

Filippo Scafidi & Francesco M. Raimondo

First record of *Pilea microphylla* (*Urticaceae*) in Sicily

Abstract

Scafidi, F. & Raimondo, F. M.: First record of *Pilea microphylla* (*Urticaceae*) in Sicily. — Fl. Medit. 28: 79-84. 2018. — ISSN: 1120-4052 printed, 2240-4538 online.

Pilea microphylla (*Urticaceae*) is a species native to Mexico and tropical South America that has been collected for the first time in Sicily in the surroundings of the city of Palermo. According to our observations, this species is to be considered as a casual alien.

Key words: alien flora, vascular flora, xenophytes, urban area, Palermo.

Introduction

Pilea is the largest genus of the *Urticaceae* and one of the largest genera in the *Urticales* (Monro 2006). It includes over 600 species (Adams 1970; Burger 1977; Monro 2004), that are mostly distributed throughout the tropics, subtropics, and warm temperate regions (Monro & al. 2012). The majority of species are succulent herbs, epiphytes or small shrubs growing in heavy shade (Monro 2009).

In June 2017, during the study of the alien urban flora of Palermo (Ciccarello & al. 2016) a remarkable population, identified as *Pilea microphylla* (L.) Liebm., was discovered. This new alien species had not previously been reported in any Italian and Sicilian floristic literature (Fiori 1926; Pignatti 1982; Giardina & al. 2007; Raimondo & al. 2010; Celesti-Grapow & al. 2016; Domina & al. 2018; Galasso & al. 2018). Recently, it had been founded as weed in the greenhouses in Lombardy (Northern Italy) (Acta Plantarum 2017: <http://www.floraitaliae.actaplantarum.org/viewtopic.php?t=98852>).

Therefore, the new finding represents the first record for Sicily and the second for Italy as well.

Material and Methods

Plant material was collected in the field. Herbarium specimens were deposited in FI, PAL and PAL-Gr (acronyms according to Thiers 2011).

The taxonomical identification was made on the basis of the descriptions by Standley (1937), Wagner & al. (1999), Monro (2001) and Bhellum & Hamid (2016). The protologue by Linnaeus (1759) was also examined.

Data about the habitat and the population size of *P. microphylla* are based on personal observations in the field. The evaluation of the invasive status was defined according to Pyšek & al. (2004).

Results and Discussion

Pilea microphylla (L.) Liebm. in Kongel. Danske Vidensk. Selsk. Skr., Naturvidensk. Math. Afd. ser. 5, 2: 296 (1851).

Typus: Jamaica? (LINN 1220.8! – lectotype) designated by De Rooij (1975).

≡ *Parietaria microphylla* L., Syst. Nat., ed. 10, 2: 1308 (1759).

= *Urtica serpyllacea* Kunth in Humb., Bonpl. & Kunth, Nov. gen. sp. 2: 37 (1817).

= *Pilea muscosa* Lindl., Coll. hot.: t. 4 (1821), nom. superfl.

= *P. serpyllacea* (Kunth) Liebm. in Kongel Danske Vidensk. Selsk. Skr., Naturvidensk. Math. Afd. ser. 5, 2: 296 (1851).

= *P. portula* Liebm. in Kongel. Danske Vidensk. Selsk. Skr., Naturvidensk. Math. Afd. ser. 5, 2: 297 (1851).

Pilea microphylla, commonly known as artillery weed, rockweed or gunpowder plant, is native to Mexico and tropical South America (Monro 2001). It is mainly utilized in gardens and landscapes as foliage or groundcover ornamental plant (Saha & al. 2017), but also for many ethnobotanical uses (Bhellum & Hamid 2016).

At present, it is considered as a problematic weed affecting tropical and subtropical environments worldwide (Pacific Island Ecosystems at Risk 2010).

In Europe, *P. microphylla* is known as casual alien in Belgium, introduced as weed via plant nurseries (Verloove 2006); naturalized in the Balkan Peninsula (Ball 1976), Archipelago of Madeira (Vieira 2002), or doubtfully naturalized in the Canary Islands (Otto & Verloove 2016).

During our field surveys, *P. microphylla* has been ascertained occurring in the Favorita Park of Palermo (Sicily, Southern Italy), that is placed on the southwestern foothills of Mt. Pellegrino, at 36 a.s.l. (38° 08' 58.98" N 13° 20' 50.80" E).

Climate can be referred to thermo mediterranean type, with an average annual temperature of 18°C and rainfall of 642 mm (Buffa & al. 1986).

P. microphylla was found on shady surrounding wall. Overall there are many hundreds individuals covering an area of approximately 20 m² (Fig. 1).

The vector of introduction is uncertain. Probably, *P. microphylla*, escaped from nearby gardens, where, probably, originally was introduced as weed in several pots of ornamental exotic plants.

In the growing site considered here, flowering has been observed only in the year 2017, from June up to September (Fig. 2); fruits, however, were not produced. It seems likely that at present the spread of this species entirely depends on vegetative reproduction.



Fig. 1. Habitat of *Pilea microphylla* in the Favorita Park in Palermo (Sicily, southern Italy), Photo by F. Scafidi (18.07.2017).



Fig. 2. Individuals of *P. microphylla* in blooming. Photo by F. Scafidi (18.07.2017).

Because the observation period is very short, further field research are necessary to fully assess the proper behaviour of this plant. Therefore, at this state of knowledge, according to Pyšek & al. (2004), it must be considered a casual alien.

For this reason, *P. microphylla* in Sicily should be permanently monitored, taking into account that it could represent a future threat to natural and semi-natural habitats.

The discovery of this new taxon is added to other records in the last years for the urban area of Palermo (Scafidi & al. 2016a, Scafidi & al. 2016b, Scafidi & al. 2016c, Raimondo & Spadaro 2017, Scafidi & Raimondo 2017, Spadaro & Raimondo 2017).

Specimina visa

ITALY: Sicily, Favorita Park (Palermo), shady surrounding wall, 38° 08' 58.98" N 13° 20' 50.80" E, 36 m a.s.l., 12 Jun 2017, *F. Scafidi s. n.* (FI, PAL, PAL-Gr).

Acknowledgements

Financial support by International Foundation pro Herbario Mediterraneum is gratefully acknowledged. A special thanks to Prof. Pietro Mazzola for text lecture and nomenclatural advice.

References

- Adams, C. D. 1970: Notes on Jamaican flowering plants 1. – Mitt. Bot. Staatssamml. München **8**: 99-110.
- Ball P. W. 1976: *Pilea* Lindley. – P. 80 in: Tutin, T. G., Burges, N. A., Chater, A. O., Edmondson, J. R., Heywood, V. H., Moore, T. M., Valentine, D. H., Walters, S. M. & Webb, D. A. (eds) – Flora Europaea, **1**. – Cambridge.
- Bhellum, B. L. & Hamid, S. 2016: *Pilea microphylla* (L.) Liebm. (*Urticaceae*): a naturalised taxon for the flora of Jammu and Kashmir State, India. – Curr. Trends Life Sci. **2(2)**: 55-57.
- Buffa, M., Venturella, G. & Raimondo, F. M. 1986: Contributi botanici alla conoscenza del verde storico a Palermo: 2. Carta della vegetazione del Parco della Favorita. – Naturalista Sicil., s. 4, **4(10)**: 3-90.
- Burger, W. 1977: *Pilea*. Flora Costaricensis. – Fieldiana, Bot. **40**: 246-272.
- Celesti-Grapow, L., Bassi, L., Brundu, G., Camarda, I., Carli, E., D'Auria, G., Del Guacchio, E., Domina, G., Ferretti, G., Foggi, B., Lazzaro, L., Mazzola, P., Peccenini, S., Pretto, F., Stinca, A. & Blasi, C. 2016: Plant invasions on small Mediterranean islands: An overview. – Pl. Biosyst. **150**: 1119-1133. doi: 10.1080/11263504.2016.1218974
- Ciccarello, S., Scafidi, F., Di Gristina, E. & Domina, G. 2016: Study of the alien flora of the urban area of Palermo. – P. 34 in: Book of Abstract: 111° Congresso della Società Botanica Italiana, III International Plant Science Conference, Roma 21-23 Settembre 2016. – Roma
- Domina, G., Galasso, G., Bartolucci, F. & Guarino, R. 2018: Ellenberg Indicator Values for the vascular flora alien to Italy. – Fl. Medit. **28**: 53-61. doi: 10.7320/FlMedit28.053
- De Rooij, M. J. M. 1975: *Pilea*. – P. 314 in: Lanjouw, J. & Stoffers, A. L.: Flora of Suriname, **5**. – Leiden.
- Fiori, A. 1926: *Urticaceae*. – Pp. 369-380 in: Nuova Flora Analitica d'Italia, **1**. – Firenze.
- Galasso, G., Conti, F., Peruzzi, L., Ardenghi, N. M. G., Banfi, E., Celesti-Grapow, L., Albano, A., Alessandrini, A., Bacchetta, G., Ballelli, S., Bandini Mazzanti, M., Barberis, G., Bernardo, L.,

- Blasi, C., Bouvet, D., Bovio, M., Cecchi, L., Del Guacchio, E., Domina, G., Fascetti, S., Gallo, L., Gubellini, L., Guiggi, A., Iamónico, D., Iberite, M., Jiménez-Mejías, P., Lattanzi, E., Marchetti, D., Martinetto, E., Masin, R.R., Medagli, P., Passalacqua, N. G., Peccenini, S., Pennei, R., Pierini, B., Podda, L., Poldini, L., Prosser, F., Raimondo, F. M., Roma-Marzio, F., Rosati, L., Santangelo, A., Scoppola, A., Scortegagna, S., Selvaggi, A., Selvi, F., Soldano, A., Stinca, A., Wagensommer, R. P., Wilhalm, T. & Bartolucci, F. 2018: An updated checklist of the vascular flora alien to Italy. – *Pl. Biosyst.* **152**: 556-592. doi: 10.1080/11263504.2018.1441197.
- Giardina, G., Raimondo, F. M. & Spadaro, V. 2007: A catalogue of plants growing in Sicily. – *Bocconea* **20**: 43-44.
- Linnaeus, C. 1759: *Parietaria*. – P. 1308 in: *Systema naturae per regna tria naturae: secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis*, ed. 10, **2**. – Holmiae.
- Monro, A. K. 2001: Synopsis of Mesoamerican *Pilea* (*Urticaceae*), including eighteen typifications and a key to the species. – *Bull. Nat. Hist. Mus. London, Bot.* **31**: 9-25.
- 2004: Three new species, and three new names in *Pilea* (*Urticaceae*) from New Guinea. – *Kew Bull.* **59**: 573-579.
- , Wei, Y. G. & Chen, C. J. 2012: Three new species of *Pilea* (*Urticaceae*) from limestone karst in China. – *PhytoKeys* **19**: 51-66.
- Otto, R. & Verloove, F. 2016: New xenophytes from La Palma (Canary Islands, Spain), with emphasis on naturalized and (potentially) invasive species. – *Collect. Bot.* **35**: e001.
- Pacific Island Ecosystems at Risk 2010: *Pilea microphylla* (PIER Species Info). Pacific Island Ecosystems at Risk (PIER), US Forest Service. – Available from http://www.hear.org/pier/species/pilea_microphylla.htm. [Last Accessed: 21 Dec 2017].
- Pignatti, S. 1982: *Urticaceae*. – Pp. 125-128 in: *Flora d'Italia*, **1**. – Bologna.
- Pyšek, P., Richardson, D. M., Rejmánek, M., Webster, G. L., Williamson, M., & Kirschner, J. 2004: Alien plants in checklists and floras: towards better communication between taxonomists and ecologists. – *Taxon* **53(1)**: 131-143.
- Raimondo, F. M. & Spadaro, V. 2017: First finding in Sicily of *Bidens subalternans* (*Asteraceae*). – *Fl. Medit.* **27**: 267-273. doi: 10.7320/FIMedit27.267
- , Domina, G. & Spadaro, V. 2010: Checklist of the vascular flora of Sicily. – *Quad. Bot. Amb. Appl.* **21**: 189-252.
- Scafidi, F. & Raimondo, F. M. 2017: Principi di spontaneizzazione in Sicilia di *Talinum paniculatum* (*Talinaceae*). – *Quad. Bot. Amb. Appl.* **26(2015)**: 23-26.
- , Di Gristina, E. & Domina G. 2016a: *Alternanthera tenella* Colla – Pp. 423-424 in: Raab-Straube, E. von & Raus, T. (eds), *Euro+Med-Checklist Notulae*, 6. – *Willdenowia* **46(3)**: 423-442. doi: 10.3372/wi.46.46310
- , — & — 2016b: *Brachychiton discolor* F. Muell., *Brachychiton diversifolius* R. Br. – P. 429 in: Raab-Straube, E. von & Raus, T. (eds), *Euro+Med-Checklist Notulae*, 6. – *Willdenowia* **46(3)**: 423-442. doi: 10.3372/wi.46.46310
- , Raimondo, F. M. & Domina, G. 2016c: First record of *Euphorbia graminea* (*Euphorbiaceae*) in Italy. – *Fl. Medit.* **26**: 25-30. doi: 10.7320/FIMedit26.025
- Spadaro, V. & Raimondo, F. M. 2017: Stazioni nuove di *Euphorbia hypericifolia* (*Euphorbiaceae*) e di *Phyllanthus tenellus* (*Phyllanthaceae*) in Sicilia. – *Quad. Bot. Amb. Appl.* **26(2015)**: 39-42.
- Saha, D., Marble, S. C., Stewart, C., & Chandler, A. 2017: Preemergence and Postemergence Control of Artilleryweed (*Pilea microphylla*) in Container Nurseries and Landscapes. – *Weed Technol.* **31(4)**: 574-581.
- Standley, P. C. 1937: *Pilea*. – Pp. 392-398 in: Standley, P. C. & Dahlgren, B. E. (eds), *Flora of Costa Rica*, **1**. – Chicago.

- Thiers, B. 2011: Index Herbariorum: A global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. Available from <http://sweetgum.nybg.org/ih/> [Last Accessed: 10 Dec 2017].
- Verloove, F. 2006: Catalogue of neophytes in Belgium (1800-2005). – *Scripta Bot. Belgica* **39**: 68.
- Vieira, R. 2002: Flora da Madeira: plantas vasculares naturalizadas no arquipélago da Madeira. – *Boletim Mus. Municip. Funchal (Hist. Nat.)*. – **Suppl. 8**: 1-281
- Wagner, W. L., Herbst D. R. & Sohmer, S. H. 1999: Manual of the flowering plants of Hawaii, 2^o Ed. – Honolulu.

Address of the authors:

Filippo Scafidi & Francesco M. Raimondo,

Department STEBICEF/Section of Botany and Plant Ecology, University of Palermo, Via Archirafi 38, 90133 - Palermo, Italy. E-mail: filippo.scafidi@unipa.it