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*Lathyrus filiformis* (*Fabaceae*) a new species for the Bulgarian flora

**Abstract**


*Lathyrus filiformis* (Lam.) Gay, a characteristic species for the Western Mediterranean region, is reported as a new one for the Bulgarian flora. In Bulgaria it is currently known from few localities in the Central Rhodopes Mts. A brief phytogeographical characteristics and a key for the determination of the Bulgarian species of sect. *Lathyrostylis* are presented.

**Introduction**

The genus *Lathyrus* L. includes some 150 species found mainly in Europe, Asia, North America, the temperate regions of South America and tropical East Asia (Kupicha 1981).

In the course of the biosystematical survey of the perennial species of g. *Lathyrus* distributed in Bulgaria, some plants were found in the Central Rhodope Mts. demonstrating a set of morphological characters different from these of the currently known. As a result of the comparative morphological analysis these plants are here referred to *Lathyrus filiformis* (Lam.) Gay. The occurrence of this species in Bulgaria is an interesting fact, since it has been known to be a Western-Mediterranean geoelement (Meusel & al. 1965; Ball 1968; Bässler 1981; Greuter & al. 1989). The new localities in the Central Rhodopes Mts. appear as the easternmost parts of the species' geographical area (Fig. 1).

**Material & Methods**

For the comparative morphological, chorological and phenological survey of *L. filiformis* were used specimens collected from the field, herbar samples kept at the Herbarium of the Sofia University (SO), the Herbarium at the Institute of Botany - Bulgarian Academy of Sciences (SOM), the Herbarium at the Agricultural University, Plovdiv (SOA), Botanischer Garten und Botanisches Museum Berlin - Dahlem (B), the Herbarium of the Royal Botanic Gardens Kew (K) (Table 1).

Morphological features of the vegetative and reproductive parts were used for the spe-
cies delimitation. The quantitative characteristics presented are result of 25-50 measurements.

The area diagnosis follows Meusel & al. (1965). The localities in Bulgaria are shown on an UTM-Grid map (scale 1: 1500000, square side 10 km; Fig. 1). This distribution is presented according to the floristic division of Bulgaria by Jordanov (1966).

Results & Discussion

*Lathyrus filiformis* (Lam.) Gay, Ann. Sci. Nat. ser 4, 8 (1857) 315;

Boissier (1872) reported in Flora Orientalis a specimen collected by Janka in Bulgaria (the vicinity of the town of Kalofer) under the name *Orobus filiformis* Lam. as a synonym of *Orobus canescens* L. f. on distributional grounds quite probably, this report does not refer to *L. filiformis*.

Fig. 1. Distribution map of *Lathyrus filiformis*. A: General distribution; B: Distribution in Bulgaria, scale 1: 1500000, square side 10 km.
Table 1. Specimens of *Lathyrus filiformis* examined.

<table>
<thead>
<tr>
<th>Examined specimen</th>
<th>Origin and collection data</th>
</tr>
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<tbody>
<tr>
<td>SO 103049</td>
<td>Central Rhodopes Mts., on stony glades above Trigrad gorge locality, 1350 m asl, KG 80, 41°33’N 24°26’E, 30. 05. 2002, Leg. B. Assiov, Det. A Tosheva</td>
</tr>
<tr>
<td>SO 103051</td>
<td>Central Rhodopes Mts., at the slopes of the Durdabak above Trigrad, 1350 m asl, KG 80, 41°33’N 24°26’E, 08. 07. 2003, Leg. B. Assiov, Det. A Tosheva</td>
</tr>
<tr>
<td>SO 103053, 103164</td>
<td>Central Rhodopes Mts., nearly the village of Mouglia, slop above the road, 1400 m asl, KG 91, 41°37’N 24°30’E, 26. 06. 2002, Leg. / Det. A Tosheva, D. Pavlova</td>
</tr>
<tr>
<td>SO 103052</td>
<td>Central Rhodopes Mts., nearby the village of Kesten, 1300 m asl, KG 80, 41°33’N 24°26’E, 26. 06. 2002, Leg. / Det. A Tosheva</td>
</tr>
<tr>
<td>SO 103163</td>
<td>Central Rhodopes Mts., along the ecopath Trigrad - Jagodina, 1250 m asl, KG 71, 41°38’N 24°21’E, 03. 07. 2004, Leg. B. Assiov, Det. A Tosheva</td>
</tr>
<tr>
<td>SO 69472</td>
<td>Central Rhodopes Mts., on calcareous stony places nearby the village of Kesten, 10. 06. 1974, Leg. / Det. J. Koeva (sub <em>Lathyrus alpestris</em> (Waldst. &amp; Kit.) Rech. f.)</td>
</tr>
<tr>
<td>SOA 12089, 12090</td>
<td>Central Rhodopes Mts., on calcareous places east of Trigrad, 14. 06. 1968, Leg. / Det. <em>Anonym</em> (sub <em>L. pallescens</em> (M. Bieb.) C. Koch); Vidi S. Kožuharov, 29. 06. 1971 (sub <em>L. pallescens</em> (M. Bieb.) C. Koch)</td>
</tr>
<tr>
<td>SOA 36829</td>
<td>On grassy, gravel places, near Martsgianitsa chalet (Rhodopes Mts.), 08. 06. 1979, Leg. / Det. D. Delipavlov (sub <em>L. digitatus</em> (M. Bieb.) Fiori)</td>
</tr>
<tr>
<td>SOM 121819</td>
<td>Fl. Galica, 850 m. all, st. Vallier – dethiey (Alpes Maritimes), 02. 06. 1967, Leg. / Det. Witte</td>
</tr>
<tr>
<td>SOM 157425</td>
<td>Banon, Alpes de Hante, Provance, 910 m. all</td>
</tr>
<tr>
<td>B 100004296</td>
<td>Fl. Gallica Dep. Var Monttrieux, 02. 05. 1916, Leg. / Det. H. Beger (sub <em>Lathyrus canescens</em> (L. f.) Gren. et Godr.)</td>
</tr>
<tr>
<td>B 100004307</td>
<td>Regnum Valentinum in pradis Sierra de Ayora fol. Calior. 800-900 m s m. (sub <em>Orobus canescens</em> L. f. var. <em>filiformis</em> Gay); Rev. M. Bässler 1996 (sub <em>Lathyrus filiformis</em> (Lam.) Gay)</td>
</tr>
<tr>
<td>B 100004304</td>
<td>Spanien, Prov. Cuenca, Villalba de la Sierra, 18. 05. 1995, Leg. / Det. R. Hand; VI M. Bässler, 1996 (sub <em>Lathyrus filiformis</em> (Lam.) Gay)</td>
</tr>
<tr>
<td>K 000262576</td>
<td>Coteau herbus des terrains calcaires au Luc, 01. 06. 1860, Leg. / Det. H. Kanry (sub <em>Orobus filiformis</em> Lam.)</td>
</tr>
</tbody>
</table>
Fig. 2. Lathyrus filiformis: a. habit; b. stipules; c. leaf; d. flower; e, f. calyx; g. vexillum; h. allae; i. carina; j. open staminal tube; k. pistil; l. legume; scale bar = 1 cm.
A key for the determination of the species of sect. *Lathyrostylis* found in Bulgaria

1. Rootstocks tuberous, fusiforms, leaves pinnate or subdigitate, style linear.......................2
1*. Rootstocks thin, filiform, leaves pinnate, style spatulate............................................3
2. Leaves subdigitate, bracts membranous, obovate, corolla pale purple......................... *L. digitatus*
2*. Leaves pinnate, bracts absent, corolla pale cream to white................................. *L. pannonicus*
3. Plants (30) 50-80 (140) cm high, villous, leaves with 3-6 (7) pairs of leaflets, inflorescences many-flowered, (5)10-20(25) flowers, legume with simple hairs.................................................................................................................... *L. pancicii*
3*. Plants 15 - 50 cm high, glabrous or sparsely pubescent, leaves with 1-3 (4) pairs of leaflets, inflorescences several-flowered, 3-10 flowers, legume glabrous or scattered glandular.......................................................... *L. pallescens*

4. Stipules semihastate, corolla pale sulphur, legume gland-dotted, hilum ⅛ of the seed circumference............................................................................................................. *L. filiformis*
4*. Stipules semisagittate, corolla pale purple, legume glabrous, hilum 1/8 of the seed circumference.......................................................................................... *L. filiformis*

**Distribution**

The species is considered to be endemic for the Western Mediterranean and its distribution range covers Central North Spain, Eastern Spain, Southern France, Northern Italy (Ball 1968). Later on Morocco, Algeria and the Azores were included in its distribution range (Bässler 1981). The same information is presented also by Greuter & al. (1989) and Gallego (1999).

In Flora of Serbia the species is reported for Bosnia, Montenegro and Serbia (Kojić 1972). According to Vasic (pers. commun.) the specimens kept in the Herbarium at the Natural Museum in Beograd (BEO) most probably belong to *L. bauhini Genty (= L. filiformis var. ensifolius* (Lapeyr.) Hayek. However, its distribution in these territories could be accepted after a detailed study of the herbar specimens available.

The find of *L. filiformis* in only one floristic region of Bulgaria (Central Rhodopes Mts., the villages of Mouglia, Kesten, Trigrad, Yagodina, Lakes Chairski, the vicinity of Martsiganitsa chalet, Table 1, Fig. 1) widens its distribution range to the east and the species can be considered as a Mediterranean geoelement. Its area is characterized by a disjunction that is typical for many species of sect. *Lathyrostylis* (Kupicha 1983)

**Ecology**

In the Western Mediterranean *L. filiformis* inhabits dry grasslands and stony places, open shrubby communities on calcareous soils up to 1700 m, rarely reaching 2000 m in the mountains of Morocco (Bässler 1981).

The habitats of the species in the Central Rhodopes Mts. are similar calcareous terrains with thin, poor brown and mountain-forest soils, in a continental climate modified by the Mediterranean influence. The species grows on stony grasslands and on slopes at the margins of spruce forests, mixed with *Pinus sylvestris* L. and *Fagus sylvatica* L., between 1250

The most densely and mosaic populations are found at Lakes Chairski and nearby the village of Mouglia. In the other localities the species is found rarely or occurs solitary, most probably as a result of ruderalization after heavy destructions of the natural vegetation. Its populations are under strong anthropogenic pressure and the probability for extinction of the species from the Bulgarian flora in recent future seems quite real.

The possibility for the occurrence of *L. filiformis* in the adjacent border territories of Greece has to be also explored.

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**References**


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