

Salvatore Brullo, Fabrizio Scelsi & Giovanni Spampinato

## ***Salix ionica* (Salicaceae), a new species from S Italy**

### **Abstract.**

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*Salix ionica*, a new species belonging to the *S. pedicellata* group, is described and illustrated from riversides of Aspromonte (S Italy). Its ecology, chorology and relationships with the allied species are examined.

### **Introduction**

During field work a peculiar population of *Salix* was found along the riversides of Ionian slope of Aspromonte Calabria (S Italy). Morphological features of their leaves and flowers clearly show that this population belongs to the group of *S. pedicellata* Desf. According to Maire (1961), Rodriguez Piñero & al. (1987), Brullo & Spampinato (1988) and Brullo (1993), *S. pedicellata* is a complex including *S. pedicellata* s. str. which occurs in N Africa, Spain, Sicily and Malta, *S. antiatlantica* Maire & Wilczec in S Morocco, *S. canariensis* C. Sm. in the Canary Islands, *S. gussonei* Brullo & Spampinato in NE Sicily and *S. arrigonii* Brullo in Sardinia. Previously Fiori (1923) and Pignatti (1982) quoted *S. pedicellata* from Calabria; instead Jalas & Suominen (1976), Martini & Paiero (1988) and Akeroyd (1993) deemed as doubtful this record. The new finding confirms the occurrence of *S. pedicellata* s.l. in S Italy. A careful comparison between the species of this group and the Calabrian population emphasized that this latter differs from the previous ones by in remarkable morphological characters, so it is described as a species new to science.

### **Material and methods**

In order to clarify the relationship between the Calabrian population and the other taxa belonging to *S. pedicellata* group (*S. pedicellata* s. str., *S. antiatlantica*, *S. canariensis*, *S. gussonei*, *S. arrigonii*) both living material (cultivated in the Botanical Garden of Catania) coming from many numerous localities (S Calabria, Sicily, Sardinia, Spain, Morocco, Tunisia, Canarian Islands) and herbarium specimens kept in CAT, FI, G, M, MA, MPU, SEV, P. were examined.

***Salix ionica* Brullo, Scelsi & Spampinato, sp. nova**

Typus: Italy, Calabria, Aspromonte, Fiumara Amendolea presso S. Carlo, 25. Mar. 1997, Brullo & Spampinato (Holotypus: CAT; Paratypus: CAT; Isotipi: CAT, FI). - Fig. 1.

*Salix pedicellatae* Desf. affinis, sed distincta ramis vetustioribus cortice brunneo-rubescenti, subglabro vel leviter pruinoso; lamina foliorum oblongo-lanceolata, subtus griseo-viridi, subglabra vel sparsim puberula; amentis femineis 2,5-3 cm longis, floribus masculinis bractea obovata, filamentis staminorum pilosis et coalescentibus basi, 3-4,5 mm longis, nectario obovato, 0,7-0,8 mm longo; floribus femineis bractea elliptica vel elliptico-obovata, apice rotundata, nectario obovato, 0,6-0,7 mm longo; gymnophoro 1,5-1,7 mm longo; semine ellipsoideo, 1,5-1,7 mm longo; stipite 0,25-0,30 mm longo.

Shrub or tree, 3-6 m high. Oldest branchlets with bark brown-reddening, subglabrous or lightly pruinose and wood ivory white under the bark, with scattered longitudinal crests. Branchlets a year old densely grey-tomentose. Buds ovate, flattened, brown-reddening. Stipules semicordate, 5-9 mm long, denticulate. Petioles grey-tomentose, 5-10 mm long. Leaf blade oblong-lanceolate, cuneate at the base, acute to somewhat obtuse at the apex, 6-9.5 cm long, 3-4.5 cm wide, provided with (10) 12-15 (20) secondary nerves to both sides, above green, glabrous or sparsely pubescent, with subtomentose midrib, below grey-green, subglabrous to sparsely pubescent, denticulate at the margin. Catkins lateral, precocious; peduncles short, leafy, villous, cylindrical, erect to curved, the male ones 2-3 cm long; the female ones cylindrical 2.5-3 cm long. Male flower with bract membranaceous, 2-2.2 × 1-1.2 mm, obovate, rounded at apex, above purple, covered with long hairs; nectary 0.7-0.8 mm long, obovate, solitary, retuse to deeply incise; stamens 2, 3-4.5 mm long, with filaments white, coalescent at the base (rarely up to 1/2 of their length), pilose beneath, and anthers elliptical-orbicular, 0.7-0.8 mm long, yellow, upwards covered with red papillae. Female flower with bract membranaceous, 1.5-1.8 × 0.8-0.9 mm, elliptical to elliptical-obovate, rounded at apex, above purple, covered with long hairs; nectary 0.6-0.7 mm long, obovate, solitary, retuse to deeply incise; ovary long ovate-pyriform, 1.5-1.8 mm long, 0.6-0.7 mm wide, glabrous; style short, reddish; stigmas 2, bifid, white; gynophore glabrous, 1.5-1.7 mm long; Capsule 5-6 mm long, glabrous, with loculi divaricate-curved in dehiscence and carpophore 3.5-4 mm long. Seed olive-green, ellipsoid, 1.5-1.7 mm long, with stipe cylindrical, 0.25-0.3 mm long.

*Specimina visa* – Italy, Calabria, Aspromonte, Fiumara Amendolea, 16. May 1996, Brullo & Spampinato (CAT); *ibid.*, presso il ponte, 14. Sept. 1996, Brullo & Spampinato (CAT); *ibid.* presso S. Carlo, 25. Mar. 1997, Brullo & Spampinato (CAT, FI); *ibid.*, presso Rodi, 25. Mar. 1997, Brullo & Spampinato (CAT).

*Ecology and distribution* – This species has a very restrict distribution in SE Calabria (Italy), on the Ionian slope of Aspromonte territory, where it occurs along streams and wide pebbly river beds. Here it is a member of riparian woods belonging to *Populetales albae*, Mediterranean order of *Quercus-Fagetes* class.

*Taxonomic relationships* – *Salix ionica* is closely related to the taxa of the *S. pedicellata* group in having branchlets a year old with bark grey tomentose and wood under the bark characterized by scattered longitudinal crests, stipules deciduous, petioles short and tomentose, leaf blades broad and well developed, with elliptical to lanceolate outline, above glabrous or subglabrous, below more or less pubescent, flower bract membra-

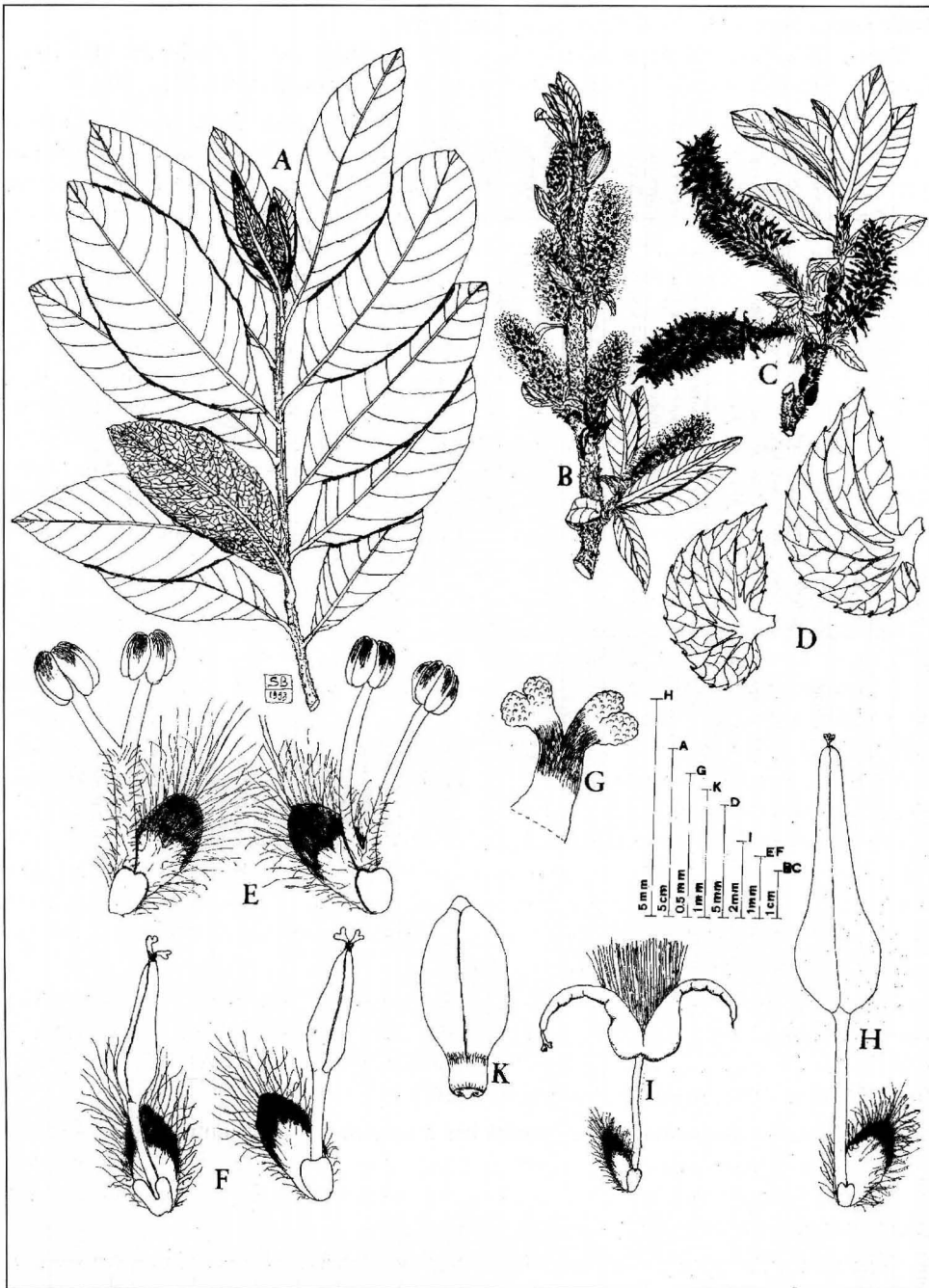


Fig. 1. *Salix ionica*. – A, sterile branchlet; B, branchlet with male catkins; C, branchlet with female catkins; D, stipules; E, male flowers; F, female flowers; G, style and stigmas; H, capsule; I, open capsule; K, seed.

Table 1. Morphological differences among the taxa belonging to *Salix pedicellata* group.

Character	<i>S. ionica</i>	<i>S. pedicellata</i>	<i>S. gussonei</i>	<i>S. arrigonii</i>	<i>S. antiatlantica</i>	<i>S. canariensis</i>
Old branchlet bark	brown-reddening, subglabrous	greyish tomentose or brown-grey	greyish tomentose or brown-grey.	greyish tomentose	greyish tomentose or brown-grey	Greyish, subglabrous
Stipules	semicordate, 5-9 mm long, denticulate.	semicordate, 4-9 mm long, denticulate.	reniform 5-11 mm long, toothed.	reniform to semicordate reniform 3-5 mm long, toothed	semicordate, 4-9 mm long, denticulate	semicordate, 2-4 mm long, denticulate
Leaf blade shape	oblong-lanceolate, acute to somewhat obtuse at the apex, 6-9.5 cm long, 3-4.5 cm wide	oblong to oblanceolate, obtuse to somewhat obtuse at the apex, 6-11 cm long, 2-4.5 cm wide	lanceolate to elliptical lanceolate, acute to somewhat obtuse at the apex, 6-11 cm long, 2-3.2 cm wide.	lanceolate to ovate-lanceolate, acute to somewhat obtuse at the apex, 3.5-8 cm long, 1.3-3 cm wide	linear-lanceolate, acute at the apex, 5-13 cm long, 1.5-2 cm wide	lanceolate, acute at the apex, 4.5-24 cm long, 1.5-5 cm wide
Leaf blade indumentum	above glabrous or sparsely pubescent, below grey-green, subglabrous	above glabrous or sparsely pubescent, below densely pubescent	above glabrous or sparsely pubescent, below densely pubescent	above glabrous, below densely pubescent	above glabrous or sparsely pubescent, below densely pubescent	above glabrous or sparsely pubescent, below densely pubescent
Female catkins	cylindrical, 2.5-3 cm long	cylindrical, 3-4.5 cm long	Cylindrical-alopeuroide, 4-8 cm long.	ellipsoid to ovoid, 2-4 cm long	cylindrical, 2-3.5 cm long	cylindrical, 2.5-9cm long
Male catkins	long cylindrical, 2-3 cm long.	cylindrical, 2-3.5 cm long.	long cylindrical, 2,5-4,5 cm long.	ellipsoid to ovoid, 1.5-4 cm long	cylindrical, 3-4.5 cm long	cylindrical, 2.5-10 cm long
Female bract	elliptical to elliptical-obovate, rounded, 1.5-1.8 x 0.8-0.9 mm.	ovate, obtuse, 1.8-2 x 1-1.2 mm	oblong-lanceolate, slightly acute, 2-2,2 x 0.8-1mm.	oblong, rounded, 1.7-2.3 x 0,7-1.1 mm.	oblong-ovate, obtuse, 1.6-2.1 x 1.8-2 mm.	oblong, obtuse, 1.5-1.7 x 0.6-0.8 mm.
Male bract	obovate, rounded, 2-2.2 x 1-1.2 mm	oblong, rounded or retuse, 1.4-3.2 x 0.8-1,5	ovate, obtuse, 1,5-2 x 1-3 mm.	oblong, obtuse or rounded obtuse, 2-2.2 x 0.9-1.3	oblong, obtuse, 2-2.3 x 0.8-1	oblong, obtuse, 2.6-2.8 x 1.2-1.4 mm.
Female nectary	obovate, retuse to deeply incise, solitary, 0.6-0.7 mm long	pyriform, solitary, 0.5 mm long	pyriform, solitary or geminate, 0.6-0.8 mm long.	oblong- rectangular, solitary, 0.5-1 mm long	oblong capitate at apex, solitary, 0.3-0.6 mm long	oblong- rectangular, solitary, retuse or incise, 0.6-0.7 mm long
Male nectary	obovate, solitary, retuse to deeply incise, 0.7-0.8 mm long	rectangular, solitary, bifid or emarginate, 0.6 mm long	oblong-rectangular, solitary or geminate, retuse, 0.6-0.8 mm long.	oblong rectangular, solitary, 0.5-1 mm long	oblong capitate at apex, solitary, 0.7-0.8 mm long	oblong- rectangular, solitary, retuse or incise, 1-1.2 mm long
Stamen filament	3-4.5 mm long, coalescent at the base, pilose beneath.	4-8 mm long, free, glabrous.	4-6 mm long, free, glabrous rarely pilose beneath.	3.5-4 mm long, free, glabrous.	5-6 mm long, free, glabrous	3-10 mm long, free, glabrous
Anther	elliptical-orbicular, 0.7-0.8 mm long	suborbicular, 0.7-0.8 mm long,	elliptical, 1-1.2 mm long	elliptical-ovate, 0.8-0.9 mm long	oblong, 0.8-1 mm long	ovate, 0.8-1 mm long
Ovary	long ovate-pyriform, 1.5-1.8 mm long, 0.6-0.7 mm wide	long pyriform, 3.5 mm long, 1.5 mm wide	long pyriform, 3 mm long, 1 mm wide.	long pyriform, 2.5-3 mm long, 0.7-0.9 mm wide	pyriform, 2-2.2 mm long, 0.6-0.7 mm wide	ovate-conical, 2-8 mm long, 0.8-1 mm wide
Gynophore	1.5-1.7 mm long	2.5 mm long	2.5 mm long	2 mm long	1-1.2 mm long	2 mm long
Capsule	5-6 mm long, with loculi divaricate-curved in dehiscence	5-6 mm long, with loculi tightly spiral twisted above in dehiscence	5-6 mm long, with loculi divaricate and slightly curved in dehiscence	5-8 mm long, with loculi tightly spiral twisted above in dehiscence	6-7 mm long, with loculi loosely spiral twisted above in dehiscence	7-9 mm long, with loculi divaricate-curved in dehiscence
Carpophore	3.5-4 mm long	3 mm long	3 mm long	3 mm long	1.5-1.8 mm long	3 mm long
Seed	ellipsoid, 1.5-1.7 mm long, with stipe, 0.25-0.3 mm long	sphaeroidal-ellipsoid, 1.2-1.3 mm long, with stipe 0.1-0.2 mm long	long ellipsoid, 1.6-1.7 mm long, with stipe 0.5 mm long	long ellipsoid, 1.5-2 mm long, with stipe 0.5 mm long	long ellipsoid, 1.4-1.5 mm long, with stipe 0.2-0.3 mm long	ellipsoid, 1.6-1.9 mm long, with stipe, 0.3-0.4 mm long

ceous, dark above and long hairy, stamens 2, ovary glabrous. It differs from all other members of *S. pedicellata* group by the bark of old branchlets brown-reddening and subglabrous, leaf blade below grey-green, subglabrous to sparsely pubescent, while all others have the bark of old branchlet greyish or grey-tomentose, leaf blade below greyish, densely pubescent.

A comparison of the morphological characters among *S. ionica* and the related known taxa belonging to *S. pedicellata* group is showed in Table 1.

For the leaf, stipule and flower features, *S. pedicellata* s. str. seems the most related species to *S. ionica*, but it differs clearly in leaf blade oblong to oblanceolatae, female catkins 4-7(8) cm long, male flowers with bract oblong, stamens with filament 4-8 mm long, glabrous and free, nectary of male flower rectangular, 0.6 mm long, female flower with bract ovate, obtuse at apex, and nectary pyriform, 0.5 mm long, gymnophore 2.5 mm long, seed spheroidal-ellipsoid with stipe 0.1-0.2 mm long.

*Salix ionica*, as well as all other species of *S. pedicellata* group (Brullo & Spampinato 1988, Brullo 1993), represents a taxon with allopatric distribution, probably arisen for geographic isolation.

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#### Addresses of the authors:

Salvatore Brullo & Fabrizio Scelsi, Dipartimento di Botanica, Università di Catania, via A. Longo 19, I-95125 Catania, Italy.

Giovanni Spampinato, Dipartimento S.T.A.F.A., Università di Reggio Calabria, Piazza S. Francesco 4, I-89063 Gallina (RC), Italy