

A New Record for the Flora of Turkey: *Lupinus angustifolius* L. subsp. *reticulatus* (Desv.) Coutinho (Fabaceae)

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Abstract

In this study, *Lupinus angustifolius* L. subsp. *reticulatus* (Desv.) Coutinho was given as a new record from Turkey. Furthermore, some morphological characteristics differing from those in literature were discussed. It was determined with present study that the *Lupinus* genus in Turkey has been represented with 8 taxa.

Key words: *Lupinus angustifolius* subsp. *reticulatus*, new record, Flora of Turkey, Fabaceae.

INTRODUCTION

Lupinus L. genus includes annual or perennial herbs, rarely shrubs. The genus has usually digitate and petiolate leaves. Stipules are adnate to the base of the petiole. Flowers are in terminal racemes. Calyx is bilabiate, 4-5 toothed and divided almost to the base. Stamens are monadelphous. Fruit is a legume with 2-12 seed, dehiscent, compressed, usually hirsute and usually constricted between the seeds. The genus is mainly distributed on non-calcerous soils. It comprises about 200 species on the world and has a wide distribution in the Mediterranean region [1-3]. It is represented with 7 taxa belong to 6 species in Turkey [1, 4].

MATERIAL AND METHODS

During the identification of the plant samples by authors it was found that some of the them did not fit the identification key given in the flora of Turkey [1]. These specimens were identified as *Lupinus angustifolius* subsp. *reticulatus* using Flora Europaea [2] and they were determined as a new record for the flora of Turkey. Also, the related literatures [4-8] were looked over to prove that this taxon was a new record for the flora of Turkey. The specimens are kept at the herbarium of Balıkesir University.

RESULTS

***Lupinus angustifolius* L. subsp. *reticulatus* (Desv.)**
Coutinho in Fl. Port. 315 (1913).

Diagnostic characteristics of taxon: Shortly, hairy annual, 20-40 cm.; leaflets 10-20x2 mm., conduplicate, linear; legume 35-45x6-8 mm.; seeds 4,5-5x3-3,5 mm.; *maritime sands, rarely inland; S.W. Europe and W. Mediterranean region. Naturalized in Jugoslavia* [2]. Flowering 4-5. months (Fig. 1).

Distribution of taxon in Turkey: B1 Balıkesir; Ayvalık, Sarımsaklı (Küçükköy), Badavut location, military coastal zone, 0 m., 19.05.2003, F. Özen 1736 (Fig. 2).

According to Davis [1], *Lupinus angustifolius* subsp. *reticulatus* is essentially maritime and is easily confused with small specimens of subsp. *angustifolius*. Davis [1] also stated that the occurrence of subsp. *reticulatus* in Turkey requires confirmation. The presence of the subsp. *reticulatus* in Turkey confirmed by the present study. As seen in Table 1, some morphological differences, most importantly the corolla colour, between those given in Flora Europaea and those reported in the present study were given. This table also shows comparison of two subspecies of *Lupinus angustifolius*.

DISCUSSION

Lupinus angustifolius subsp. *reticulatus* is distributed on sandy soils, poor as organic material. The climate of the region is Mediterranean climate. The taxon is spreaded together with *Sarcopoterium spinosum*, *Lavandula stoechas* ssp. *stoechas*, *Glaucium flavum*, *Muscari comosum*, *Papaver rhoeas*, *Cistus creticus* and *Cistus salviifolius*.

Since the coastal region where *Lupinus angustifolius* subsp. *reticulatus* is distributed remain in the military restricted area, there is no human settlement in these regions. Nevertheless, this area is widely used as bathing beach especially during Spring and Summer. Our field observations suggest that the distribution area of this taxon is being narrowed day by day due to this anthropogenic effect and hence it is at risk of extinction.

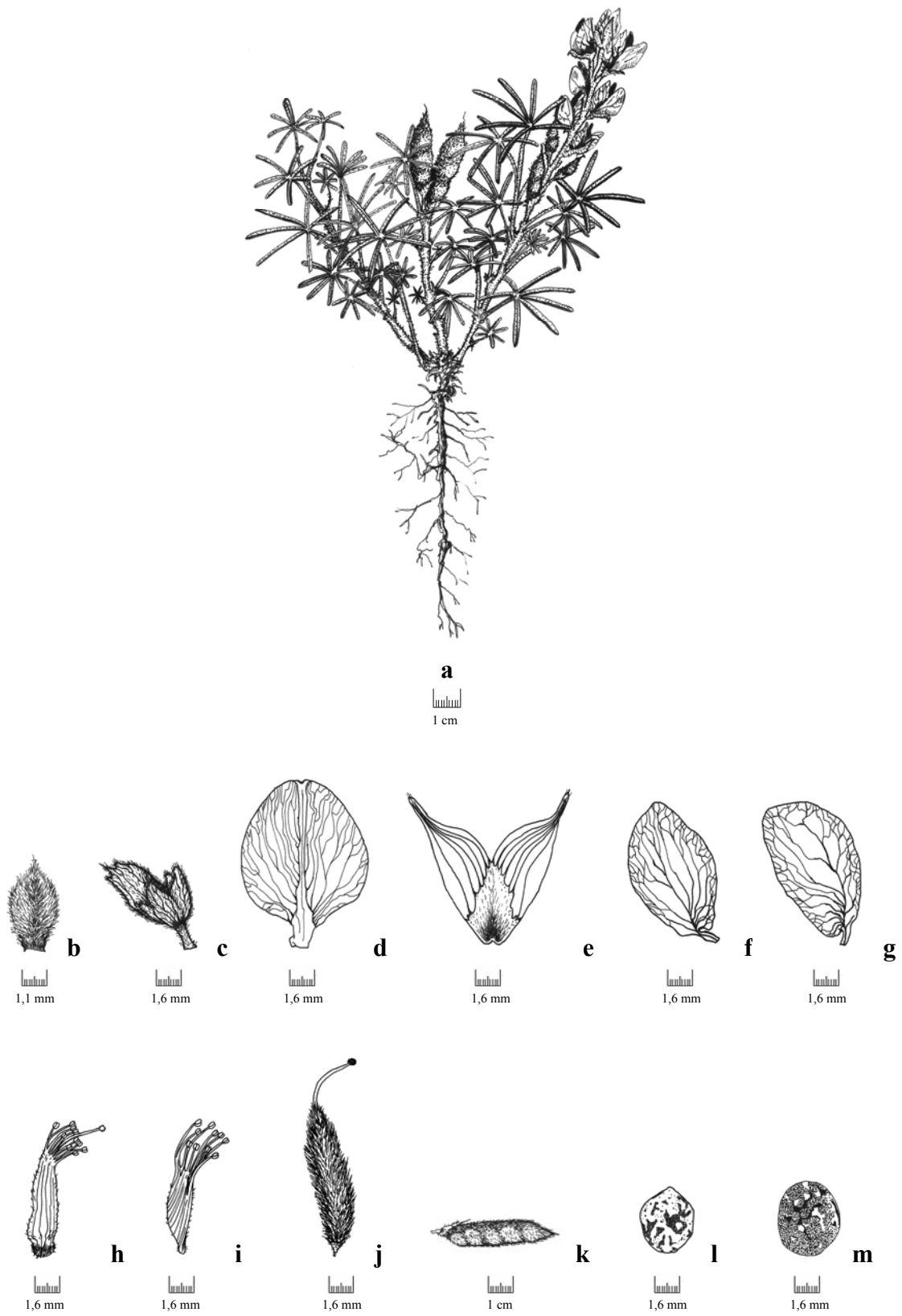


Figure 1. *Lupinus angustifolius* subsp. *reticulatus* (Desv.) Coutinho (a:General appearance; b:Bracte; c:Sepal; d-g:Petal; h-i: Male organ; j:Female organ; k:Fruit; l-m:Seed)

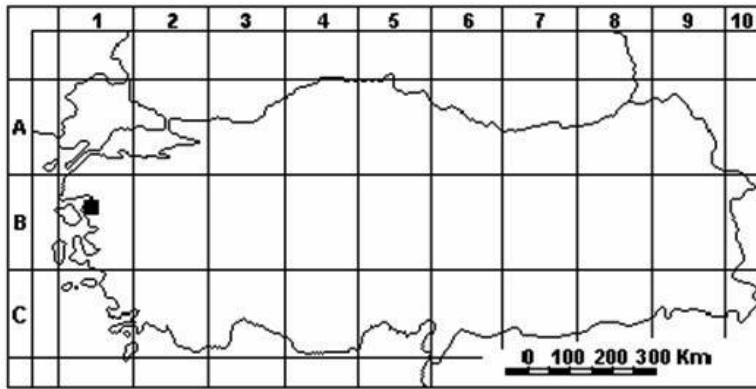


Figure 2. Distribution of *Lupinus angustifolius* subsp. *reticulatus* (Desv.) Coutinho in Turkey.

Table 1. The comparison of *L. angustifolius* subsp. *angustifolius* and *L. angustifolius* subsp. *reticulatus* according to their diagnostic features.

	Measured and observed characters											
	Plant length (cm.)	Leaflets length (mm.)	Bract length (mm.)	Pedicel length (mm.)	Calyx length (mm)		Corolla length (mm.)	Corolla colour	Stigma, stilus and ovarium lengths (mm.)	Anther and filament lengths (mm.)	Legume length and width (mm.)	Seed length and width (mm.)
					Upper lip	Lower lip						
<i>Lupinus angustifolius</i> subsp. <i>angustifolius</i> [2]	50-80	30-40 x 4-5	-	-	4	6-7	11-13	Blue	-	-	40-60 x 8-13	6-8 x 4-7
<i>Lupinus angustifolius</i> subsp. <i>reticulatus</i> [2]	20-40	10-20 x 2	-	-	4	6-7	11-13	Blue	-	-	35-45 x 6-8	4,5-5 x 3-3,5
<i>Lupinus angustifolius</i> subsp. <i>reticulatus</i> [Present study]	10-34	12-27 x 1,8-2,9	3,8-4 x 2-2,5	1-1,2	3-3,5	5-7	9-11	Cream to light or dull blue	0,4-0,5 2,5-2,7 3-5	0,4-0,5 2-3 5,2-7,2	24-49 x 6-9	4-5 x 3-4

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