

Rosanna M. S. Costa & Emilio Di Gristina

## ***Xeranthemum cylindraceum (Asteraceae) in Italy: first record for the Sicilian flora***

### **Abstract**

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The distribution in Italy of *Xeranthemum cylindraceum*, an annual herbaceous species of *Asteraceae*, up to now indicated only for most of the peninsular regions, is examined. The geographical distribution of this species in the Italian regions is provided on the basis of the specimens preserved in FI. In addition, there is an unpublished record from Sicily. In this island the species is therefore reported for the first time. It was found in the territory of Erice (Trapani), in a meadow on calcareous soils, on the northern slopes of Mt S. Giuliano.

*Key words:* vascular flora, Compositae, chorology, Sicily, Erice.

### **Introduction**

*Asteraceae* is the most represented family in the Italian native vascular flora (Bartolucci & al. 2018). In this family, there are several critical taxa, mainly belonging to *Hieracium* L., *Pilosella* Vaill., *Taraxacum* F. H. Wigg, and *Centaurea* L. In the last two decades, the in-depth study has made it possible to identify and describe new taxa. In addition, native plants, already known in other countries, or new alien, are frequently reported. The family, therefore, is continuously enriched. The same in Sicily, an Italian island region which - like Sardinia - has an independent biogeographical history with respect to the Peninsula, and which is notoriously a Mediterranean biodiversity hot-spot (Médail & Quézel 1997).

The native vascular flora of Sicily has been well explored in the past (Raimondo 1988) and the Sicilian territory is one of the well-known floristic territories among Italian and Mediterranean regions (Raimondo & al. 2005). However, not all of the regional territory was investigated with the same in-depth level.

Several taxa have recently been described or rediscovery for the Sicilian flora: *Hieracium pignattianum* Raimondo & Di Grist., *H. madoniense* Raimondo & Di Grist., *H. pallidum* subsp. *aetnense* Gottschl., Raimondo & Di Grist., *H. hypocoeroides* subsp. *montis-scuderi* Di Grist., Gottschl., Galesi, Raimondo & Cristaudo, *H. busambarensis* Caldarella, Gianguzzi & Gottschl., *H. schmidtii* subsp. *nebrodense* (Lojac.) Di Grist., Gottschl. &

Raimondo, *Pilosella hoppeana* subsp. *sicula* Di Grist., Gottschl. & Raimondo, *Taraxacum garbarianum* Peruzzi, Aquaro, Caparelli & Raimondo, *Centaurea eycina* Raimondo & Bancheva, *C. saccensis* Raimondo, Bancheva & Ilardi, *C. giardinae* Raimondo & Spadaro, *C. sicana* Raimondo & Spadaro, and *C. aegusae* Domina, Greuter & Raimondo (Raimondo & Bancheva 2004; Raimondo & al. 2004; Raimondo & Di Gristina 2004, 2007; Raimondo & Spadaro 2006, 2008; Peruzzi & al. 2009; Gottschlich & al. 2013; Caldarella & al. 2014; Di Gristina & al. 2016; Domina & al. 2017).

In addition to the newly described taxa, the Sicilian flora is also enriched by the reports of species already known in other Italian regions. This is also the case of *Xeranthemum cylindraceum* Sm., a species known in most of the peninsular regions (Bartolucci 2018; Pignatti 2018; Arrigoni 2020), which in our contribution is reported for the first time in Sicily.

## Materials and Methods

Systematic field excursions in the north of Sicily were carried out in order to investigate taxonomy and distribution of taxa belonging to *Xeranthemum* L. The herbarium study is based on specimens housed in FI, in PAL and in the personal collection of Prof. F. M. Raimondo, temporarily housed at the Research, Documentation and Training Center, PLANTA, in Palermo. Wikiplantbase #Italia v1.0 (Peruzzi & al. 2019-) was used as source of additional distribution data.

## Taxonomy

***Xeranthemum cylindraceum* Sm.**, Fl. Graec. Prodr. 2(1): 172 (1813).

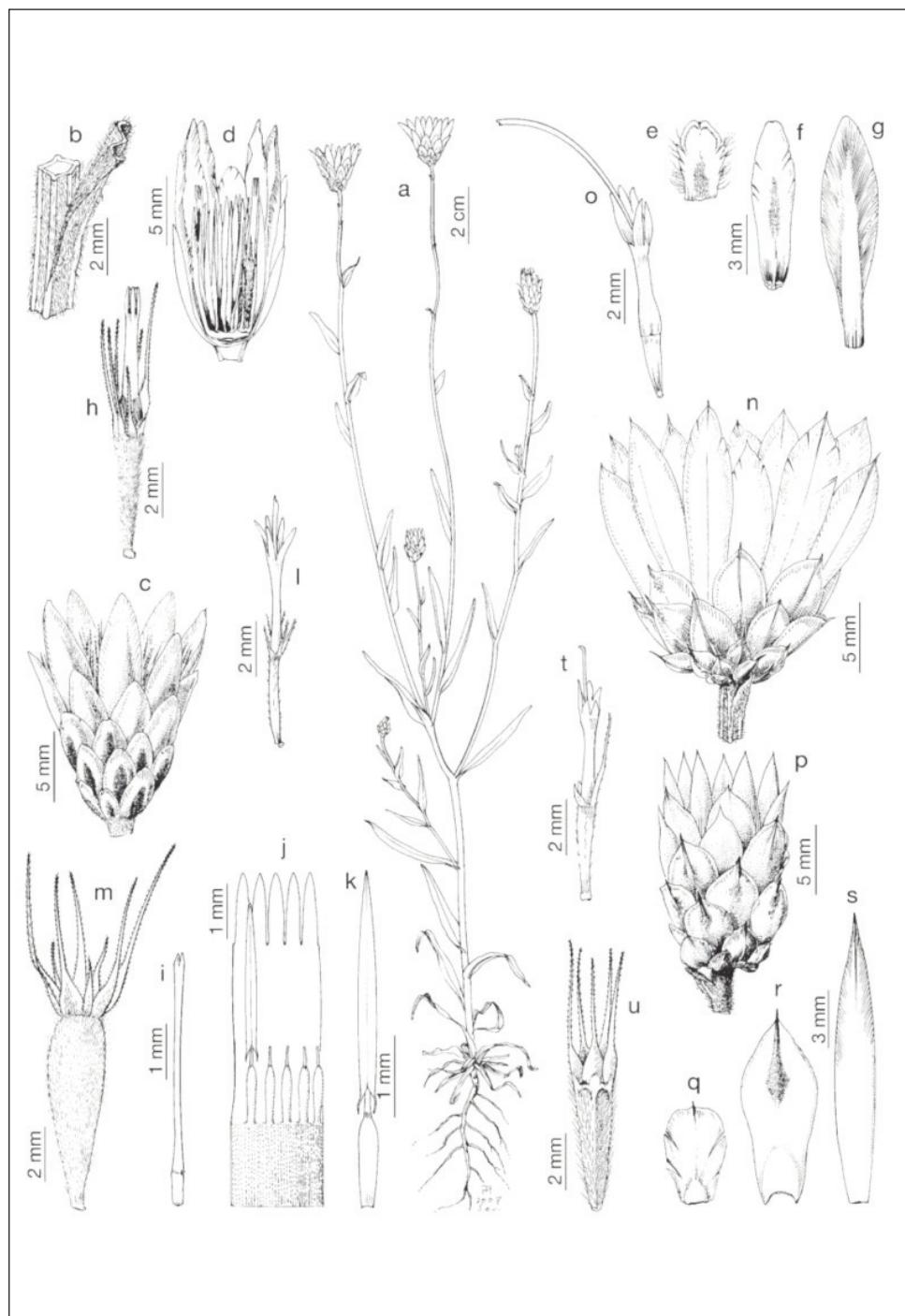
Annual herb with erect trunk, up to 70 cm, tetragon, simple or branched, tomentose, with indumentum of hairs and sessile glans. Leaves linear or lanceolate, cuneate at the basis and mucronate at the apex, tomentose at the lower page and revolute at the margin. Terminal capitula subcylindrical, 1–1.2 × 0.4–0.7 cm. Bracts imbricate, the external ovate, appressed, muticous, with a dorsal band tomentose-glandulose, white; the inner linear or linear-lanceolate, glabrous, erect or patent, with apex acute, purplish. Corolla with whitish pipe and limb roseate-purplish. Achenes ovate-cuneate, 4–6 mm, with triangular section, sericeous-hirsute. Pappus with 8–10 unequal hairs.

*Iconography*: Rodriguez Riano & De Vesa (2014) Fl. Iber., 16(1): 60 (Fig. 1).

*Fenology*: flowering from May to August.

*Biological form*: Scapose therophyte (T scap).

*Ecology*: Steppic plant of the warm areas of Europe and the arid belt of southern Siberia, in Italy it occurs in meadows and mountain forest clearings from the coast up to 1,500 m a.s.l. (Pignatti 2018), where it generally occurs in arid calcareous meadows (Arrigoni 2020).

Fig. 1. Iconographic plate of *Xeranthemum cylindraceum* (from Rodriguez Riano & De Vesa 2014).

*Chorology:* with reference to the chorological type, Pignatti (1982, 2018) assigns the taxon to the south Siberian-south European chorotypes (S-Siber. – S-Europ.). Arrigoni (2020) considers it an Euroasiatic alien species.

### **Distribution in Italy**

According to Greuter (2006-), the distribution area of *Xeranthemum cylindraceum* includes most of Europe, the western regions of North Africa and the Middle East.

In Italy, this taxon is recorded for many regions with the exception of Emilia Romagna, Friuli-Venezia Giulia, Sardinia and Sicily and its presence is given as doubtful only for the Val d'Aosta and Liguria (Bartolucci & al. 2018; Peruzzi & al. 2019) (Fig. 2). Arrigoni (2020) reports it as casual in the Padanian area. In light of the studied specimens, *X. cylindraceum* is also present in Sicily limited to the Mt Erice known as Mt. S. Giuliano near Trapani. In this area the species occurs in a small population in a meadow on calcareous clayey soil, on the edge of the Valderice-Erice road (*Raimondo* in PAL, PAL-Gr and CT).

### **Specimina in FI**

TOSCANA – Colle di S. Colombano, Rota, 1845, da Moretti in Ott. 1845 (FI !) - Pratovecchio 1847, da *Parlatore* in Luglio 1847 (FI !) - luoghi argillosi della Curgliana di Cascina, Savi, VII.1854 (FI !) - In campis prope Montiloro in agro Florentino, *Caruel*, 29.VII.1863, da *Caruel* in Ott. 1863(FI !) - Campi di Prataglia, *sine coll.*, 1863 (FI !) - App. Casentinese a Giamerreta, 19.VII.1864, da *Marcucci* in Ott. 1864(FI !) - Fra Soci e Poppi, nei campi, 16.IX.1867, da *Parlatore* in Sett. 1867(FI !) - Campi di Capanno sopra Prataglia, reg. sup. del castagno, 28.VII.1867, da *Parlatore* in Sett. 1867 (FI !) - Prataglia nell'Appennino del Casentino, luoghi aridi della reg. super. del castagno, 1100 m circa, 23.VII.1867, da *Parlatore* in Sett. 1867 (FI !) - In Apennino Etrusco, Prataglia, *sine coll.*, VIII.1867 (FI !) - Appennino del Casentino a Prataglia, VIII.1867, da *Parlatore* 1869 (FI !) - Monte Senario, 23.VII.1868, da *Bucci* in Lug. 1868 (FI !) - Presso Pratovecchio, 7.VII.1872, da *Giemoni* in Agosto 1872 (FI !) - ad muros prope Pratovecchio, in Casentino, *Arcangeli*, 27.VII.1875, da *Arcangeli* in aprile 1876 (FI !) - San Casciano dei Bagni, in agris, *Levier et Sommier*, 23.VI.1886 (FI !) - Verso Montrioli in Casentino, *Sommier*, 1.VII.1889 (FI !) - Monte Giovi, Cascina Giunti, *Sommier*, 20.VI.1889 (FI !) - Fra Mandrioli e Pratovecchio in Casentino, *Sommier*, 1.VII.1889, da *Sommier* Febbraio 1890 (FI !) - Nei campi presso l'Olmo (Firenze), *Martelli*, IX.1892 (FI !) - Monte del Fallito presso Bibbiena in Casentino, *Gemmi*, 12.IX.1892 (FI !) - Prope Florentiam fra Vaglia e Mte Senario, *Sommier*, 20.VII.1893 (FI !) - Fra l'Alma e Pratolino, *sine coll.*, 2.VII.1901(FI !) - Prope Florentiam presso a Monte Rotondo a casa Guadagni in Mugello, *Sommier*, 24.VI.1902 (FI !) - Prope Florentiam Pian di Mugnone alle Caldine, *Sommier*, 17.VII.1904 (FI !) - Prope Florentiam inter Pratolino et M. Senario, *Sommier*, 24.VI.1908 (FI !) - Prope Florentiam inter Pratolino et Monte Senario, in aridis, *Sommier*, 25.VII.1909 (FI !) - Chiusi della Verna (Arezzo), in arvis et in sterilibus, alt. m 1020, *Mazzeschi et Contardo*, 20.VII.1966 (FI !) - Massa Trabaria, luoghi erbosi asciutti a Montelabreve (Arezzo), c. 850 m.s.m., suolo arenaceo-marnoso, humus subnullo, *Brilli-Cattarini et Gubellini*, 2.VII.1981(FI !) - Monte Labro (Grosseto), nei pressi del Santuario, 900-1000 m s.m.ca., *Baldini et Luccioli*, 13.XII.1992 (FI !) - Grosseto, da Santa Fiora verso Castel'Azzara, guado, risalendo la riva destra del Torrente Scabbia (affluente del Fiora), substrato ripariale con Salici, Ontani, Cerri, Ghiaioni di calcare, m 570 circa s.l.m., *Sforzi et Senesi*, 22.VI.2003, det. *Sforzi* (FI !) - Grosseto, Monte Acuto nei pressi di Pari, Lecceta a coltivi (uliveti, vigneti) abbandonati, m 462 s.l.m., *Sforzi et Senesi* 06.VII.2003, det. *S. Sforzi* (FI !)

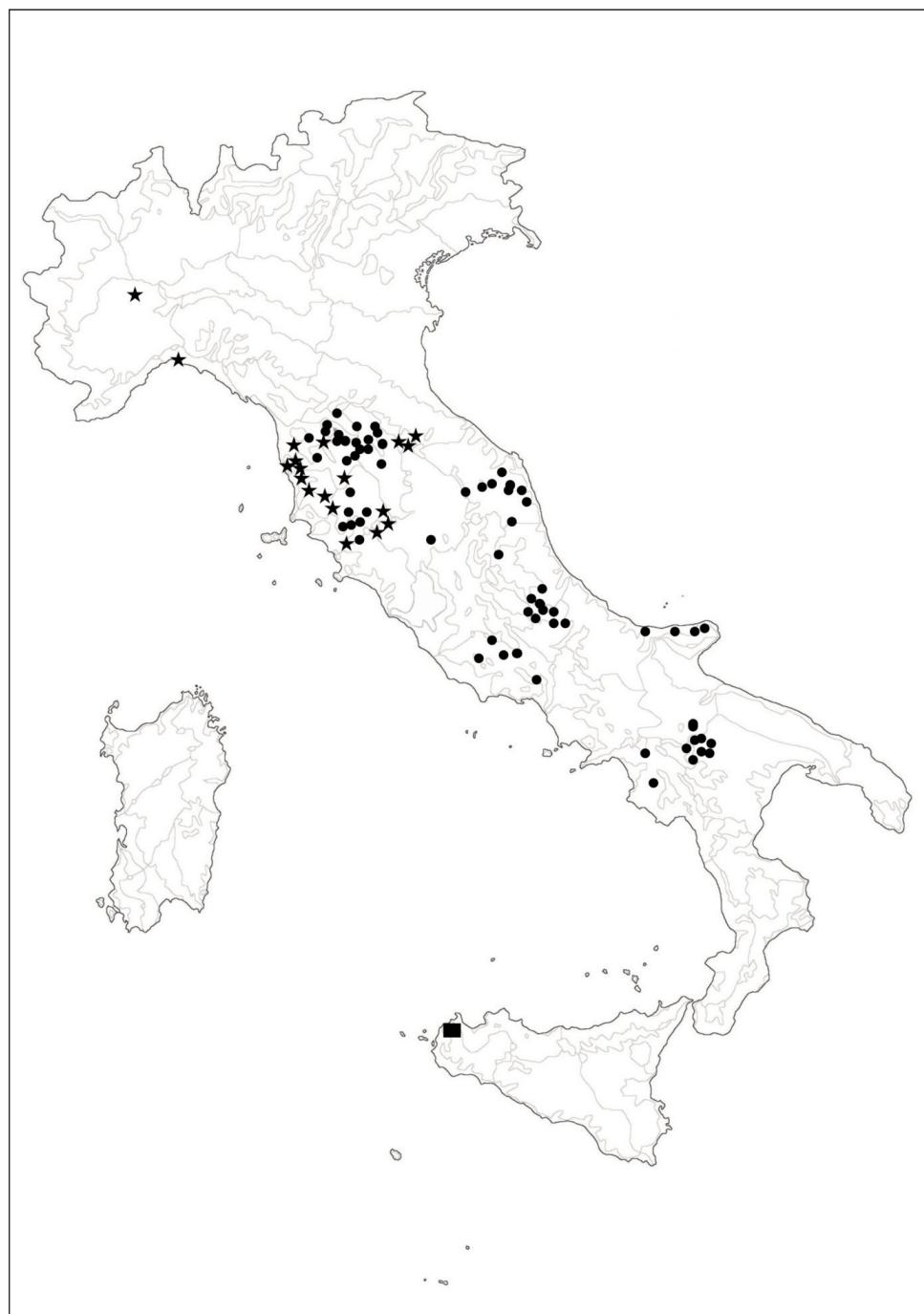


Fig. 2. Italian distribution of *Xeranthemum cylindraceum*: dots) herbarium specimens in FI; stars additional distribution from Peruzzi & al. 2019-; square) new record from Sicily.

MARCHE – Vicino ad Acquasanta nel Piceno, reg. del castagno, *sine coll.*, 11.VII.1836 (FI !) - legit in Mte. Fortino alla Battiferra, *Dominicus Marzialetti*, VII.1893, da *Marzialetti* in Aprile 1851 (FI !) - Ubique in pasc. m. Catria, Pascoli del ......., da *Giannini* 1864 (FI !) - Sopra Fonte Avellana nel M. Catria, reg. del faggio, 500 m, 26.VII.1866, da *Parlatore* in Sett. 1866 (FI !) - legi in sub Apennino Piceno a Mt. Fortino, *Gennari*, da *Gennari* in Luglio 1877 (FI !) - A Fabriano, *Narducci*, IV.1877 (FI !) - Nel ....Fermanello nel ...., *Narducci*, IV.1877 (FI !) - Macerata presso il ponte di Fiastra nell'Abbazia di Bandini, ed in altre località, *Narducci*, sine die (FI !) - Jesi (Marche), *Grilli*, 15.VI.1907 (FI !) - Cingoli, VII.1932 (FI) da .... (FI) - Cingoli, 10.VII.32, da .....(FI)

UMBRIA – Presso La Morcella, *Bicioni*, sine die, det. *Palomba* (FI !)

LAZIO – da Vicovaro alla spiaggia lungo i stradali di Subiaco, inter segetis, 28.VII.1857, da *Molli* in Genn. 1858 (FI) - Ad agrorum margines Campaniae, Ausonia, *Terracc.*, VI.1874, da *Terracciano* in Apr. 1875 (FI !) - Vallepietra alla SS. Trinità sulla rupe, *Vaccari*, 29.V.1904 (FI !) - Salita da Palombara al Mt. Gennaro, 600:1100, *Vaccari*, 15.VII.1906 (FI !) - S.S. Trinità sulla rupe, *Vaccari*, 12.VI.1911 (FI !)

ABRUZZO – Ad radices Montis “Morrone”, a Caramanico non longe, ad agrorum margines, *Sommier*, 4.VII.1872 (FI !) - Ad radices Montis Morrone, ad agrorum margine, *Sommier*, 4.VII.1872 (FI !) - In campis arenosis ad radicem Montis Morrone supra Caramanico (Apud Cit.), *Levier*, 4.VII.1874 (FI !) - Morrone, sopra Salle Caramanico, *Profeta*, VIII.1874 (FI !) - In collibus siccis prope Caramanico in Aprutio, *Groves*, VII.1875 (FI !) - Nei seminati presso il laghetto di S. Giacomo sul Mte. dei Fiori (Abruzzi), *Gemmi*, 14.VII.1877 (FI !) - Monte Morrone (Abruzzi), *Profeta*, Estate 1891 (FI !) - Caramanico (Majella), salendo al Convento di S. Nicola, 600-700, *Vaccari*, 2.7.1906 (FI !) - Caramanico, dirupi sopra S. Croce, 600-700 m, *Vaccari*, 3.VII.1906 (FI !) - Tocco Casuaria (Majella), presso le sorgenti del petrolio, 300-500, *Vaccari*, 3.VII.1906 (FI !) - .....colle delle Vacche fra Teramo ed Aquila, 1300, *Vaccari*, 27.VII.1906 M. Petroso, Abruzzi, *Marzislati*, sine die (FI !)

CAMPANIA – In campis montosis, *Tenore*, da *Tenore* in Marzo 1844 (FI !) - Piaggine (Salerno), in saxosis siliceis, c. 650 m., *Lacaita*, 15.VII.1919, da *Lacaita* XII.1920 (FI !) - Campania, *Moraldo*, 15.VII.1978 (FI !) - Luoghi aridi argillosi, Calabritto, al Santuario M. della Neve, Est, *Moraldo*, sine die (FI !)

PUGLIA – Nei boschi fra S. Marco e S. Nicandro, *Martelli*, 11.V.1893, da *Martelli* Marzo 1894 (FI !) - Campi presso Lesina (Foggia), *Fiori*, 18.VI.1898 (FI !) - Gargano nelle colline attorno a Vieste, *Bèguinot*, VII.1902 (FI !) - Gargano, Foresta Umbra verso Vico, suolo calcareo, 700 m., *Fiori*, 9-11.VII.1915 (FI !)

BASILICATA – In apricis aridis, Melfi sui colli, *Terracc.*, VI.1860, da *Terracciano* 1870 (FI !) - ai Bagni del Monticchio (Vulture), *Biondi*, VII.1880 (FI !) - sugli argini a Potenza, *Biondi*, 20.VII.1880 (FI !) - Potenza, in Pascuis aridis montis Montocchio, solo calcareo, alt. 800-1200 m, *Gavioli*, 7.VIII.1906 (FI !) - Lucania, Pignola in saxosis aridis, loco dicto Campo di Giorgio, solo argilloso calcareo, alt. 800 m, *Gavioli*, 24.VI.1922 (FI !) - Potenza, in pascuis loco dicto Vallone dei gamberi, solo argilloso, alt. 750-1000, *Gavioli*, 29.VI.1923, (FI !) - Potenza, loco dicto .... di Montegrosso, alt. ...., solo calcareo, *Gavioli*, 30.VI.1924, (FI !) - Potenza, M. Montocchio, in pascuis alt 800-1100 m, *Gavioli*, 16.VI.1926 (FI !) - Lucania, Pignola, in pascuis aridis prope lacum, alt 800 m., *Gavioli*, 9.VII.1933 (FI !)



Fig. 3. Sicilian specimen of *Xeranthemum cylindraceum* from Mt Erice (Trapani).

### **Sicilian record**

SICILIA – Erice, pendici settentrionali orientali di Monte S. Giuliano su litosuolo calcareo-argilloso, circa 550 m s.l.m., *Raimondo*, 12.06.2018 (PAL, PAL-Gr, CT) (Fig. 3).

### **Discussion and conclusion**

*Xeranthemum* is a genus represented in Europe and the Mediterranean by only three species (Greuter 2006+); two of them are also native to Italy. Compared to *X. inapertum* (L.) Mill. – present in all Italian regions, including islands and with the exception of Lombardy, Trentino Alto Adige and Friuli-Venezia Giulia – *X. cylindraceum* is less widespread and absent in Sardinia. In Sicily it is here reported from the northern slope of Mt San Giuliano (Erice, Trapani). The study of the herbarium specimens preserved in FI allows us to document the distribution of this taxon in the Italian Peninsula (Fig. 2) and at the same time to update the distribution, including the unpublished Sicilian record.

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#### Addresses of the authors:

Rosanna M. S. Costa<sup>1</sup> & Emilio Di Gristina<sup>2\*</sup>,

<sup>1</sup>Department of Biological, Geological and Environmental Sciences, Catania University, Orto Botanico, Via A. Longo 19, 95125 Catania, Italy. E-mail: rosannamscosta@unict.it

<sup>2</sup>Department SAAF, Palermo University, viale delle Scienze, ed. 4. 90128 Palermo, Italy. E-mail: emilio.digristina@unipa.it

\*Corrisponding author

