ranges and when naturalised in Britain often found growing in flushes.

Voucher specimens of *L. verticillaris* are deposited in LIV, E and BM. This is the first record of the species for the British Isles; it is not mentioned in Clement & Foster (1994) but many records of *L. punctata* are likely to be *L. verticillaris*.

KEY TO FOUR CONFUSED SPECIES OF *LYSIMACHIA* FOUND IN THE BRITISH ISLES

- 1a. Petiole ciliate; leaves glabrous, mostly opposite; pedicels more than 2.5 cm; open flower flat.....*ciliata*
- 1b. Petiole not ciliate; leaves pubescent, mostly verticillate; pedicels less than 2.5 cm; open flower campanulate2
- 2a. Inflorescence paniculate; flowers borne singly in axils of bracts; stem leaves usually in whorls of three *vulgaris*
- 2b. Inflorescence racemose or a panicle of racemes; flowers paired in axils of bracts; stem leaves usually in whorls of more than three3
- 3a. Petals with orange flush at base; some axillary branches in inflorescence themselves branched and bearing several flowers subtended by bracteoles; some bracts subulate and shorter than or equal to pedicel; petiole more than 5 mm; nodes and leaf bases purplish; inflorescence racemose to a panicle of racemes *verticillaris*
- 3b. Petals paler towards base; axillary branches in inflorescence single or 2-flowered but pedicels lacking bracteoles; all bracts leafy and much longer than pedicel; petiole less than

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