

A new nothotaxon in the genus *Salix* L. (*Salicaceae*)

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Abstract: A new nothospecies is described in the genus *Salix* L. (*Salicaceae*) from the E. Spain: *S. ×atroelaeagnos* L. SERRA & M. B. CRESPO (*S. atrocineria* × *S. elaeagnos*). Morphological, ecological and chorological features of the new hybrid are reported, and a table showing diagnostic features of *S. ×atroelaeagnos* and its parental taxa, is also presented.

Keywords: *Salix*, *Salicaceae*, hybridization, Spain, Mediterranean region.

Introduction

During botanical field research carried out in the southeastern Iberian Peninsula, some individuals of a willow appearing to be morphologically intermediate between *Salix elaeagnos* SCOP. and *S. atrocineria* BROT. were found living together with the former in Alicante Province. After collecting flowering female branches and comparison with typical material of both supposed parentals, we have stated their likely spontaneous hybrid origin.

Several recent monographs on the Iberian taxa of *Salix* L. are available (e.g. GÖRZ 1929, VICIOSO 1951, and BLANCO 1993), and no previous binomials seem to refer to this Alicante nothotaxon. Moreover, other European and Northafrican floras (e.g. COSTE 1906, MAIRE 1961, QUÉZEL & SANTA 1962, PIGNATTI 1982, SILVESTRE 1987, BOLÓS & VIGO 1990, REICHINGER & AKEROYD 1993) do not mention any binomial for this hybrid.

Thus, in this contribution a new nothotaxon is described on the basis of female plant material collected near Benifallim (northern Alicante Province).

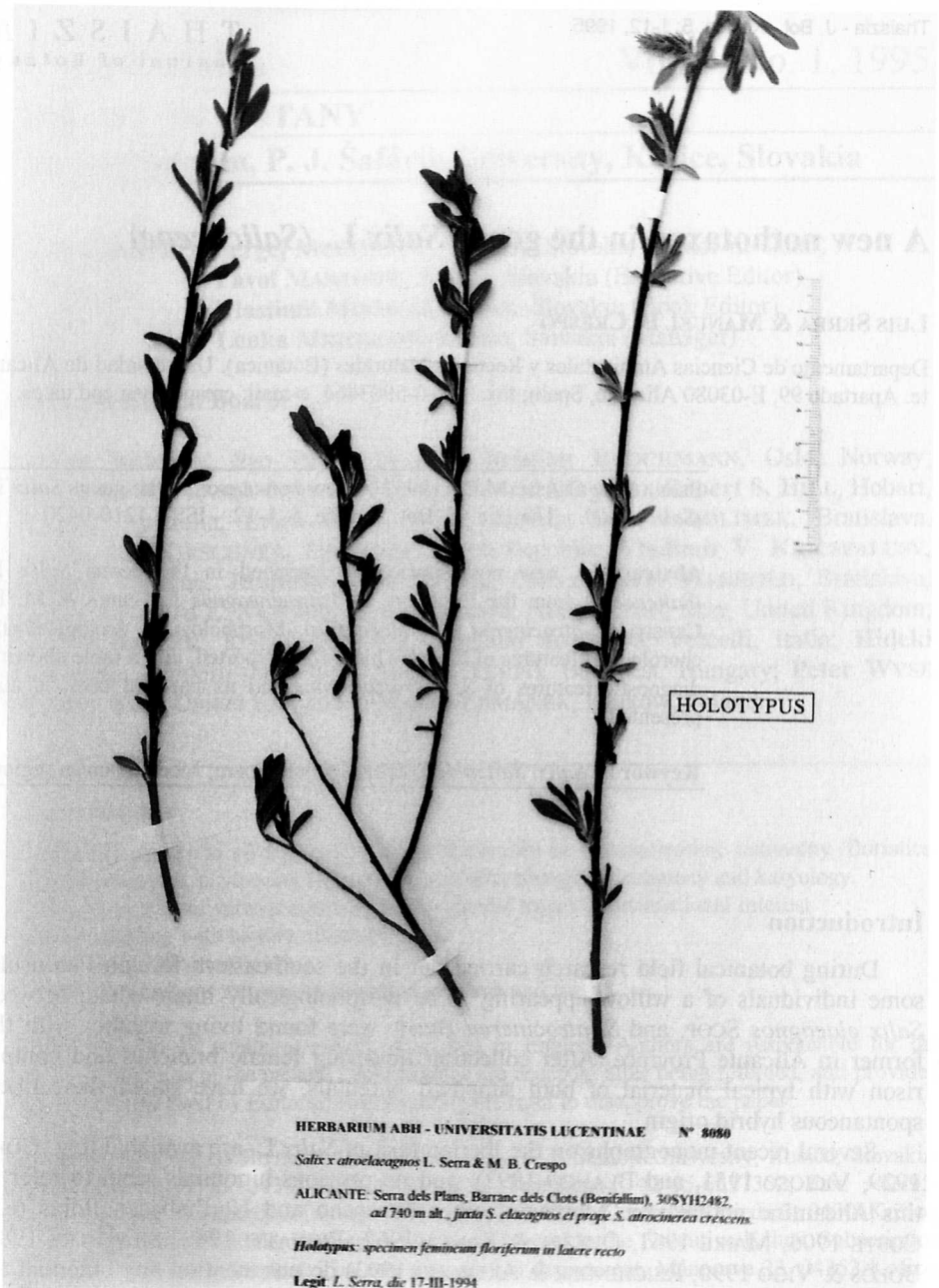


Fig. 1. - Holotype of *Salix xatroelaeagnos* L. Serra & M.B. Crespo (ABH 8080), with flowering female catkins.

Material and methods

Observations were based on both living plants and dried specimens from ABH, VAB and VF (for abbreviations see HOLMGREN & al. 1990 and HOLMGREN & HOLMGREN 1993).

Both bioclimatic and biogeographic features are presented according to RIVAS-MARTÍNEZ (1987) and DE LA TORRE & al. (1995).

Phytosociological relevés were recorded by the traditional Sigmatist method (GÉHU & RIVAS-MARTÍNEZ 1981).

Results and discussion

Salix xatroelaeagnos L. SERRA & M.B. CRESPO **nothosp. nov.** (*S. atrocinerea* BROT. × *S. elaeagnos* SCOP.)

A *S. atrocinerea* differt foliis angustioribus (ad 12 mm), subsessilibus vel breviter petiolatis (ad 4 mm); inflorescentiis generaliter brevioribus (ad 15 mm), pilis brevioribus obtectis (ad 0.6 mm); bracteis floralibus femineis saturate viridibus, ciliis marginalibus brevioribus (ad 1.5 mm); ovario glabro.

A *S. elaeagnos* discrepat foliis lanceolatis 3-4-plo longioribus quam latioribus, nervis lateralibus paucis (11-14 paribus), pagina inferiore laxe pilosa a basi pilis ferrugineis paucissimis vestita; inflorescentiis erectis vel erecto-patentibus, bracteis floralibus femineis ciliis marginalibus longioribus munitis; ovario supra pedunculo brevi 1 mm disposito.

Holotypus: Hs, Alicante: Barranc dels Clots (Benifallim), 30SYG2482, ad 740 m alt., juxta *S. elaeagnos* et prope *S. atrocinerea* crescens, ubi die 17-3-1994 cum flores femineae, legit L. Serra (ABH 8080, specimen femineum floriferum in latere recto). (Fig. 1)

Paratypi: Alicante: Benifallim, Barranc dels Clots, 30SYH2482, 740 m, 9-8-1992, L. Serra (ABH 8079) (Fig. 2). Ibidem, 5-3-1994, L. Serra (ABH 8081). Cocentaina, Río Serpis, pr. l'Alqueria d'Asnar, 30SYH29, 450 m, 30-10-1988, J. R. Nebot (VAB 89/3082). Tárbená, Barranc de Vinarreal, 30SYH5487, 280 m, 2-4-1994, L. Serra (ABH 8304).

Small shrub, branched from the base. Branchlets from last year pubescent, reddish-brown, grown-up branch sparsely pubescent. Buds glabrous. Leaves 4-6×0.8-1.2 cm, lanceolate or shortly linear-lanceolate, with acute apex and cuneate base, margin scarcely revolute, serrate, more densely toothed at the apex, with 11-14 pairs of secondary veins, raised beneath. Young leaves pubescent, with whitish trichomes on both sides; adult leaves sessile or with pubescent short petioles up to 2 mm, discoloured, nearly glabrous or very sparsely pilose above, white-tomentose with scattered ferruginous trichomes below, chiefly at the base; stipules up to 2 mm, lanceolate, sometimes toothed, deciduous. Female catkins erect or erecto-patent, up to 15×5-6 mm, appearing together with or a little earlier than leaves, with pubescent peduncles. Floral bracts completely green, oval, apex obtuse, margin ciliate with trichomes up to 1.5 mm. Ovary glabrous, up to 4 mm length, with peduncle up to 1 mm and stigma bifid. Nectary solitary, ca. 1 mm long (Fig. 3).



PARATYPUS

HERBARIUM ABH - UNIVERSITATIS LUCENTINAE N° 8079

Salix x atroelaeagnos L. Serra & M. B. Crespo

ALICANTE: Benifallim, Serra dels Plans, Barranc dels Clots
U.T.M. : 30SYH2482 Alt. 740 m

Leg. L. Serra 9-8-1992

Fig. 2. - Paratype of *Salix x atroelaeagnos* L. Serra & M.B. Crespo (ABH 8079), showing features of adult leaves.

Tab. 1. Diagnostic morphological features among *S. atrocinerea*, *S. ×atroelaeagnos*, and *S. elaeagnos*.

	<i>S. atrocinerea</i>	<i>S. ×atroelaeagnos</i>	<i>S. elaeagnos</i>
Leaves			
Length (cm)	4-10(-11.5)	4-6	4-8(-9)
Width (cm)	1.5-2.8(-4)	0.8-1.2	0.4-0.8(-1.2)
Shape	oblong to lanceolate	lanceolate to linear-lanceolate	linear to linear-lanceolate
Pairs of veins	8-14	11-14	16-22
Indumentum	leaves with white and ferrugineous trichomes beneath	leaves white-tomentose, with some small ferrugineous trichomes beneath	leaves white-tomentose beneath without ferrugineous trichomes
Inflorescence (cm)			
	4-7 x 1-2, with trichomes up to 2 mm	1.5 x 0.5-0.6, with trichomes up to 0.6 mm	1.5-2 (2.5) x 0.3-0.6(-0.8), with trichomes up to 0.6 mm
Bract of female flower			
Length (mm)	1.5-2	1.5-2	1.5-2.5(-3)
Colour	black in the apical half	entirely green	entirely green
Indumentum	pubescent throughout with trichomes 1.5-2 mm	border ciliate with trichomes 1.2-1.5 mm	border ciliate with trichomes 0.5-0.8 mm
Ovary			
Peduncle (mm)	2	1	0
Indumentum	pubescent	glabrous	glabrous
Length (mm)	5-7	3-4	(2.5-)3-4

The most important diagnostic features among the studied Iberolevantine (eastern Spain) specimens of *S. atrocinerea*, *S. elaeagnos* and *S. ×atroelaeagnos* are shown in Tab. 1.

Biogeography and bioclimatology

S. ×atroelaeagnos has always been found together with its parents at only three locations in northern Alicante Province (Fig. 4), in the so-called Alcoiano-Dianic chorological subsector (DE LA TORRE, ALCARAZ & CRESPO 1995), which belongs to the Setabensian sector of the Catalonian-Valencian-Provencian chorological province (RIVAS-MARTÍNEZ 1987). Nevertheless, the potential distribution area of this nothotaxon could extend to most of the Iberian Peninsula, Northern Africa, Southern France, Italy and also the Balkan Peninsula, territories in which both parents are said to live together (BLANCO 1993, RECHINGER & AKEROYD 1993).

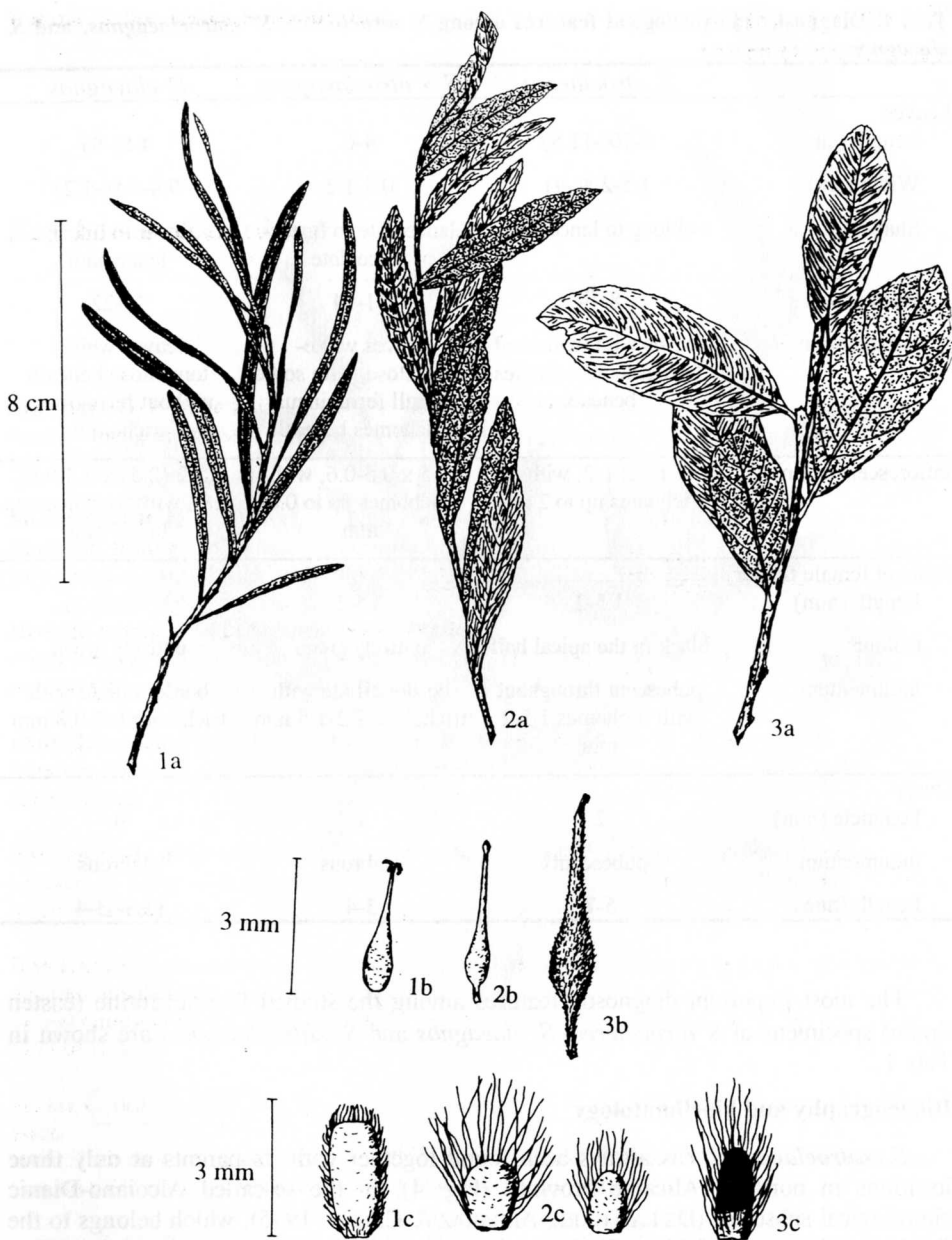


Fig. 3. - *Salix elaeagnos* (Barranc dels Clots, Benifallim): 1a, branch with leaves; 1b, ovary; 1c, bract of female flower. *Salix xatroelaeagnos* (Barranc dels Clots, Benifallim): 2a, branch with leaves; 2b, ovary; 2c, bract of female flower. *Salix atrocinerea* (Serra de Cantacuc, Balones): 3a, branch with leaves; 3b, ovary; 3c, bract of female flower.

Bioclimatically, this new hybrid was always observed in both the mesomediterranean and the thermomediterranean belts, and under both subhumid and dry ombroclimates (RIVAS-MARTÍNEZ 1987).

Ecology and phytosociology

S. xatroelaeagnos shows a characteristic ecological behaviour (Tab. 2) which appears to be almost intermediate between those of its parents. On one hand, it grows in willow-groves belonging to the association *Salicetum triandro-eleagni* RIVAS-MARTÍNEZ ex G. LÓPEZ 1976 (All. *Salicion triandro-neotrichae* BR.-BL. & O. BOLÓS 1957, Ord. *Salicetalia purpureae* MOOR 1958, Class. *Quercu-Fagetea* BR.-BL. & VLIÉGER in VLIÉGER 1937), which live in gravelly soils of seasonal torrents. These plant formations commonly are in contact with groves of *Salix atrocinerea*, in which plants of thorny forest vegetation (Ord. *Prunetalia spinosae* R. TX. 1952) are rather abundant.

On the other hand, it also grows in perennial herb vegetation related to both Class. *Artemisietea vulgaris* LOHM., PREIS. & R. TX. 1950 em. LOHM. & al. 1962 and *Molinio-Arrhenatheretea* R. TX. 1937, living on clayish soils close to seasonal streams.

Although dense willow-groves of many Iberolevantine territories were systematically sampled to find new populations of *S. xatroelaeagnos*, the hybrid was always found in locations in which both parental taxa were locally rather rare.

New investigations are still needed to complete the knowledge of the distribution of *S. xatroelaeagnos*.

Studied materials

Salix elaeagnos SCOP., Fl. Carniol. ed. 2, 2:257, 1772

= *S. angustifolia* POIR., Nouv. Duham. Trait. Arbr. ed 2. III. 128 (1806), non WILLD.

= *S. elaeagnos* var. *angustifolia* (POIR.) C. VICIOSO in Bol. Inst. Forest. Invest. Exp. 57:79 (1951)

= *S. elaeagnos* subsp. *angustifolia* (CARIOT) RECH. fil. in Oesterr. Bot. Z. 104:314 (1957)

Hs, Alicante: Relleu, Río de La Vila, 30SYH 3077, 600 m, 15-4-1989, L. Serra (ABH-LS 119). Alcoi, Els Canalons, 30SYH 18, 700 m, 28-9-1986, J.R. Nebot. (VAB 86/2074). Riu d'Agres, 22-3-1987, J.R. Nebot (VAB 87/0104). L'Orxa, márgenes del río Serpis, 200 m, 5-4-1985, G. Mateo, M.B. Crespo & J. R. Nebot (VAB 85/1698). Benifallim, Serra dels Plans, Barranc dels Clots, 30SYH 2482, 740 m, 5-3-1994, L. Serra (ABH 8039). Confrides, pr. del pueblo, 30SYH 3885, 740 m, 6-3-1994, L. Serra (ABH 8051). A'queria d'Àsna, Riu Serpis, 30SYH 2394, 360 m, 1-4 1994, L. Serra (ABH 3308). Planes, Barranc de l'Encantada, 30SYH3296, 480 m, 2-4-1994, L. Serra (ABH 8305). Vall d'Ebo, Barranc de Sergues, 30SYH4699, 380 m, 2-4-1994, L. Serra (ABH 8309).

Hs, Castellón: Bejís, estret del Coll de Cascajar, 30SXX9123, 940 m, 18-5-1992, G. Mateo, L. Serra & J.X. Soler (ABH-LS 2750). Fuente la Reina, 30TYK03, 800 m, 21-5-1986, G. Mateo & R. Figuerola (VAB 86/0466). Alrededores de Vila-Real, 30TYK42, 1-5-1985, F. Valverde (VAB 85/3320). Vistabella del Maestrat, Penyagolosa, Mas de Mor, sobre l'Esquilador, 12.8.1959, M. Calduch (VF 3398). Vistabella del Maestrat, Barranco del Forcall, 30TYK3465, 700 m, 26-4-1986, C. Fabregat (VAB 88/4438). Castillo de Villamalefa, 15-12-1985, A. Nebot (VAB

