*Notes RBG Edinb.* 43(4): 489–492 (1986)

# A NEW LENS FROM THE MIDDLE-EAST

G. LADIZINSKY*

ABSTRACT. According to the position of the stipules, two morphological types have been distinguished in the taxon *Lens nigricans* (Leguminoseae). In one they were pointing upward and horizontal in the second. The two types are cross incompatible with one another and hence the latter is described as a new species, *L. odemensis*. It is presently known from Israel, Turkey and Chios of the Aegean Islands.

In the last few years, the genus *Lens* has been subjected to extensive comparative morphological and genetical studies aiming to elucidate the wild gene pool of the cultivated lentils. As part of these studies, herbarium material was examined and fresh seeds were collected during several field trips in the Middle East and southern Europe. Furthermore, crosses were performed within and between various taxa, and the F1 hybrids were examined for meiotic behaviour and fertility.

Two morphological types were distinguished in *L. nigricans* (Bieb.) Godr.: (1) with stipules pointing upward, assuming a parallel position to the stem, and considerably dentate at their lower part; (2) stipules with horizontal position and much less dentate (Fig. 1). The type of *L. nigricans* was not available for examination, but it has been indicated to me from Leningrad, where the type is deposited (Vassilczenko, pers. comm.), that it possesses the upward stipules type. Accordingly, the entity with horizontal stipules is described as a new species.

**Lens odemensis** Ladizinsky, **sp. nov.**

*L. nigricanti* similis, a qua differt stipulis patentibus (non arrectis) ad bases minus dentatis.

Herba annua, gracilis, pilosa, 5–25cm alta. Folia mucronata vel breviter cirrhosa, foliola 3–5(–6) nata, elliptica ad elliptico-linearia, 5–8 × 1·5–2mm; stipulae ad caulem horizontaliter positae, semihastatae, raro dentatae. Pedunculus 1–3-florus, quam caulis 1–2-plo longior, conspicue aristatus. Calyx 5–6mm longus, dentibus tubo multo longioribus. Corolla caerulescens, calycem + aequans. Legumen late rhomboidale, c.10mm longum, glabrum.

Type: Israel, Kerem Ben-Zimra, basaltic slope, 25 iv 1975 (holo. HUJ, iso. E).

The epithet *odemensis* marks the first two sites where this taxon was observed. Mt Odem in the upper Galilee and Odem nature reserve in the Golan Heights. Later, seeds of *L. odemensis* were collected on Mt Shipon, Golan Heights and in three locations in Turkey: 7km NW of Kocukkuyu, Edremit–Çanakale road; 3km S of Çamlik, Odemiş–Nazalli road; and near Sarimazi, Iskenderun–Antakya road. In addition, among *L. orientalis*

*The Hebrew University of Jerusalem, The Levi Eshkol School of Agriculture, Rehovot 76–100, P.O. Box 12, Jerusalem, Israel.

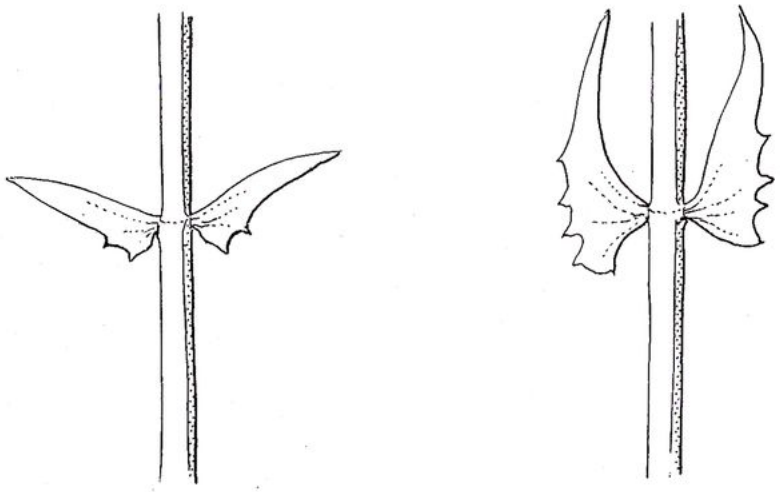

FIG. 1. Stipules of *L. odemensis* (left) and *L. nigricans* (right).

material which is deposited in Kew, two specimens, from Toprakkale near Osmaniye, Turkey, and Kampia, Chios, Aegean Islands have been identified as *L. odemensis* (Fig. 2).

In the upper Galilee and the Golan Heights, *L. odemensis* was found in herbaceous vegetation on basaltic slopes. In two of the sites in Turkey it was found in pine groves and on chalk, whereas at Sarimazi it occurred in herbaceous vegetation on metamorphic bedrock.

*Lens odemensis* differs from *L. nigricans* also cytogenetically. The two are cross incompatible due to the break down of the F1 hybrids, which occur 10–14 days after fertilization. As a result of more than 300 crosses, 4 seeds were obtained but they gave rise to albino seedlings that died about 10 days after germination. One seedling developed a green sector which later produced a mature plant. However, that plant was totally sterile because of very irregular chromosome association at meiosis (Ladizinsky *et al.*, 1984).

It is now obvious that in previous reports (Ladizinsky, 1979; Gosten *et al.*, 1982) on hybrids between *L. nigricans* and *L. culinaris* Medik., *L. odemensis* and not the true *L. nigricans* was used. It has since been established that *L. nigricans* and *L. culinaris* are reproductively isolated by the breakdown of the embryos of their F1 hybrids (Ladizinsky *et al.*, 1983). On the other hand, *L. odemensis* is cross compatible with the cultivated lentil (*L. culinaris*) and the F1 hybrids are partially fertile. For this reason, the taxon *L. odemensis* was treated as a subspecies of *L. culinaris* (Ladizinsky *et al.*, 1984). However, recent information indicates that *L. odemensis* is genetically closer to *L. nigricans* than to *L. culinaris* (Pinkas *et al.*, 1985). Thus, the morphological, cytological and genetical evidence warrants the delimitation of *L. odemensis* as a new species.

Following the delimitation of a new species in *Lens* and the recent recommendation (Ladizinsky & Sakar, 1982) to remove *L. montbretii* from the genus, the following key is proposed:

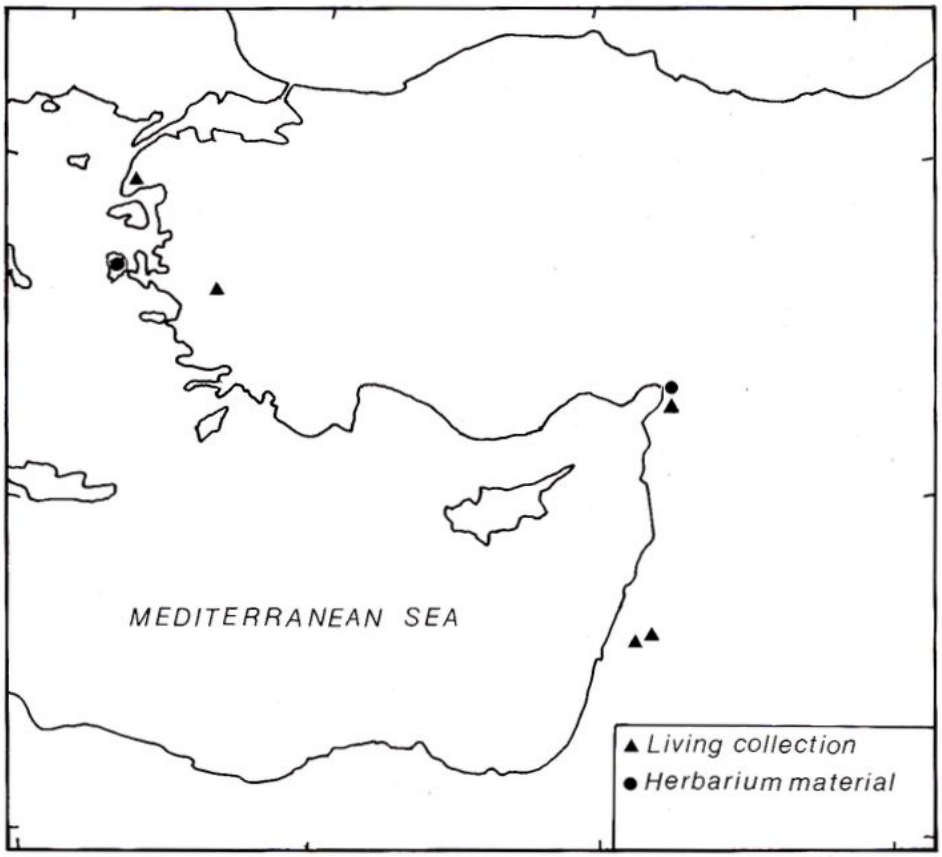


FIG. 2. Present information on the distribution of *L. odemensis*.

1. Stipules lanceolate, entire . . . . . 2
+ Stipules semi-hastate . . . . . 3

2. Mature pods not dehiscing, cultivated . . . . **L. culinaris**
2. Mature pods dehiscing . . . . . **L. orientalis**

3. Stipules entire, peduncle not or scarcely aristate, pod pubescent **L. ervoides**
+ Stipules toothed, peduncle aristate, pod glabrous . . . . 4

4. Stipules pointed upward, considerably toothed below . **L. nigricans**
+ Stipules horizontal to the stem, slightly toothed . . **L. odemensis**

## ACKNOWLEDGEMENTS

This study was partially supported by a grant from the United States Israel Binational Agricultural Research and Development Fund (Bard). Thanks are also due to Dr R. R. Mill, for the latin description, and to Dr I. T. Vassilczenko and Mr I. C. Hedge for assistance in verifying the stipule shape of the *L. nigricans* type collection.

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