First Record of *Acetabularia myriospora* (Polyphysaceae, Chlorophyta) in the Ceará State, Brazil

### Abstract

On rocky shores, macroalgae play an ecological role as organizer of community structures, since they are source of food for many invertebrate species inhabiting their fronds, as well as providing shelter from predators, enhancing environment conditions and reducing water movement. With this in mind, detecting new species on a regional scale is of major importance for biodiversity monitoring and conservation. In the current study, the first record of the seaweed species *Acetabularia myriospora* was made in the offshore of Ceará state, Brazil. The frequency of occurrence of *A. myriospora* (1.62%) is considered low whether compared to that of *A. calyculus* (17.43%). This study is the first record of the species *Acetabularia myriospora* (Polyphysaceae, Chlorophyta) in the coastline of Ceará state.

**Keywords:** Macroalgae; Biodiversity; Coastline; Seaweed

### Material and Methods

The study was performed in the algae bank of Barrinha, located on the coastline of Icapuí city, in the state of Ceará, Brazil. A floristic survey was made in two manual random samplings during spring low-tide days. Species were found on rocks, sandstone reefs or even in tide pools. The material was collected and packaged into plastic bags, properly labeled, fixed in a solution as described by Reis TNDV, et al. [6], formulated from formaldehyde in seawater at 4% and then taken to the laboratory, where zoobenthos were separated.

Identification was carried out following traditional techniques for seaweeds [7]. Morphological and anatomical details were observed under stereoscopic microscope. Specimen frequency of occurrence was based on the number of samples, being estimated by the formula below:

\[
Fo = \frac{To \times 100}{Ta}
\]

In which, \(Fo\) is the frequency of occurrence, \(To\) is the number of samples in which the taxon was found, and \(Ta\) is the total number of samples. Taxa classification as well as species and genus identifications were determined based on specific bibliography about flora and reviews of taxonomic groups [8].

### Results and Discussion

The genus *Acetabularia* is divided into two subgenera: *Acetabularia* and *Acicularia* [9]. In Brazil, four species belonging to *Acicularia* were identified: *Acetabularia schenckii* Möbius, 1889; *Acetabularia calyculus* J.V.Lamour Quoy & Gaimard, 1824; *Acetabularia crenulata* J.V.Lamour, 1816 and *Acetabularia myriospora* Joly & Cord.-Mar. in Joly et al. 1965 [10]. Besides, two species belonging to *Acicularia* (Table 1) were observed in the study area.

The species *A. Calyculus* had already been recorded for the phycological flora of this state [11], however, it is the first register in Icapuí algae bank. In Brazil, *A. Myriospora* was firstly catalogued in the state of Bahia, after that, other records were made around the country [12]. However, this species has not hitherto been identified in Ceará state coastline.
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Table 1: Taxonomic synopsis of the two seaweed species identified in Icapuí coastline, Ceará state, Brazil.

| Taxon                      |
|----------------------------|
| Chlorophyta                |
| Dasyycladales              |
| Polyphysaceae              |
| **Acetabularia myriospora***|
| **Acetabularia calyculus***|

*First occurrence in Icapuí coastline
**First occurrence in Ceará state coastline

The frequency of occurrence of *A. Myriospora* (1.62%) is considered low whether compared to that of *A. calyculus* (17.43%) (Figure 1); this might be because *A. myriospora* is rarely sampled, mainly for being a small species inhabiting rocky shores and being associated to larger species.

Figure 1: Frequency of occurrence of the two species of seaweeds (genus Acetabularia and subgenus Acicularia) sampled in the coastline of Icapuí, Ceará state, Brazil.

Hence, the importance of this study relies on the fact that little is known about the marine flora of the state, warning against the need for further studies to detect upcoming species. Indeed, two new species of algae were surveyed for the region of Icapuí; in addition, it has been the first record of the species *Acetabularia myriospora* (Polyphysaceae, Chlorophyta) in the coastline of Ceará state.

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Conflict of Interest

The authors declare no conflict of interests.

References

1. Marbà N, Arthur R, Alcovervo T (2014) Getting turfed: The population and habitat impacts of *Lophocladia lallemandii* invasions on endemic Posidonia oceanica meadows. Aquatic Botany 116: 76-82.
2. Raffo MP, Lo Russo V, Schwindt E (2013) Introduced and native species on rocky shore macroalgal assemblages: Zonation patterns, composition and diversity. Aquatic Botany 112: 57-65.
3. Arenas E, Bishop JD, Carlton JT, Dwyrynda PJ, Farnham WE, et al. (2006) Alien species and other notable records from a rapid assessment survey of marinas on the south coast of England. Journal of the Marine Biological Association of the UK 86(06): 1329-1337.
4. Brito L, Széchy M, Cassano V (2002) Levantamento Taxonômico das Macroalgas da Zona das Marés de Costões Rochosos Adjacentes ao Terminal Marítimo Almirante Maximiano Fonseca, Baía da Ilha Grande, RJ. Atlântica 2(4): 17-26.
5. Jenkins SR, Hawkins SJ, Norton TA (1999) Direct and indirect effects of a macroalgal canopy and limpet grazing in structuring a sheltered inter-tidal community. Marine Ecology Progress Series 188: 81-92.
6. Reis TNDV, Guimarães-Barros CS, Vasconcelos ERTPP De, Cocentino ADLM, Fujii MT (2011) Influence Of The Industrial Port Complex Of Suape (Western Tropical Atlantic) On The Biodiversity And Biomass Of Phaeophyceae. Tropical Oceanography. 39(2): 142-154.
7. Marins BV, Brasileiro PS, Barreto MBB, Nunes JMC, Yoneshigue-Valentin Y, Amado Filho GM (2008) Subtidal benthic marine algae of the Todos os Santos Bay, Bahia State, Brazil. Oecologia Brasiliensis 12(02): 229-242.
8. Wymne MJ (2011) The benthic marine algae of the tropical and subtropical Western Atlantic: changes in our understanding in the last half century. Algae 26(2): 109-140.
9. Berger S, Pettweiss U, Gleissberg S, Liddle LB, Richter U, et al. (2003) 18S rDNA phylogeny and evaluation of cap development in *Polyphysaceae* (formerly *Acetabulariaeae*; Dasyycladales, Chlorophyta). Phycologia 42(5): 506-561.
10. Moura CWDN, Almeida WRD, Santos AAD, Junior A, Alves AM, et al. (2014) *Polyphysaceae* (Dasyycladales, Chlorophyta) in Todos os Santos Bay, Bahia, Brazil. Acta Botanica Brasiliaca 28(2): 147-164.
11. Dantas NP, Alves MGL, Cunha VL da, Ribeiro DS, Oliveira-Neto JM (1999) de. Reorganização Do Herbário Ficologicó Do Instituto De Ciências Do Mar Da Universidade Federal Do Ceará. Arquivos de Ciências Do Mar 32: 59-71.
12. Martins DV, Cordeiro-Manno M, Bocanera NB, Nunes JM de C (1991) Chlorofíceas marinhas bentônicas de município de salvador, bahia, brasil 18(2): 115-133.
13. Nunes JM (1998) de C. Catálogo De Algas Marinhas Bentônicas Do Estado Da Bahia, Brasil. Acta Botanica Malacitana 23: 5-21.

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