



## ***Pyropia orbicularis* sp. nov. (Rhodophyta, Bangiaceae) based on a population previously known as *Porphyra columbina* from the central coast of Chile**

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### **Abstract**

A new species of bladed Bangiales, *Pyropia orbicularis* sp. nov., has been described for the first time from the central coast of Chile based on morphology and molecular analyses. The new species was incorrectly known previously as *Porphyra columbina* (now *Pyropia columbina*), and it can be distinguished from other species of *Pyropia* through a range of morphological characteristics, including the shape, texture and colour of the thallus, and the arrangement of the reproductive structures on the foliose thalli. Molecular phylogenies based on both the mitochondrial COI and plastid *rbcL* gene regions enable this species to be distinguished from other species within *Pyropia*. *P. orbicularis* sp. nov. belongs to a well-supported clade of *Pyropia* from the southern oceans that include specimens from the South Pacific (North, South, Chatham, Stewart, Auckland, and Campbell Island, New Zealand, New South Wales, and Macquarie Island, Australia) including *P. columbina* and *P. plicata*. Within this clade, the highest sequence identity was observed between *Pyropia orbicularis* sp. nov. and *Pyropia* sp. FIC from the Falkland Islands.

**Key words:** Bangiales, COI, Morphology, *Porphyra*, *Pyropia*, *rbcL*, South Pacific

### **Introduction**

In a recent worldwide study of Bangiales (Rhodophyta) based on molecular analysis using nuclear SSU rRNA and chloroplast *rbcL* regions, Sutherland *et al.* (2011) recognized the existence of fifteen genera of which seven are filamentous and eight foliose. Of the foliose genera, *Porphyra* sensu lato, which has representatives in all seas, has undergone many changes in its classification in the last decade (e.g. Anilkumar & Rao 2005, Yoshida *et al.* 2005, Kikuchi *et al.* 2010, Nelson & Broom 2010, Kucera & Saunders 2012, Mateo-Cid *et al.* 2012, Nelson 2013).

The economic and cultural importance of *Porphyra* sensu lato is widely known and appreciated in Asian countries, notably Japan and China, North and South America, Australia and New Zealand (Aguilar-Rosas *et al.* 1998, Jian & Chen 2001, He & Yarish 2006, Blouin *et al.* 2011) and has been one of the red algal genera with the largest production and marketing worldwide. In Chile, species of the genus *Pyropia* and *Porphyra*, specifically the taxon known as *Porphyra columbina* Montagne (now *Pyropia columbina* (Montagne) W.A. Nelson), are commonly called “luche” or “luchi” and have been harvested and consumed since the late Pleistocene by coastal populations in the country (Seguel & Santelices 1988, Buschmann *et al.* 2001, González & Santelices 2003, Dillehay *et al.* 2008). It is reported that the species under the name *Porphyra columbina* is highly seasonal and grows abundantly

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