

NEW AND NOTEWORTHY SPECIES IN SPAIN

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Resumen. Se citan por primera vez para España *Silene rubella* L. subsp. *bergiana* (Lindmann) Lidén, stat. nov., *Fumaria gaillardotii* Boissier, *F. Mirabilis* Pugsley, *F. melillaica* Pugsley, *F. trabuti* Batt. & Trabut, *Alyssum strigosum* Banks & Solander, *Linaria ficalboana* Rouy y *Muscari parviflorum* Desf. Se indican nuevas localidades para *Arenaria pomelii* Munby, *Silene beben* L. y *Fumaria faurei* (Pugsley) Lidén, stat. nov. Se incluyen nuevos números cromosómicos para *Silene rubella* subsp. *bergiana* ($2n = 24$), *Fumaria gaillardotii* ($2n = 112$), *F. bella* ($2n = 80$), *F. mirabilis* ($2n = 64$), *F. melillaica* ($2n = 72$), *F. faurei* ($2n = 80$) y *F. trabuti* ($2n = 48$).

Summary. *Silene rubella* L. subsp. *bergiana* (Lindman) Lidén, stat. nov., *Fumaria gaillardotii* Boissier, *F. mirabilis* Pugsley, *F. melillaica* Pugsley, *F. trabuti* Batt. & Trabut, *Alyssum strigosum* Banks & Solander, *Linaria ficalboana* Rouy and *Muscari parviflorum* Desf. are reported as new to Spain. New localities are reported for *Arenaria pomelii* Munby, *Silene beben* L. and *Fumaria faurei* (Pugsley) Lidén, stat. nov. New chromosome numbers are given for *Silene rubella* subsp. *bergiana* ($2n = 24$), *Fumaria gaillardotii* ($2n = 112$), *F. bella* ($2n = 80$), *F. mirabilis* ($2n = 64$), *F. melillaica* ($2n = 72$), *F. faurei* ($2n = 80$) and *F. trabuti* ($2n = 48$).

In this note, some new records or new localities are reported for Spain. The material was collected during several botanical expeditions, some of them arranged by the Department of Systematic Botany, Göteborg.

Arenaria pomelii Munby, *Bull. Soc. Bot. Fr.* 11: 45 (1864).

CÁDIZ. 5 km. E Grazalema, wet, grazed meadow in company with *Periballia*, *Moenchia*, *Anthoxanthum*, etc., 24.IV.1978, Lidén & al. 4313 (GB).

Sierra la Greída, W of Los Barrios, meadow, 450 m. s. m., 11.IV.1979, *Holmdahl* 1507 (Herb. Holmdahl).

This curious *Arenaria* which is common in the Rif mountains, has recently been found in Andalucía (SMYTHIES, 1976).

Silene behen L., *Sp. Pl.* 418 (1753).

CÁDIZ. Rota, Vignes, VI.1898, ? (GB). MÁLAGA. By the road 7 km. N Mijas, 22.III.1973, *Holmdahl* 659 (GB); Estepona, champs in cult., VI.1898, ? (GB).

This species has been reported from Andalucía by TALAVERA & BOCQUET (1976). Three further localities are added.

Silene rubella L. subsp. *bergiana* (Lindman) Lidén, *stat. nov.*

S. bergiana Lindman, *Acta Hort. Berg.* 1: 4 (1891).

S. rubella var. *bergiana* (Lindman) Gürcke in Richter & Gürcke, *Pl. Eur.* 2: 305 (1899).

MÁLAGA. 3 km. E Monda, roadside, 19.IV.1971, *Lidén* & al. 218 (GB); idem, 14.IV.1977, *Holmdahl* 1182 (Herb. Holmdahl). SEVILLA. Between Los Palacios and Las Cabezas de San Juan, roadside, 24.II.1973, *Galiano* & *Valdés* 43 (LD).

LINDMAN (1891) described his *S. bergiana* from plants raised from seeds gathered wild in the vicinity of Lisboa, Portugal. It differs from the very closely related *S. rubella* subsp. *rubella* in the laxer inflorescence, longer pedicels, calyces with broad green anastomosing veins and small, deeply bifid petals. There are some small-flowered forms also of subsp. *rubella*, but they have petals, though small, only shallowly notched and in other respects these plants are identical with typical subsp. *rubella*. No intermediates between the two subspecies are known and they are well worthy of recognition, but too close to be treated as different species. Subsp. *bergiana*, and at least some forms of subsp. *rubella* are highly autogamous.

Chromosome number: $2n = 24$ (Holmdahl 1182).

Fumaria gaillardotii Boiss., *Fl. Or.* 1: 139 (1867).

BARCELONA, inter segetes, May 1892, *Trémols* (BM, LD, UPS).

In the 1890's, D. F. TRÉMOLS distributed numerous exsiccata of a plant

under the name *Fumaria agraria* Lag. This has been referred subsequently to *F. bella* P. D. Sell, but is better treated as *F. gaillardotii* since the two species differ by several minor characteristics. *F. bella* has smaller sepals, more broadly winged petals with smaller spur, and the nuts, which are rounded in outline and usually apiculate, are carried by long, slender pedicels which are only slightly thickened. The chromosome number is $2n = 80$ (*). *F. gaillardotii* has subquadrate fruits and shorter pedicels which are strongly thickened in fruit. Its chromosome number is $2n = 112$ (**).

Fumaria melillaica Pugsley, *Journ. Linn. Soc. London (Bot.)* 50: 547 (1937).

GRANADA. 1 km. W Calahonda, cliffs by the sea, 16.V.1975, *Lidén* 7512 (GB). MÁLAGA. 5 km. N Nerja, 17.IV.1968, *Lidén* 682 (GB); 12 km. E Málaga, sandy beach, 16.V.1975, *Lidén* 758 (GB).

Chromosome number: $2n = 72$ (-75) (*Lidén*, 682, 758, 7512).

Fumaria mirabilis Pugsley, *Journ. Linn. Soc. London (Bot.)* 47: 432 (1927).

ALMERÍA. Near the lighthouse, Cabo de Gata, 18.V.1975, *Lidén* 7515 (GB); idem, 18.IV.1978, *Lidén* 7810 (GB).

This taxon was previously known only from the type-gathering near Algier (PUGSLEY, 1927, 1934), all other reports being referable to *F. faurei* (see below). In 1975 it was found near the lighthouse at Cabo de Gata, and in 1978 it was still there, but the plants were seriously grazed by goats. It grew on the banks of an annual stream.

Chromosome number: $2n = 64$ (*Lidén*, 7515 & 7810).

Fumaria faurei (Pugsley) *Lidén*, *stat. nov.*

F. mirabilis var. *faurei* Pugsley, *Journ. Linn. Soc. London (Bot.)* 49: 523 (1934).

GRANADA. 15 km. NE Granada, 23.V.1975, *Lidén* 7535 (GB); between Puerto de Suspiro and Mala, 20.IV.1978, *Lidén* 7825 (GB); 40 km. NE Granada, 12.IV.1979, *Lidén* 7957 (GB).

(*) The count was made on plants from France, Alpes Maritimes (*Sell* 208, *Lidén* *cult.* nr. 652) and from Camargue (*Kendwick & Moyes* 234, *Lidén* *cult.* n. 686).

(**) Counts have been made on plants from Sicily (*Lidén* 641, 751, 7612, 7616) and from Greece and the Aegean (*Lidén* 601, 602, 622, 778).

F. faurei was previously known from at least two localities in Spain (PUGSLEY, 1934), and I can add another three, all in the province of Granada. It grows in fields on gypsum soil, often accompanied by *Hypocoum imberbe*, *Fumaria densiflora* and *F. officinalis*.

Chromosome number: $2n = 80$ (Lidén 7535, 7825).

The type of *F. mirabilis* is rather fragmentary which perhaps explains that PUGSLEY, who otherwise had an extremely narrow species-concept, united *F. faurei* with it. In fact they belong to different sections of the genus. *F. mirabilis* is a dark green, rather fleshy plant which contains cop-tisine, a substance found in all *Grandiflorae* but never in section *Fumariae* (= *Parviflorae*). *F. faurei* is very much like *F. officinalis* subsp. *wirtgenii* in habit, and has a chemical fingerprint of the same type as *F. officinalis* and its relatives. The two species also differ in their chromosome numbers.

Fumaria trauti Batt. & Trabut, *Fl. Alg.* 1: 29 (1888).

F. algeriensis Pugsley, *Jour. Linn. Soc. London (Bot.)* 47: 447 (1927).

F. parviflora Lam. var. *segetalis* Hammar, *Monogr. Gen. Fumar.* 17 (1857), non *F. segetalis* Coutinho, *Fl. Port.* 246 (1913).

JAÉN. Sierra de Cazorla, lime-cliffs above the Parador, 1.400 m. s. m., 21.V.1975, Lidén 7522 (GB).

In addition to LANGE's specimen from Granada (HAMMAR, 1857), I have found this species in Sierra de Cazorla. The specimen is identical with plants from north Africa.

Chromosome number: $2n = 48$ (Lidén, 7522), which is in accordance with plants from north Africa (Morocco: Timhadite, Lidén, 7642. Algeria: Aflov, Lidén 7920 (GB); S of Batna, Lidén 7922 (GB).

Alyssum strigosum Banks & Solander in Rusell, *Nat. Hist. Aleppo* 2: 257 (1794).

GRANADA. 24. km. N Motril, eroded hillsides, 27.IV.1968, *Strandbede* 1272 (GB). Trévez, near Jabalí S of Mulhacén, 1.500 m. s. m., 27.IV.1971, Lidén & al. 730 (GB).

This species is closely related to *Alyssum minus*, but differs in having petals with a slight constriction at the middle, longer appendages on the short stamens and a dimorph indumentum on the silicula with patent bifurcate

hairs mixed with small stellate hairs. It is widely distributed in the Mediterranean region from Italy eastwards, and according to PERSSON (1971) it also occurs in north Africa, but I have seen no specimen and it is not mentioned in the floras from this region. It is impossible to say if its occurrence in Spain is due to dispersal in recent times or is a part of a (formerly?) continuous distribution.

Linaria ficalhoana Rouy, *Naturaliste (Paris)* 5: 285 (1883).

MÁLAGA. On the playa between San Pedro and Marbella, sandy shore, 10.V.1978, Lidén & al. 4208A (GB).

Muscari parviflorum Desf., *Fl. Atlant.* 1: 309 (1798).

MÁLAGA. Sitio de Calahonda, Mijas, 27.X.1976, *Holmdabl* 1277 (GB); idem, 15.X.1977, *Holmdabl* 1060 (Herb. Holmdahl).

There is also a specimen in K collected near Marbella some years ago (B. E. SMYTHIES, in letter).

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