A NEW SPECIES OF *ARMERIA* (PLUMBAGINACEAE) FROM S ITALY

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Armeria aspromontana is a new species described and illustrated from orophilous dwarf shrubs of Aspromonte (S Italy). Its taxonomic relationships with *Armeria nebrodensis* are examined.

Keywords. *Armeria aspromontana*, *Armeria nebrodensis*, Aspromonte, Sicily.

INTRODUCTION

According to Bianchini (1982), the genus *Armeria* (Plumbaginaceae) is represented in Calabria (S Italy) by *A. canescens* (Host) Boiss. subsp. *gracilis* (Ten.) Bianchini, *A. majellensis* Boiss. subsp. *ausonia* Bianchini and *A. nebrodensis* (Guss.) Boiss. In particular, the first two taxa occur in N Calabria (Pollino and Sila), while the last species is localized in S Calabria (Aspromonte). *Armeria nebrodensis* is considered an endemic species of Aspromonte and N Sicily, from where it was described as *Statice nebrodensis* by Gussone (1843) from material from Mt Madonie.

A comparative taxonomic investigation between the Sicilian populations and those from Aspromonte has resulted in the conclusion that there are two morphologically well-differentiated taxa, which can be regarded as distinct species. Since the name *A. nebrodensis* refers only to the Sicilian plant, the plant from Aspromonte is described as a new species.

Armeria aspromontana Brullo, Scelsi & Spampinato, **sp. nov. Figs 1, 2.**
Affinis *Armeria nebrodensi* ab ea diversa involucralibus bracteis externis ovato-triangularibus usque lineari-subulatis, 5.5–20mm longis, plus minusve longe cuspidatis, internis subrotundis usque oblongis, 6–8mm longis, breviter apiculatis vel cuspidatis apice, spiculis bracteis externis hyalino-scariosis, obovato-cuneatis, 1–2(–3)-nervatis, cuneatis usque oblongis, calyce tubo pilis 0.2–0.4mm longis et limbo lobis 1–1.5mm longis, petalo spathulato.

Perennial plant with woody stock contracted and shortly branched. *Leaves* green-glaucescent, glabrous, rigid, arcuate-divaricate, dimorphic; outer leaves linear-lanceolate, flat, 2–4mm wide and 2–6cm long, often marcescent; inner leaves linear or filiform, flat or revolute, 0.5–2mm wide and 2–11cm long. *Scapes* erect, slightly striate, 10–32cm high, sheath 10–16(–20)mm long. *Capitula* hemispheric, 12–18mm

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FIG. 1. *Armeria aspromontana* Brullo, Scelsi & Spampinato: left, old plant; right, young plant.

wide. *Outer involucral bracts* ovate-triangular to linear-subulate, 5.5–20mm long, ±long cuspidate, slightly scarious beneath; *inner involucral bracts* subrounded to oblong, 6–8mm long, 3.5–6mm wide, shortly apiculate or cuspidate at the apex, with scarious and undulate margin, up to 1.5mm wide. *Spikelets* 2–3-flowered, subsessile with outer bracts hyaline-scarious, obovate-cuneate, 7–9mm long, 6–7mm wide, 1–2(–3)-nerved; inner bracts hyaline, cuneate to oblong, 3.5–5mm long, 3–3.5mm wide, shortly 1-nerved. *Calyx* 6–7mm long, hirsute on tube and ribs with hairs

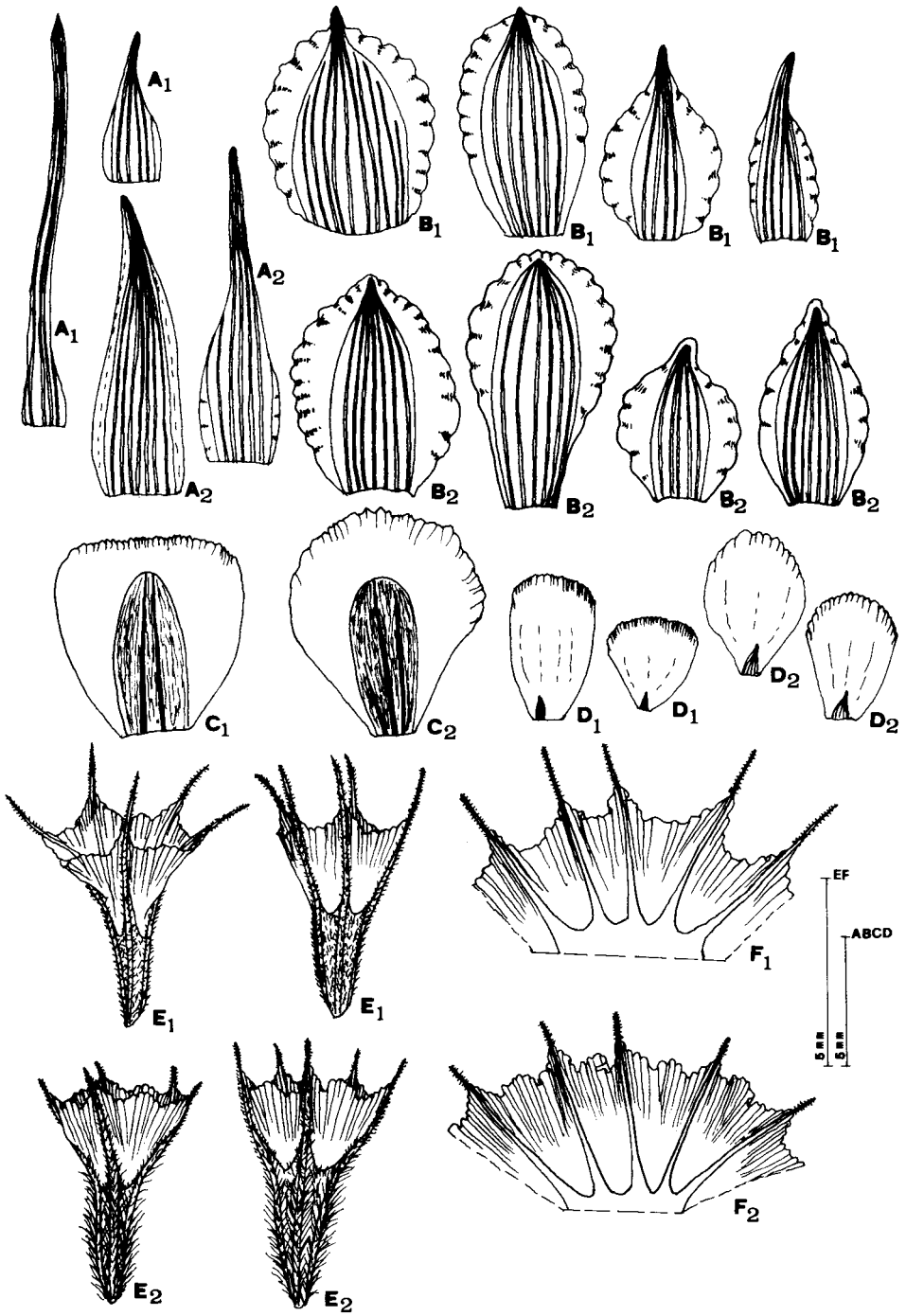

FIG. 2. Involucral bracts inner (A) and outer (B), spikelet bracts outer (C) and inner (D), calyces (E), opened calyx limb (F) of *A. aspromontana* (1) and *A. nebrodensis* (2).

0.2–0.4mm long; hyaline limb with triangular lobes 1–1.5mm long, provided with awns 0.8–1mm long. *Petals* pink, spathulate, c.8mm long.

Type: Italy, Aspromonte, Bocca del Lupo, 18 vii 1992, *Brullo, Scelsi & Spampinato* (holo. CAT).

Specimens examined. ITALY. Aspromonte, Strada per Montalto prima del bivio, 12 vi 1984, *Signorello & Spampinato* (CAT); ibid., Contrada Scala, 21 vii 1994, *Brullo, Scelsi & Spampinato* (CAT); ibid., Tre Limiti, 12 vii 1989, *Scelsi & Spampinato* (CAT); ibid., Serro Luncari, 19 vii 1990, *Scelsi & Spampinato* (CAT); ibid., Casello Cano, 13 vi 1993, *Brullo & Scelsi* (CAT); ibid., Maesano, 10 vii 1989, *Scelsi & Spampinato* (CAT); ibid., Bocca del Lupo, 18 vii 1992, *Brullo, Scelsi & Spampinato* (CAT); ibid., Strada per Montalto, 14 vi 1981, *Brullo* (CAT); ibid., Croce Dio sia lodato, 18 vii 1992, *Brullo, Bartolo, Pulvirenti, Scelsi & Spampinato* (CAT); ibid., Torrente Ferraina, 28 vii 1991, *Brullo, Scelsi & Spampinato* (CAT); ibid., Torrente Menta, 31 vii 1984, *Signorello & Spampinato* (CAT); ibid., 2 vii 1991, *Brullo, Scelsi & Spampinato* (CAT); ibid., Matarazzelli, 19 vii 1990, *Scelsi & Spampinato* (CAT); ibid., Serro Schiavo, 18 vii 1990, *Scelsi & Spampinato* (CAT); ibid., Serro Sgarrone, 18 vii 1990, *Scelsi & Spampinato* (CAT); ibid., Vallone Ferruso – Bagaladi, 5 vi 1989, *Scelsi & Spampinato* (CAT); ibid., Torrente Cotecino, 30 vii 1984, *Signorello & Spampinato* (CAT).

ECOLOGY

Armeria aspromontana occurs on metamorphic rocks in the mountain belt of Aspromonte (S Calabria) at 1300–1900m altitude. It is a member of dwarf shrub communities growing on more or less sloping and eroded lithosols, mainly in summit areas. This vegetation is characterized by orophilous chamaephytes and hemicryptophytes, for example *Anthemis montana* L. subsp. *calabrica* Arcang., *Silene sicula* Ucria, *Juniperus hemisphaerica* Presl, *Carlina nebrodensis* Guss., *Festuca circummediterranea* Patzke, *Centaurea deusta* Ten., *Plantago humilis* Jan ex Guss., *Potentilla calabra* Ten., *Dianthus arrostii* Presl, etc.

TAXONOMIC RELATIONSHIPS

Armeria aspromontana was previously included in *A. nebrodensis* (Guss.) Boiss., an endemic described from Mt Madonie in Sicily (Fiori, 1926; Bianchini, 1982). The two species are very similar especially with regard to habit, leaves, shape and size of the heads, as well as for ecology, but they differ clearly in their bracts and flowers (Fig. 2, Table 1).

Previous investigations concerning the reproductive biology of the Plumbaginaceae, including the genus *Armeria*, were published by Baker (1948, 1953, 1966), Bernis (1954), Erben (1979), Lefèbvre (1985) and Nieto Feliner (1987, 1993), who emphasized the importance of hybridization in the evolutionary processes within this family. A fundamental role is played by pollen and stigma dimorphism, which gives rise to rigid mechanisms of self-incompatibility and cross-compatibility. Examination of herbarium specimens of *A. aspromontana* and *A. nebrodensis* always showed a self-incompatibility. In particular, *A. aspromontana* shows papillate stig-

TABLE 1. A comparison of *Armeria aspromontana* and *A. nebrodensis*.

Character	*aspromontana*	*nebrodensis*
Outer involucral bracts	ovate-triangular to linear-subulate, 5.5–20mm long, ±long cuspidate	ovate-triangular to triangular, 10–12mm long, muticous or cuspidate
Inner involucral bracts	suborbicular to oblong, max. 8mm long, shortly apiculate or cuspidate at the apex	obovate-orbicular to obovate-elliptical, to 10mm long, muticous at the apex
Spikelet outer bracts	obovate-cuneate, 1–2(–3)-nerved	obovate, 2–3-nerved
Spikelet inner bracts	cuneate to oblong	obovate
Calyx	tube with hairs 0.2–0.4mm long; lobes limb 1–1.5mm long without intermediate lobules and awns 0.8–1mm long	tube with hairs 0.7–1.2mm long; lobes limb 0.5–0.7mm long with evident intermediate lobules and awns 0.5–0.7mm long
Petals	spathulate	obovate

mata and finely reticulate pollen grains, whereas *A. nebrodensis* possesses cob-like stigmata and coarsely reticulate pollen grains (often immature). From these data, the hypothesis that both taxa are probably represented by monomorphic populations with self-incompatible pollen–stigma combinations is put forward. Therefore, even though sexual reproduction cannot be excluded, apomixis is probably quite frequent in both species; this is also supported by the occurrence of numerous mature nutlets in the capitulum.

Unlike the Iberian and French territories, where the genus *Armeria* is widespread with numerous taxa (Donadille, 1973; Nieto Feliner, 1990), in Sicily and S Calabria there are only three well-isolated populations in total (Fig. 3), represented by *A. gussonei* Boiss., a taxonomically very isolated chasmophyte exclusive to Rocca Busambra (NW Sicily), and the two taxa investigated here, *A. nebrodensis* (Mt Madonie, N Sicily) and *A. aspromontana* (Aspromonte, S Calabria). Owing to this occurrence of only a few, geographically distant populations, hybridization phenomena could not have any evolutionary implications in this case. Thus, geographical isolation and probably also apomixis are the sole factors that favoured the speciation processes. Morphological characters, which distinguish the Madonie population from the Aspromonte one (Table 1), are of sufficient diagnostic value to separate the two taxa at specific level.

According to Arrigoni (1970), most taxa of the genus *Armeria* are represented by allogamous populations with a Tertiary origin. Thus, *A. aspromontana* and *A. nebrodensis* can be considered as two allopatric taxa both endemic to very circumscribed and disjointed territories.

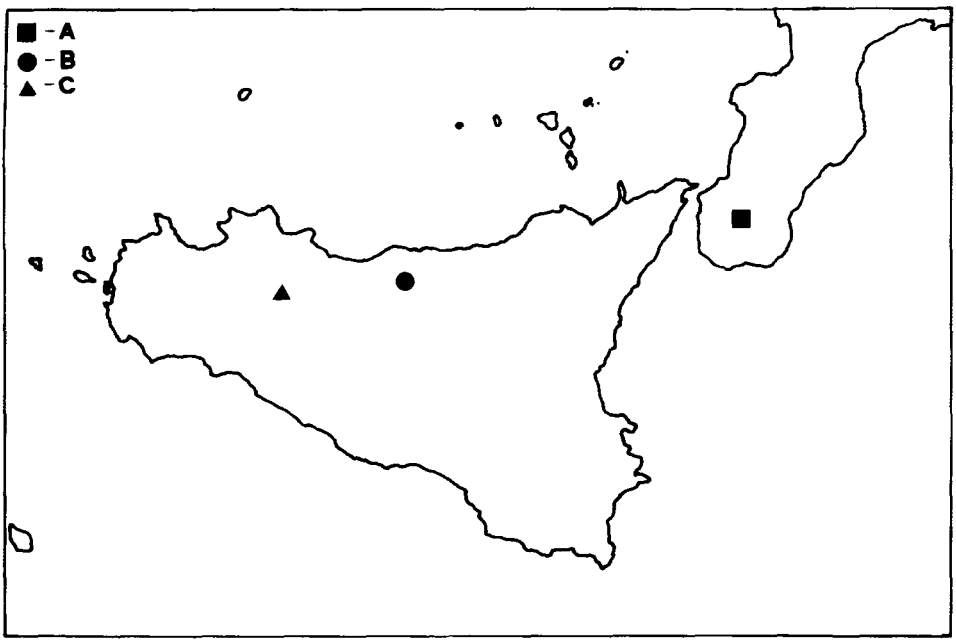

FIG. 3. Geographic distribution of *A. aspromontana* (A), *A. nebrodensis* (B) and *A. gussonei* (C).

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