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THE INFRAGENERIC CLASSIFICATION OF BISCUTELLA (CRUCIFERAE)

J. DELE OLOWOKUDEJO

Olowokudejo, J. Dele (Department of Botany, Plant Science Laboratories, University of Reading, Reading RG6 2AS, England). The infrageneric classification of *Biscutella* (Cruciferae). Brittonia 38: 86–88. 1986.—A brief historical taxonomic sketch of *Biscutella* is given. Revisionary study of the genus throughout its geographic areas has led to an infrageneric classification. Two subgenera are recognized, one with two sections.

Biscutella L. is a well-defined genus of the family Cruciferae. The generic name, which means double shield, alludes to the peculiar and distinctive didymous fruit resembling a pair of spectacles. The genus contains about 40 species which are found in the Mediterranean region, except for one species, *B. laevigata* L., which extends into central Europe.

The genus has a well-deserved reputation for taxonomic complexity. Since it was described by Linnaeus (1753), many students of the genus have given accounts of numerous species and proposed several infrageneric arrangements. De Candolle (1811) wrote the first monograph in which he described 25 species grouped into three units based on sepal and fruit characters. About ten years later, he (1821) refined his earlier classification and regrouped the species into two sections: *Jondraba* (Medik.) DC. and *Thlaspidium* (Medik.) DC. The latter section was subdivided into annual and perennial groups. He then created two new genera, *Megacarpaea* DC. and *Cremolobus* DC. for four species he had erroneously included in *Biscutella*.

Adopting a narrow species concept, Jordan (1864) published a comprehensive account of about 52 taxa, of which 33 were regarded as new. However, Jordan's work revealed much infraspecific variation thereby providing a useful basis for future synthetic treatments. Many taxonomists have subdivided *Biscutella* into several genera (e.g., Medicus, 1792; Rouy & Foucaud, 1895; Schulz, 1936), while some simply excluded certain species from the genus (e.g., Machatschki-Laurich, 1926; Guinea, 1963). *Thlaspidium* and *Jondraba* were described by Medicus (1792) as new genera and were published by Cosson (1872) as subgenera without any reference to Medicus. The genus has also been divided into sections (e.g., de Candolle, 1821; Willkomm & Lange, 1880; Guinea & Heywood, 1964), with subsections (Machatschki-Laurich, 1926), or even into several series and subseries (e.g., Malinowski, 1910; Guinea, 1963). Machatschki-Laurich's (1926) concepts introduced a measure of order into some of the taxonomic confusion that existed within the genus and contained the first major account of the invalidated names. While serving as a good working basis, the monograph suffers from some defects, such as a lack of typification of many of the names employed, a failure to examine a sufficiently wide range of material, and some errors in typing the manuscript (Heywood, 1964).

In their revision of the genus in Flora Europaea, Guinea and Heywood (1964) accepted forty one species, including those earlier excluded by Guinea (1963), and classified them into two sections and two series. These authors acknowledged the taxonomic problems existing within the genus and stated (p. 325) that they have adopted a narrow species concept "largely to force attention on the variation in the genus, so that a future synthetic treatment may be possible." Maire (1967), in Flore de l'Afrique du Nord, adopted Cosson's (l.c.) subgeneric segregation and

Guinea's (1963) sectional classification of subgenus *Thlaspidium* (Medik.) Coss., into sections *Lyratae* (Malin.) Guinea and *Laevigatae* (Malin.) Guinea.

In the course of a systematic study of the genus throughout its entire range (Olowokudejo, 1980; Olowokudejo & Heywood, 1984), several infrageneric names were found to have been applied by monographers indiscriminately. This discovery, among others, has led to an infrageneric classification and nomenclatural adjustment. The new classification produced here is the result of a detailed taxonomic investigation carried out by the author and it has formed the basis for a systematic revision that recognises two subgenera and two sections. A complete listing of synonymy will be given in a forthcoming revision of the genus.

BISCUTELLA L.

Biscutella L., Sp. Pl. 652. 1753.

Key to subgenera and sections

- 1 Lateral sepals erect, saccate or spurred at the base; petals 12–16 mm, claws more than 3 mm long, with the limb patent; peduncles leafy; silicula with a wide diaphanous margin; lateral floral nectaries reflexed subgen. *Jondraba*
- 1 Lateral sepals patent, not saccate or spurred; petals 3–8 mm, claws less than 2 mm long, or limb gradually attenuate at base, erect; peduncles leafless; silicula with a narrow membranaceous margin; lateral floral nectaries erect subgen. *Biscutella*
- 2 Annual, rarely perennial; petals gradually attenuate at the base; lateral nectaries intrastaminal sect. *Biscutellae*
- 2 Perennial; petals abruptly contracted into claw, auriculate-dilated above claw; all nectaries extrastaminal sect. *Laevigatae*

Subgenus BISCUTELLA

Thlaspidium Medik., Pflanzen-Gatt. 29. 1792. *Biscutella* sect. *Thlaspidium* (Medik.) DC., Syst. Nat. 2: 407. 1821. *Biscutella* subgen. *Thlaspidium* Coss., Bull. Soc. Bot. France 19: 222. 1872. *Biscutella* ser. *Laevigatae* Malin., Bull. Int. Acad. Sci. Cracovie, Cl. Sci. Math. 1910: 113. 1910.

Annual or perennial. Stem simple or branched. Peduncle leafless. Sepals patent or erecto-patent, lateral pair neither saccate nor spurred. Petals not more than 8 mm long, short-clawed or gradually attenuate at base; claws less than 2 mm long. Lateral nectaries erect, intra- or extra-staminal. Silicula with a narrow membranaceous margin. Chromosome numbers: $2n = 12, 16, 18, 36, 54$.

Type species: *B. didyma* L., Sp. Pl. 653. 1753.

Section BISCUTELLAE

Ser. *Lyratae* Malin., Bull. Int. Acad. Sci. Cracovie, Cl. Sci. Math. 1910: 124. 1910. Subsect. *Lyratae* (Malin.) Mach.-Laur., Bot. Arch. 13: 16. 1926. Sect. *Lyratae* (Malin.) Guinea, Anales Inst. Bot. Cavanilles 21: 403. 1963.

Annual, rarely perennial. Stem simple or branched. Leaves lobed, lyrate or dentate. Petals attenuate at base, not auriculate. Lateral nectaries intrastaminal. Chromosome numbers: $2n = 12, 16$.

Type species: *B. didyma* L., Sp. Pl. 653. 1753.

In the light of Article 22 of the Code of Botanical Nomenclature (1983) this section becomes *Biscutellae* since it contains the type species of the genus.

Section LAEVIGATAE (Malin.) Guinea

Ser. *Laevigatae* Malin., Bull. Int. Acad. Sci. Cracovie, Cl. Sci. Math. 1910: 113. 1910. Subsect. *Laevigatae* (Malin.) Mach.-Laur., Bot. Arch. 13: 37. 1926. Sect. *Laevigatae* (Malin.) Guinea, Anales Inst. Bot. Cavanilles 21: 392. 1963.

Perennial. Stem simple or branched. Leaves entire, dentate, sinuate-dentate, lobed, or pinnatifid. Petals abruptly contracted into claw, auriculate-dilated above claw. All nectaries extrastaminal. Chromosome numbers: $2n = 18, 36, 54$.

Type species: *B. laevigata* L., Mant. Pl. 225. 1771.

Subgenus JONDRABA (Medik.) Coss.

Jondraba Medik., Pflanzen-Gatt. 27. 1792. *Biscutella* sect. *Jondraba* (Medik.) DC., Syst. Nat. 2: 407. 1821. *Biscutella* subgen. *Jondraba* Coss., Bull. Soc. Bot. France 19: 222. 1872.

Annual. Stem simple or branched. Peduncle leafy. Sepals erect, lateral pair saccate or spurred at base. Petals up to 15 mm long, claws more than 3 mm long, with the limb patent. Nectaries extrastaminal, lateral ones reflexed. Silicula with a wide diaphanous margin. Chromosome number: $2n = 16$.

Type species: *B. auriculata* L., Sp. Pl. 652. 1753.

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