

## 20. A NEW SUBSPECIES OF *TORILIS ARVENSIS* (HUDSON) LINK

S. L. JURY

Department of Botany, Plant Science Laboratories, The University of  
Reading, Berkshire, RG6 6AS, U.K.

*Torilis arvensis* (Hudson) Link was based on material collected in England (“*in arvis frequens*”) and described as *Caucalis arvensis* by Hudson 1762. This plant, once a frequent cornfield weed, is now ‘scarce’ in Britain having been recorded in 252 10 km squares before 1970 and only 82 after this date, shows a marked decline (STEWART, 1984). All herbarium specimens are very short (usually much less than 30 cm), annuals, much-branched from the base with few (3-5) rays, petals hardly radiating and styles about twice as long as the stylopodium. It is also well-known from France and Switzerland, but differs from the variant found in central and southern Europe, N. Africa, S.W. Asia and also widely naturalized, referred by Floras (including CANNON, 1968) to subsp. *arvensis*. This other variant is much taller, 30-50 cm, less branched, the branches more erect and more rays (3-10) per umbel. It lacks a name at the subspecific rank, and I propose the following:

### ***Torilis arvensis* (Hudson) Link subsp. *recta* Jury, subsp. *nova***

Subspeciei *arvensis* affinis, a quae praecipue caule elatiore erecto, 30-100 cm, ramis paucioribus magisque erectis et (3-) 5-8 radiatis umbellis differt.

Similar to subsp. *arvensis*, from which it chiefly differs by a taller erect stem, 30-100 cm, branches fewer and more erect and with (3-) 5-8 rays in the umbels.

*Type.* Morocco, Targuist to Al Hoceima, road near Beni Hadifa, 35°1'N 4°11'W, UTM 30S 392578 3875166, 1110 m, roadside bank, 29 June 1993, *M. Ait Lafkih, S.L. Jury & L.S. Springate* 11306 (Holotype RNG; Isotypes BC, IAV (Rabat Institut Agronomique et Vétérinaire Hassan II), SEV).

Another variant of this species complex, subsp. *purpurea* (Ten.) Hayek, is characterised by erect stems, 25-50 cm, unbranched at the base, with relatively few divaricate branches above, (2-)3(-4) rays, usually forming an angle of 45-60°. The lower leaves are 2- to 3- pinnate, upper similar but smaller or very different, with three linear remotely serrate to entire segments. This leaf plasticity has resulted in the taxa *T. homophylla* Stapf & Wettst. (= *purpurea* Ten.) and *T. heterophylla* Guss. being described. Apart from Cyprus, where these variants are very clearly distinct (and, therefore, recognised by MEIKLE,

1977: 701-702), most modern workers (e.g. CULLEN, 1972; GARCÍA MARTÍN, 1987; HELLER & HEYN, 1993) treat them as synonyms of subsp. *purpurea*.

A third very small variant (sometimes over 2 cm in nitrophilous situations) with relatively few (compared with the typical subsp. *arvensis*) erect branches, long pedunculate umbels with 6-12(-20) rays, radiate outer petals and styles up to six times as long as the stylopodium has been described as subsp. *neglecta* (Schultes) Thellung in Hegi. These characters (prominently positioned umbels, many rays, radiate petals, long styles) form a complex syndrome associated in the Umbelliferae with outbreeding taxa (JURY, 1986). This outbreeding variant occurs frequently in central and southern Europe, North Africa and western Asia to Iraq and Iran, and has become widely naturalized elsewhere, including Britain.

Another low-growing taxon with two long rays diverging at 90° and often sessile at the nodes (so that it appears composed of two simple umbels) has been called *T. arvensis* subsp. *elongata* (Hoffmanns. & Link) Cannon, but is best regarded as distinct species. It has been confused with both *T. leptophylla* (L.) Reichenb. fil. and *T. arvensis* subsp. *purpurea*. It is characteristic of very hot, dry stony slopes.

Specimens can be assigned unambiguously to these distinct variants, but no name exists at the subspecific rank for the widespread variant which is neither the short much-branched subsp. *arvensis*, nor the other taxa outlined above. Names at other ranks have been used in different senses by various workers and are best avoided. The name of the new subspecies *recta* refers to the differing habit of the taxon as compared to the type subspecies.

The following key will serve to separate these taxa:

1. Primary and well-developed umbels with 2-3(-4) rays ..... 2
1. Primary and well-developed umbels with (3-)4-20 rays ..... 3
2. Rays 2(-3), robust, diverging at an angle of 90°;
  - fruit 5-6 mm ..... **T. elongata**
2. Rays 3(-4), slender at an angle of 45-60°;
  - fruit 4-5 mm ..... **T. arvensis** subsp. **purpurea**
3. Outer petals 2 mm or more, distinctly radiate; styles 3-6 times
  - as long as stylopodium ..... **T. arvensis** subsp. **neglecta**
3. Outer petals 1.5 mm or less, only very slightly radiate; styles
  - 2-3 times as long as the stylopodium ..... 4
4. Plants less than 30 cm, much branched, branches
  - spreading ..... **T. arvensis** subsp. **arvensis**
4. Plants 30-100 cm, little branched, branches
  - more or less erect ..... **T. arvensis** subsp. **recta**

**Torilis arvensis** (Hudson) Link, *Enum. Hort. Berol. Alt.* 1: 265 (1821).  
*Caucalis arvensis* Hudson, *Fl. Anglica*: 99 (1762).

subsp. **arvensis**

*Torilis divaricata* Moench, *Meth. Suppl.* 34 (1802).  
*T. arvensis* subsp. *divaricata* (Moench) Thell. in Hegi, *Ill. Fl. Mitteleurop.* 5(2): 1055 (1926).  
*T. helvetica* C.C. Gmelin, *Fl. Bad.* 1: 617 (1805).  
*T. infesta* Hoffm., *Gen. Umb.*: 89 (1814).

subsp. **recta** Jury

*Caucalis helvetica* Jacq., *Hort. Bot. Vindob.* 3: 12, t.16 (1773).  
*T. arvensis* (Hudson) Link var. *elatior* (Gaudin) Thell. in Hegi *Illus. Fl. MittelEurop.* 5(2): 1056 (1926).  
*T. helvetica* Gmel. var. *anthriscoides* DC., *Prod.* 4: 219 (1830).

subsp. **neglecta** (Schultes) Thell. in Hegi, *Ill. Fl. Mitteleurop.* 5(2): 1055 (1926).  
*T. neglecta* Schultes in Roemer & Schultes, *Syst. Veg.* 6: 484 (1820).  
*T. radiata* Moench, *Meth.* 103 (1794).  
*T. arvensis* (Hudson) Link var. *heterocarpa* (Batt.) Maire, *Cat. Pl. Maroc* 2: 525 (1932).

subsp. **purpurea** (Ten.) Hayek, *Prodr. Fl. Balc.* 1: 1057 (1927).

*Caucalis purpurea* Ten., *Corso Bot. Lez.* ed. 2, 4: 209 (1823).  
*T. purpurea* (Ten.) Guss., *Fl. Sic. Prodr.* 1: 325 (1827).  
*T. homophylla* Stapf & Wettst., *Denkschr. Akad. Wiss. Wien* 51: 372 (1886).  
*T. heterophylla* Guss., *Fl. Sic. Prodr.* 1: 326 (1827).

**Torilis elongata** (Hoffmanns. & Link) G. Samp., *Ann. Acad. Polyt. Porto* 14: 154 (1921).

*Caucalis elongata* Hoffmanns. & Link, *Fl. Port.* 2: 392 (1820).  
*T. arvensis* subsp. *elongata* (Hoffmanns. & Link) Cannon, *Feddes Repert.* 79: 62 (1968).  
*C. caerulescens* Boiss., *Elench.* 53 (no. 93) (1838).  
*C. bifrons* Cosson & Durieu ex Ball, *J. Linn. Soc. Bot.* 16: 478 (1878).

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## 21. DELIMITATION OF PSEUDORLAYA TAXA

B. ARNOLD &amp; S. L. JURY

Department of Botany, School of Plant Sciences, The University of Reading,  
Whiteknights, Reading, RG6 6AS, U.K.

Examination of specimens of *Pseudorlaya* from Morocco clearly shows the previously collected specimens, to be confused and badly identified. Both *P. pumila* (L.) Grande and *P. minuscula* (Pau ex Font i Quer) Laínz show a considerable amount of infraspecific variation. The account by HEYWOOD (1968) in *Flora Europaea* separates the species on fruit size and the nature of the spines on the secondary or vallecular ridge. The size of the fruits is very variable and cannot be used for separation. Examination of type material of *P. minuscula* (Morocco, Larache, Primavera 1914, Pérez Camarero, BC!, MA!) shows the species to have numerous narrow spines, not obviously widened at the base, quite unlike the broad-based *P. pumila*-type (both accurately illustrated in VALDES & al., 1987, 2: 337). The length of the spines appears to be extraordinarily variable in *P. pumila*, no doubt adding to the confusion. SÁENZ DE RIVAS (1974) presented a treatment recognising *P. biseriata* (Murb.) Sáenz, described from Tunisia and also reported from the Moroccan Sahara. She recognised *P. minuscula* by its thin abundant (30-40 per ridge) smooth spines,