Phytotaxa 222 (3): 238–240
www.mapress.com/phytotaxa/

Correspondence

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

http://dx.doi.org/10.11646/phytotaxa.222.3.7

Riccia melitensis Mass. (Marchantiophyta: Ricciaceae), an endemic species of the Maltese archipelago?

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Abstract

Riccia melitensis was considered to be an andemic species of the Maltese Archipelago and has never been relocated in the field since its discovery in 1913. The type specimen of *Riccia melitensis* Mass. has been examined and its taxonomic morphological characters re-evaluated. As a result, *R. melitensis* is considered to be a synonym of *R. ciliifera* Lindenb.

Riccia melitensis Massalongo (1913: 52) was described in 1913 by Caro Benigno Massalongo on the basis of material collected by Carlo Pietro Stefano Sommier in 1906. The collection date was mistakenly given as 1896 by Jovet-Ast (1983). It was collected on the island of Gozo, in the Mediterranean Sea. It is the second-largest island in the Maltese archipelago, a region which was at that time the subject of intensive floristic research (Massalongo in Sommier & Caruana Gatto 1910).

Riccia melitensis is only known from the original publication (Massalongo 1913) and a unique specimen stored in G (G00067993). The specimen lacks a collection date but otherwise corresponds well with the protologue. Jovet-Ast (1983) did not formally designate a type because she only stated that the taxon "*n'est connu que par le type*". Hence the holotype is here designated.

Jovet-Ast travelled intensively in the Mediterranean during a number of expeditions. *Riccia melitensis* was the only *Riccia* Linnaeus (1753: 1138) species that she failed to collect during this time. *Riccia melitensis* was never mentioned again what raised doubts about the validity of the species and necessitated a reevaluation of the taxonomic status of *R. melitensis*.

Other descriptions of *R. melitensis* have appeared in Zodda (1934), Müller (1954) and Jovet-Ast (1983, 1986). It is unclear whether all the published accounts are based upon examination of the type or literal transcriptions of the protologue. The account by Riccia's worldwide expert, Madame Jovet-Ast is beyond doubt the most reliable publication on the species. She examined the original specimen in 1982 and left with the sheet a permanent slide allowing a close examination of the spores. She also published excellent SEM micrographs of spore proximal and distal faces (Jovet-Ast 1983). The material in G is otherwise very scanty but fully fertile so a reappraisal of this species was possible.

According to my own observations, the thallus and spores are characterized by: a winged thallus with no marginal cilia and distinct overlapping hyaline marginal scales. The spores are 100–110 µm in diameter, with a wide, finely granulate and irregular wing. The distal face of the spores is concave, with a small group of areolae in the central part which are replaced by sinuose meshes toward the equator; the proximal face of spores lacks areolae but it is ornamented with sinuose meshes. The material seems to be dioicous (Jovet-Ast 1983). The sexual condition could not be fully assessed because no antheridia were found.

The set of gametophytic and spore characters undoubtedly points to the material being a female thallus of *R. ciliifera* Link ex Lindenberg (1829: 119). Jovet-Ast (1983) discussed the affinity of *R. melitensis* with *R. gougetiana* Durieu & Montagne in Montagne (1849: 35) and *R. ciliifera* while refraining from synonymizing *R. melitensis* under any of these species because of supposed taxonomic informative characters which set *R. melitensis* apart. The thick "epidermis" made of 4–5 superimposed cells (Massalongo 1913; Zodda 1934; Müller 1954) ending in an oblong to pyriform cell is a common feature of most *Riccia* subg. *Riccia* and corresponds to the thread-like assimilation tissue. The violet-coloured median strip of tissue delineating the assimilative tissue from the storage tissue which is discernable in transverse section (Jovet-Ast 1983) is a highly plastic character in all *Riccia* subg. *Riccia* where

 Accepted by Christine Cargill: 29 May 2015; published: 19 Aug. 2015