



True identity of *Avrainvillea* and *Rhipilia* (Bryopsidales, Chlorophyta) from the Coast of Bahia, Brazil

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Abstract

The coast of Bahia is the most extensive coastline in Brazil. There is great diversity in its coastal environments and these are considered to be a priority area for floristic surveys. Although representative species of the *Avrainvillea* and *Rhipilia* (Bryopsidales, Chlorophyta) genera are common in tropical and temperate marine habitats where they form an important component of the flora, most studies of their diversity in Bahia are of a floristic nature. The biology and ecology of these genera are still poorly understood and, for this reason, many taxa may have been incorrectly identified. This study aimed to perform a taxonomic analysis of *Avrainvillea* and *Rhipilia* genera from the coast of Bahia State, Brazil. Specimens used for the study were from samples collected between 1964 and 2013, deposited in the main Brazilian herbaria, to which visits and/or loan requests were made. Five infrageneric taxa, distributed in both genera, were identified as *Avrainvillea* (3) and *Rhipilia* (2). Identification keys, descriptions, and comparisons to related taxa are showed.

Key words: Bahia State, Chlorophyta, macroalgae, morphology, taxonomy

Introduction

The genus *Rhipilia* was originally established by Friedrich T. Kützting to include two species, *R. tomentosa* Kützting, 1858. and *R. longicaulis* Kützting 1858, the latter thereafter being transferred to the genus *Avrainvillea* Decaisne, 1842 by Maze & Schramm (1870). Later, Murray and Boodle (1889) retained *A. longicaulis* (Kützting) G. Murray & Boodle in *Avrainvillea*, and transferred *R. tomentosa* to the genus *Udotea* J.V. Lamouroux, 1812 thus extinguishing the genus *Rhipilia*. The genus *Rhipilia* was subsequently revived by Gepp & Gepp (1911) with three species: *R. tomentosa*, *R. tenaculosa* A. Gepp & E.S. Gepp, and *R. orientalis* A. Gepp & E.S. Gepp.

Rhipilia is morphologically distinguished from *Avrainvillea* by the presence of lateral branches terminating in tenacula that attach to adjacent siphons (Littler & Littler 1992), and both are distinguished from *Udotea* due to the absence of calcification and by the absence of lateral tenacular attachments in the siphons (Millar & Kraft 2001).

These genera have been predominantly characterized on the basis of vegetative characteristics of the adult thallus (Vroom *et al.* 1998), such as habit, thallus structure, shape and diameter of the siphons, branching type of siphons, and the presence or absence and type of appendages. This wide variety of forms has been used to separate the taxa (Verbruggen *et al.* 2009). While several studies have contributed to a better understanding of the phylogeny of the Bryopsidales order as a whole (Hillis *et al.* 1998, Kooistra 2002, Curtis *et al.* 2008, Verbruggen *et al.* 2009), the biology and ecology of many siphonous green algae is still poorly understood (Clifton & Clifton 1999), and consequently, many taxa may have been incorrectly identified (Vroom *et al.* 1998). According to Cabrera & Suarez (2003), in many ecological studies, the *Avrainvillea* specimens have been identified only at the genus level.

Representatives of the order Bryopsidales are common in tropical and subtropical marine habitats where they form an important component of the flora (Verbruggen *et al.* 2009), and the genus *Avrainvillea* and *Rhipilia* are well represented in these environments. Several studies have demonstrated how diverse these genera are in the Atlantic (Joly *et al.* 1965, Joly & Sazima 1971, Littler & Littler 1992, Cabrera & Suárez 2003, Martínez-Cabrera Daranas 2005)