

Phyton (Horn, Austria)	Vol. 51	Fasc. 1	89–94	1. 6. 2011
------------------------	----------------	---------	-------	------------

***Suaeda kocheri* (Chenopodiaceae), a New Species from Sicily**

By

Cristian BRULLO*), Salvatore BRULLO*) and Gianpietro GIUSSO DEL GALDO*)

With 1 Figure

Received November 24, 2010

Key words: *Chenopodiaceae*, *Suaeda kocheri* spec. nova, *Suaeda pruinosa*, *Suaeda vermiculata*. – Taxonomy, chorology, ecology, local endemic. – Flora of Sicily, Italy.

Summary

BRULLO C., BRULLO S. & GIUSSO DEL GALDO G. 2011. *Suaeda kocheri* (Chenopodiaceae), a new species from Sicily. – *Phyton* (Horn, Austria) 51(1): 89–94, with 1 figure.

A critical species of the Sicilian flora, previously known as *Suaeda pruinosa* LANGE var. *kochii* (GUSS.) MAIRE & WEILLER or *S. vermiculata* FORSKAL ex J. F. GME-LIN, is examined from morphological, taxonomical, nomenclatural, ecological and chorological viewpoints. The investigations allowed to clarify the intricate and confused taxonomy of this plant. It is here described as a species new to science, named *S. kocheri* GUSS. ex C. BRULLO, S. BRULLO & GIUSSO spec. nova. This species, occurring at Porto Empedocle near Agrigento and on Lampedusa (Pelagian Archipelago; probably extinct here?) is very rare and critically endangered due to its exclusive occurrence in heavily urbanized stands.

Zusammenfassung

BRULLO C., BRULLO S. & GIUSSO DEL GALDO G. 2011. *Suaeda kocheri* (Chenopodiaceae), a new species from Sicily. [*Suaeda kocheri* (Chenopodiaceae), eine neue Art von Sizilien.] – *Phyton* (Horn, Austria) 51(1): 89–94, mit 1 Abbildung.

Ein kritisches Taxon Flora Siziliens, das bisher als *Suaeda pruinosa* LANGE var. *kochii* (GUSS.) MAIRE & WEILLER oder *S. vermiculata* FORSKAL ex J. F. GMELIN bekannt war, wurde nach morphologischen, taxonomischen, nomenklatorischen, ökologischen und chorologischen Gesichtspunkten untersucht. Es war möglich, die verworrene Taxonomie aufzuklären. Die Pflanze wird hier als neue Art, nämlich *Suaeda*

*) Dr. C. BRULLO, Prof. Dr. S. BRULLO and Prof. Dr. G. GIUSSO DEL GALDO, Dipartimento di Botanica, Università di Catania, via A. Longo, 19, 95125 Catania, Italy; e-mail: salvo.brullo@gmail.com

kocheri GUSS. ex C. BRULLO, S. BRULLO & GUISSO spec. nova, beschrieben. Sie kommt bei Porto Empedocle nahe Agrigento und auf Lampedusa (Pelagische Inseln; hier möglicherweise ausgestorben) vor. *S. kocheri* ist sehr selten und wegen des ausschließlichen Vorkommens an sehr zersiedelten Standorten vom Aussterben bedroht.

1. Introduction

The aim of this study is the proper identification of the Sicilian populations hitherto attributed to *Suaeda pruinosa* LANGE s. l. or to *S. vermiculata* FORSKAL ex J. F. GMELIN. Unfortunately, this is not an easy question, since the plant at issue is still not well known due to its rarity. In order to clarify taxonomic questions that have led to confusion, observations and investigations were carried out using the presently known populations of this plant.

2. Material and Methods

Morphological investigations were carried out on herbarium specimens stemming from Porto Empedocle and Lampedusa kept in CAT, NAP and PAL, as well as in the field on living plants at the growing sites of the populations.

3. Results

3.1. General

As inferred from literature, the occurrence of *Suaeda pruinosa* LANGE in Sicily remains controversial and rather unclear (LOJACONO-POJERO 1907, FIORI 1923, MAIRE 1962, BRULLO & al. 1980, PIGNATTI 1982, MINISSALE & SPAMPINATO 1987, BARTOLO & al. 1990, CONTI & al. 1992, 2005, GIARDINA & al. 2007). On the basis of literature reports and herbarium investigations *S. pruinosa* is recorded from Porto Empedocle near Agrigento and Lampedusa (Pelagian Archipelago). Late field surveys indicated that the Lampedusa population is probably extinct due to a cement covering of the only known growing site, while that one of Porto Empedocle still exists even though critically endangered by urban sprawl.

The Sicilian population was identified by GUSSONE as “*Suaeda puberula*”, written on the label of a herbarium specimen coming from “Caricatojo di Agrigento”, which was collected by KOCHER and preserved in Naples (NAP-GUSS!), but as “*Suaeda kocheri*” on another specimen, that was likely a fragment of the previous one sent by GUSSONE himself to TINEO and kept in Palermo (PAL!). Afterwards, TODARO distributed specimens of this plant as “*Suaeda kochii* Guss.” in his XV Cent. Pl. Exsicc. n. 1392, collected by REINA at Porto Empedocle in 1876. This name was cited by NYMAN 1881 as synonym of *Suaeda maritima* subsp. *jacquini*. Besides, LOJACONO-POJERO 1907, examining the aforesaid specimens kept in PAL, attributed them to *Suaeda vera* FORSSK. while MAIRE 1962 based on the name reported on specimens distributed by TODARO, proposed a new combination *Sueda pruinosa* LANGE var. *kochii* (GUSS.) MAIRE & WEILLER. This

name, even if invalid since the author indicated as basionym a “nomen nudum” (art. 33.3, ICBN., McNeill & al., 2006), was nevertheless used by PIGNATTI 1982 and CONTI & al. 1992 for indicating the Sicilian plants.

More recently, BALL & AKEROYD 1993 considered *S. pruinosa* a synonym for *S. vermiculata* FORSKAL ex J. F. GMELIN, a treatment followed also by CONTI & al. 2005 and GIARDINA & al. 2007. However, as emphasized by several authors (MAIRE 1962, JAFRI & RATEEB 1978, PEDROL & CASTROVIEJO 1988, 1990, BOULOS 1999, OUYAHYA 1999, SCHENK & FERREN 2001) as well as confirmed by our herbarium investigations, *S. vermiculata* is sufficiently differentiated from *S. pruinosa*. In particular, it is characterized by branches with scattered leaves, subclavate, up to 30 mm long and 1.0–4.0 mm wide, throttled in a thin and short petiole, flowers 2–5 per axil, hermaphrodite ones 1.2–1.3 mm in diameter, with tepals 1.2–1.3 mm long, connate for 1/3 of its length, ovary umbilicate at the apex and stigma hairy, while *S. pruinosa* shows branches with leaves approximate, sessile, enlarged at the base, up to 8.0 mm long and 0.5 mm wide, flowers solitary or ternate, hermaphrodite ones 2.0–2.2 mm in diameter, with tepals 1.5–1.6 mm long, shortly connate, ovary truncate at the apex and stigma papillose.

The Sicilian population is somehow related to *S. pruinosa* for having in common leaves approximate, very short, sessile and enlarged at the base, flowers solitary or ternate, tepals shortly connate.

3.2. Characteristics of *Suaeda pruinosa*

Numerous morphological characters clearly allow to distinguish the Sicilian plants from *S. pruinosa* s. str. The main differences of the latter concern the occurrence of young branches not or slightly angled, glabrous or shortly hairy, leaves $2.0\text{--}8.0 \times 0.5$ mm, usually glabrous, divaricate-patent, cylindrical to oblong, slightly flattened ventrally, without evident hyaline margin, hermaphrodite flowers 2.0–2.2 mm in diameter, with bracteoles truncate, 0.4–0.5 mm long, female flowers 0.9–1.0 mm in diameter, with bracteoles oblong-ovate, 0.6–0.8 mm long, tepals $1.6\text{--}1.8 \times 0.7\text{--}0.8$ mm, shortly connate, with hyaline margin c. 0.1 mm wide, staminal filaments subulate, 0.6–0.7 mm long, anthers 0.6–0.8 mm long, ovary subconic, 0.8–0.9 mm long, style almost absent, stigma papillose, seeds $0.9\text{--}1.4 \times 0.8\text{--}1$ mm (see PEDROL & CASTROVIEJO 1990, Lam.161).

3.3. Characteristics of *Suaeda kocheri*

The Sicilian plant (Fig. 1), is characterized by young branches angled, covered by an indumentum densely woolly, leaves $2.5\text{--}6.0 \times 0.6\text{--}1.0$ mm, subglabrous and woolly at the base, appressed or slightly divaricate, linear to lanceolate, flattened ventrally, with evident hyaline margin, hermaphrodite flowers 1.6–1.8 mm in diameter, with bracteoles ovate, 0.8–1.0 mm long, female flowers 1.0–1.2 mm in diameter, with bracteoles ovate, 0.8–1.0

mm long, tepals $1.5\text{--}1.6 \times 1.0\text{--}1.2$ mm, more widely connate, with hyaline margin $0.3\text{--}0.6$ mm wide, staminal filaments linear, $0.4\text{--}0.5$ mm long, anthers 1.0 mm long, ovary lageniform, $1.0\text{--}1.2$ mm long, style well developed, stigma smooth, seeds $0.5\text{--}0.6 \times 0.4$ mm.

Due to these remarkable morphological differences the Sicilian plant has to be considered a species distinct from *S. pruinosa* for which the name *Suaeda kocheri* is herein proposed.

4. Taxonomic Treatment

Suaeda kocheri GUSS. ex C. BRULLO, S. BRULLO & GIUSSO, spec. nova (Fig. 1)

Synonymy: *Suaeda kocheri* GUSSONE, nomen ineditum on a herbarium label in PAL. – *Suaeda vera* LOJAC., Fl. Sic. 2(2):271, 1907, non FORSSK. ex J. F. GMEL., Syst. Nat. 2: 503, 1791. – *Suaeda kochii* TOD. ex NYMAN, Consp.: 630, 1881, pro syn. – *Salsola kocheri* GUSS. ex LOJAC., Fl. Sic. 2(2):271, 1907, pro syn. – *Suaeda kochii* TOD. ex LOJAC., Fl. Sic. 2(2):271, 1907, pro syn. – *Suaeda pruinosa* LANGE var. *kochii* (GUSS. ex TOD.) MAIRE & WEILLER in MAIRE, Fl. Afr. Nord 8:112, 1962, nom. inval.

Diagnosis: A *Suaeda pruinosa* differt ramis junioribus angulatis, dense lanuginosis, foliis $2.5\text{--}6 \times 0.6\text{--}1.0$ mm, subglabris, lanuginosis basin versus, adpressis vel leviter divaricatis, linearibus vel lanceolatis, complanatis ventraliter, manifesto margine hyalino, floribus hermaphroditis $1.6\text{--}1.8$ mm diametro (Fig. 1D, E), bracteolis ovatis, $0.8\text{--}1.0$ mm longis, floribus femineis $1.0\text{--}1.2$ mm diametro (Fig. 1C), bracteolis ovatis, $0.8\text{--}1.0$ mm longis, tepalis $1.5\text{--}1.6 \times 1.0\text{--}1.2$ mm, late connatis, margine hyalino $0.3\text{--}0.6$ mm lato, filamentibus staminalibus linearibus, $0.4\text{--}0.6$ mm longis, antheris 1.0 mm longis, ovario lageniforme, $1.0\text{--}1.2$ mm longo, stylis bene evolutis, stigmatibus laevibus, seminibus $0.5\text{--}0.6 \times 0.4$ mm.

Holotype: Al Caricatojo di Agrigento, Luglio 1831, KOCHER, NAP-GUSS, sub *Suaeda puberula*.

Paratypes: Caricatojo di Agrigento, GUSSONE, PAL, sub *Suaeda kocheri* GUSS. – Porto Empedocle, 1876, REINA in TOD., XV Cent. Pl. Exsic. N. 1392, PAL, sub *Suaeda kochii* GUSS. – Lampedusa, Porto, 26.6.1985, BRULLO, MINISALE, SPAMPINATO, CAT. – Lampedusa, Porto, 20.6.1985, BRULLO, MINISALE, SPAMPINATO, CAT.

Distribution and ecology: This species is known only from two localities, Porto Empedocle, a small town near Agrigento and on Lampedusa in the Pelagian Archipelago. It is a very rare and endangered species growing near Porto Empedocle on clayey or marly substrata, where it is a member of halo-nitrophilous shrubby communities of the Pegano-Salsolitea class. This vegetation is characterized by *Salsola oppositifolia* DESF., *Suaeda vera* FORSSK. ex J. F. GMELIN, *Atriplex halimus* L., and by some endemic or rare plants such as *Limonium opulentum* (LOJAC.) BRULLO, *Heriaria fontanesii* J. GAY subsp. *empedocleana* (LOJAC.) BRULLO and *Re-*

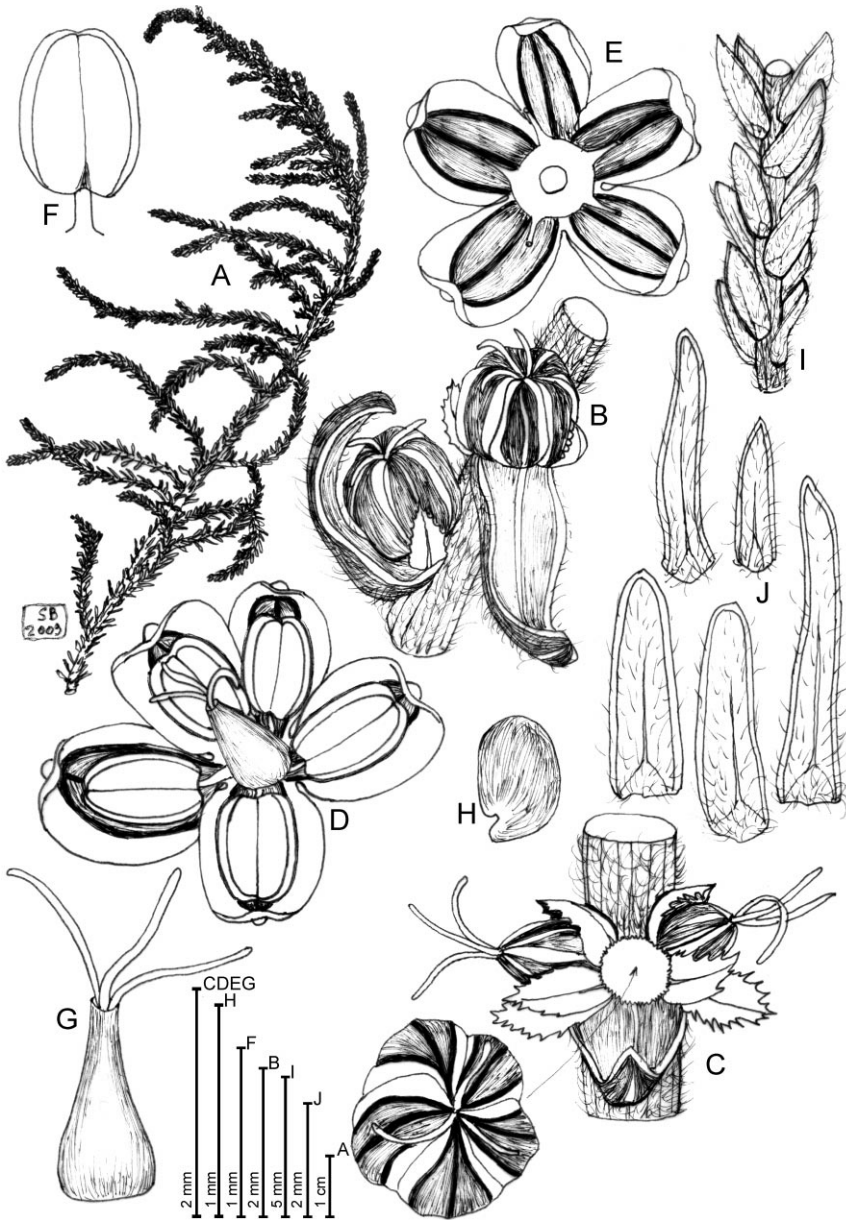


Fig. 1. *Suaeda kocheri*. – A habit. – B part of an inflorescence with single axillary, hermaphrodite flowers. – C part of an inflorescence with three axillary flowers (the central one hermaphrodite, the lateral ones female). – D hermaphrodite flower. – E hermaphrodite flower without anthers and pistil. – F stamen. – G pistil. – H seed. – I sterile stem. – J leaves.

aumuria vermiculata L. As above-mentioned, the population from Lampedusa is probably extinct since no new collections or observations do exist.

5. Acknowledgements

We are indebted to the curators of the Herbaria of CAT, NAP and PAL for the examinations of plant material.

6. References

- BALL P. B. & AKEROYD, J. R. 1993. *Suaeda* FORSKÅL ex SCOP. – In: TUTIN T. G., HEYWOOD W. H., BURGESS N. A., MOORE D. M., VALENTINE D. H., WALTER S. M. & WEBB D. A. (eds.), *Flora Europaea*, 2 ed., 1: 123–125. – Cambridge.
- BARTOLO G., BRULLO S., MINISSALE P. & SPAMPINATO G. 1990. Flora e vegetazione dell'Isola di Lampedusa. – Boll. Accad. Gioenia Sci. natur. Catania 21 (334): 119–255.
- BRULLO S., GRILLO M. & SCALIA C. 1980. Su una nuova associazione dei Pegano-Salsoletea osservata presso Porto Empedocle (Agrigento). – Giorn. bot. ital. 114: 43–52.
- CONTI F., ABBATE G., ALESSANDRINI A. & BLASI A. 2005. An annotated checklist of the Italian vascular flora. – Roma.
- CONTI F., MANZI A., PEDROTTI F. 1992. Libro rosso delle piante d'Italia. – Roma.
- FIORI A. 1923. Nuova flora analitica d'Italia, 1. – Firenze.
- GIARDINA G., RAIMONDO F. M. & SPADARO V. 2007. A catalogue of plants growing in Sicily. – *Boccone* 20: 5–582.
- JAFRI S. M. H. & RATEEB F. B. 1978. *Chenopodiaceae*. – In: JAFRI S.M.H. & EL-GADI A. (eds.), *Flora of Libya*, 58. – Tripoli.
- LOJACONO POJERO M. 1907. *Flora Sicula*. 2(2). – Palermo.
- MAIRE R. 1962. *Flore de l'Afrique du Nord*, 8. – Paris.
- MCCNEILL J., BARRIE F. R., BURDET H. M., DEMOULIN V., HAWKSWORTH D. L., MARHOLD K., NICOLSON D. H., PRADO J., SILVA P. C., SCOG J. E., WIERSEMA H. & TURLAND N. J. (eds.) 2006. International code of botanical nomenclature (Vienna Code): Adopted by the Seventeenth International Botanical Congress Vienna, Austria, July 2005. – *Regnum vegetabile* 146. – Gantner Verlag, Ruggell, Liechtenstein.
- MINISSALE P. & SPAMPINATO G. 1987. Segnalazione di piante nuove per la flora di Lampedusa. – *Inform. bot. ital.* 19(2): 136–143.
- NYMAN C. F. 1881. *Conspectus Florae Europaeae*, 3: 493–677a. – Örebro.
- OUYAHYA A. 1999. *Chenopodiaceae*. – In: FENNANE M., IBN TATTOU M., MATHEZ J., OUYAHYA A. & EL OUALIDI J. (eds.), *Flore pratique du Maroc*. 1. – *Trav. Inst. scient. Mohammed V. Sér. bot.* 36: 141–168.
- PEDROL J. & CASTROVIEJO S. 1988. A propósito del tratamiento taxonomico y nomenclatural del género *Suaeda* FORSKÅL ex SCOP. (*Chenopodiaceae*) en Flora Ibérica. – *Anal. Jard. bot. Madrid* 45(1): 93–102.
- PEDROL J. & CASTROVIEJO S. 1990. *Suaeda* FORSKÅL ex SCOP. – In: CASTROVIEJO S., LAINZ M., LOPEZ GONZÁLEZ G., MUÑOZ GARMENDIA F., PAIVA J. & VILLAR L. (eds.), *Flora Iberica*, 2: 536–541. – Madrid.
- PIGNATTI S. 1982. *Flora d'Italia*. – Bologna.
- SCHENK H. J. & FERREN W. R. 2001. On the sectional nomenclature of *Suaeda* (*Chenopodiaceae*). – *Taxon* 50: 857–873.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Phyton, Annales Rei Botanicae, Horn](#)

Jahr/Year: 2011

Band/Volume: [51_1](#)

Autor(en)/Author(s): Brullo Cristian, Brullo Salvatore, Galdo Gianpietro Giusso del

Artikel/Article: [Suaeda kocheri \(Chenopodiaceae\), a New Species from Sicily. 89-94](#)