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Parviphycus bompardii sp. nov. and *P. albertanoae* (Gelidiales, Rhodophyta), two species misidentified as *Gelidiella ramellosa* in the Mediterranean Sea

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Abstract

A critical re-examination of both recent and historical herbarium specimens from the Mediterranean Sea attributed to *Gelidiella ramellosa* highlighted that previous identifications were incorrect. Our investigations have demonstrated that the examined specimens actually belong to the genus *Parviphycus*; some of them must be attributed to the recently described *P. albertanoae* and some to the undescribed species *Parviphycus bompardii*. The new species shows morphological features that distinguish it from the other congeners and represents the fifth species of the genus occurring in the Mediterranean Sea. *Parviphycus bompardii* is readily recognizable for both branching pattern and characteristics of tetrasporangial sori. Results of this study suggest a re-examination of previous Mediterranean records attributed to *G. ramellosa* and a much more accurate approach to future records of Gelidiales. An identification key to Mediterranean species of *Parviphycus* is also presented based on our results and also on a review of the literature.

Key words: *Gelidiella*; Gelidiellaceae; identification key; Mediterranean Sea; new species; *Parviphycus*; seaweeds

Introduction

To date, the genus *Parviphycus* Santelices (2004: 322) (Gelidiales, Gelidiellaceae) is represented by eight species worldwide (Guiry & Guiry 2015), four of which were recorded from the Mediterranean Sea: *P. antipae* (Celan) B. Santelices (2004: 324), *P. pannosus* (Feldmann) G. Furnari in Furnari *et al.* (2010: 828), *P. felicinii* Perrone & Delle Foglie (2006: 201) and *P. albertanoae* A. Bottalico, G.H. Boo, C. Russo, S.M. Boo & C. Perrone (2014: 244). During a re-examination of previous collections of Gelidiellaceae Fan (1961: 317) from southern Italy, some misidentifications of specimens attributed to both *Gelidiella ramellosa* (Kützing) Feldmann & G. Hamel (1934: 533) and *P. pannosus* were found. In particular, collections from Apulia and Sicily identified as *G. ramellosa* resulted to belong to the genus *Parviphycus* (Bottalico *et al.* 2014). The characteristic features highlighted by Santelices (2004) to distinguish *Gelidiella* Feldmann & G. Hamel (1934: 529) from *Parviphycus*, are crucial for a correct identification of such genera. In *Gelidiella*, subapical cells undergo a decussate pattern of division; consequently, both thallus anatomy and tetrasporangial sori maintain a radial symmetry; both axes and tetrasporangial sori are terete to slightly compressed; axial and periaxial cells are not obvious in the erect thallus; tetrasporangia are initiated from the inner cortical cells, ellipsoid when mature and arranged in irregular whorls, with 8–12 sporangia evident in surface view. In *Parviphycus*, subapical cells undergo a distichous pattern of division; consequently, both thallus anatomy and tetrasporangial sori maintain a bilateral symmetry; both axes and tetrasporangial sori are usually compressed to flattened; axial and periaxial cells form a distinctive row in the erect thallus, as seen in transverse section, and an ideal plane of symmetry; tetrasporangia are initiated from the pericentral cells, are rounded when mature and arranged in parallel rows, transverse or in chevrons. On the basis of these distinctive characters four species of *Gelidiella* [*G. adnata* E.Y. Dawson (1954: 422), *G. antipae* Celan (1938: 77), *G. tenuissima* Feldmann & G. Hamel (1936: 102), *G. womersleyana* Kraft & I.A. Abbott (1998: 56)] were then transferred to *Parviphycus* (Santelices 2004), and others are good candidates, for example *G. tinerfensis* Seoane-Camba (1977: 127).

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