

NOTA BREVE/BRIEF NOTE

NOTES ON THE MARINE ALGAE OF THE INTERNATIONAL BIOSPHERE RESERVE *SEAFLOWER*, CARIBBEAN COLOMBIA VI: NEW RECORDS OF BROWN ALGAE (PHAEOPHYCEAE)

Notas sobre las algas marinas de la Reserva Internacional de Biosfera *Seaflower*, Caribe colombiano VI: nuevos registros de algas pardas (Phaeophyceae)

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ABSTRACT

Two species of brown algae (Phaeophyceae), *Bachelotia antillarum* and *Dictyota humifusa* are reported for the first time for the Archipelago of San Andrés, Providencia and Santa Catalina, part of the International Biosphere Reserve *Seaflower*.

Keywords: *Bachelotia*, brown algae, *Dictyota*, new records, *Seaflower*.

RESUMEN

Dos nuevos registros de algas pardas (Phaeophyceae), *Bachelotia antillarum* y *Dictyota humifusa* son registradas por primera vez para el Archipiélago de San Andrés, Providencia y Santa Catalina, Reserva Internacional de la Biosfera *Seaflower*.

Palabras clave: algas pardas, *Bachelotia*, *Dictyota*, nuevos registros, *Seaflower*.

Benthic marine algae of the Archipelago of San Andres, Old Providence and Sainte Cataline, Colombia, have been poorly documented to date, primarily due to a paucity of floristic studies in the area. In 2003, Díaz-Pulido and Díaz-Ruiz listed a total of 201 species of marine algae, well below the number of species of other regions of Colombia. Recent works on the marine flora of the Archipelago (Albis-Salas and Gavio 2011; Ortiz and Gavio 2012; Gavio *et al.*, 2013; Reyes-Gómez *et al.*, 2013; Rincón-Díaz *et al.*, 2014; Albis-Salas and Gavio, 2015; Gavio and Mancera-Pineda, 2015; Gavio *et al.*, 2015; Barrera *et al.*, 2016) have reported a diversity never registered before, increasing the number of seaweeds for the Archipelago to 298 taxa. During a collecting trip to Providencia and Santa Catalina Islands in 2009, we observed two species of brown algae, which have

not been reported for the Archipelago before: *Bachelotia antillarum* (Grunow) Gerloff 1959 and *Dictyota humifusa* Hörnig, Schnetter et Coppejans 1992.

The species *Bachelotia antillarum* (Family Bachelotiaceae) (Fig. 1) has a filamentous thallus, dark brown. Uniseriate filaments are epiphytic on larger algae, attached by a prostrate filament (Fig. 1A). Vegetative cells are rectangular, longer than wide, 40-45 µm diam and 100-110 µm long. Meristematic cells are darker in color and shorter than somatic cells (Fig. 1B). Branching is scarce and distributed along the filament (Figs. 1C-1D). Chloroplasts are star-shaped, in pairs (Fig. 1E). Sporangia are unilocular, intercalary in the vegetative filament inside meristematic region of the thallus, 50 µm diam and 20-25 µm long (Fig. 1F). The specimen was observed entangled with *Ulva flexuosa*



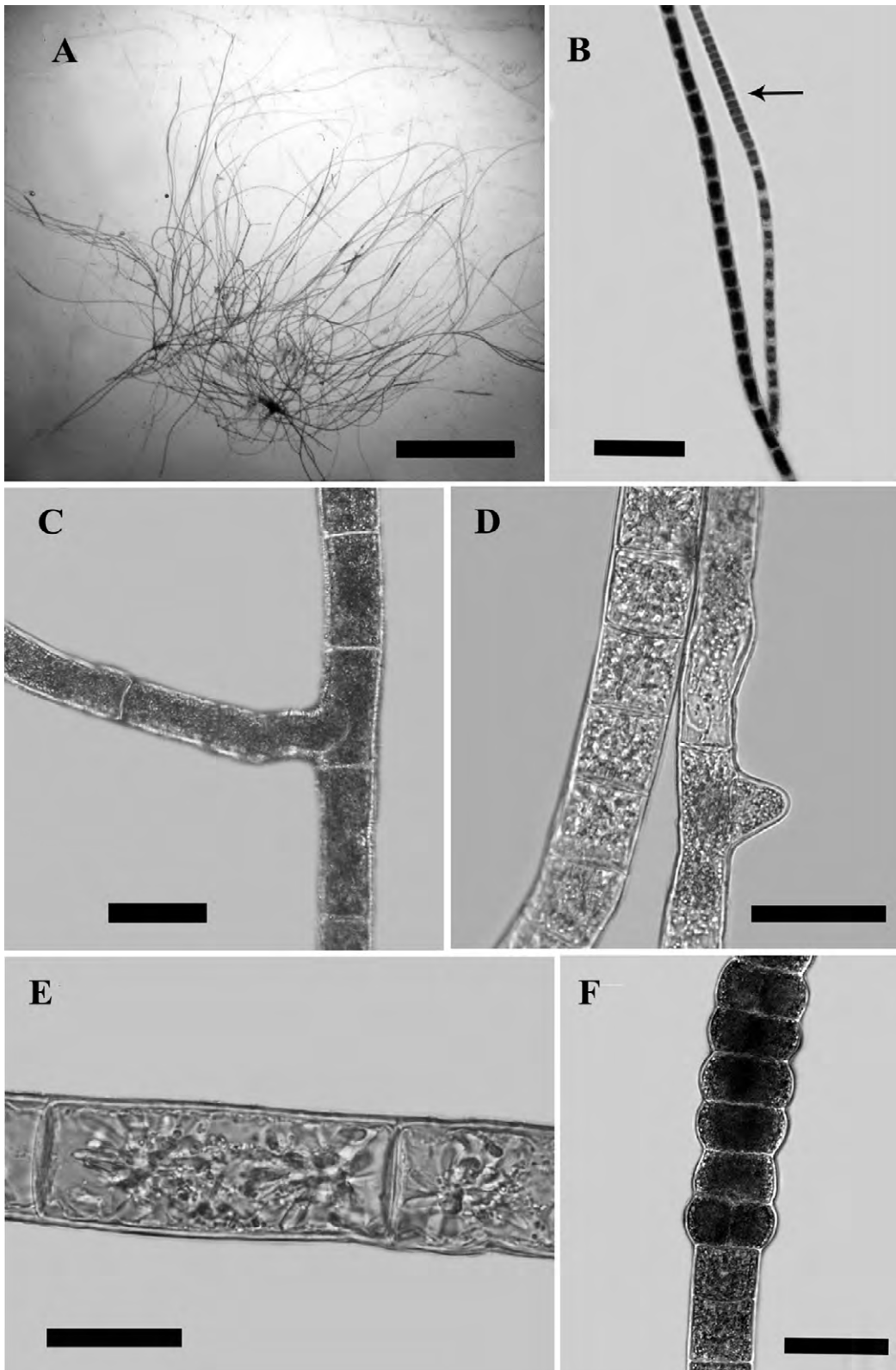


Figure 1. *Bachelia antillarum*. Fig. 1A. Habit, scale bar: 2 mm. Fig. 1B. Filament with meristematic cells on the upper part (arrow), scale bar: 200 mm. Fig. 1C. Branching, scale bar: 50 mm. Fig. 1D. Immature branching spur-shaped, scale bar: 50 mm. Fig. 1E. Star-shaped chloroplasts, scale bar: 30 mm. Fig. 1F. Unilocular sporangia, scale bar: 50mm.

Wulfen in Santa Catalina Island, intertidal on the beach before Morgan's Head.

Bachelotia antillarum was collected nearshore among mangrove tree roots, and formed a green-brownish patch among the roots. According to Díez *et al.* (2009) and Figueroa and Korbee (2010) algae with simple morphology are common in polluted places, and *B. antillarum* is a species that can be observed in extremely degraded systems. We consider that this is not the case for Santa Catalina Island, but it would be interesting to monitor the water quality of the area as well as any change in the algal community.

Dictyota humifusa (Family Dictyotaceae) (Fig. 2) has a flattened, band-shaped thallus, with a prostrate habit, light green in color, and blue iridescence under water (Fig. 2A). Branching is irregular to dichotomous (Fig. 2B). Blades are 85-95 μm thick. Medulla is unistratified, composed of rectangular to rounded cells, 60-65 μm diam and 100-110 μm long. Cortical cells rectangular, 15-25 μm long and 10-12,5 μm diam (Figs. 2C-2D). This specimen was observed in Providencia Island, at Bajo San Felipe, at depths of 8-13 m.

Many species of *Dictyota* produce terpens that inhibit herbivory (Schmitt *et al.*, 1998; Pereira *et al.*, 2000). Stirk *et*

al. (2007) showed that the species *D. humifusa* has secondary metabolites, which have antibacterial and antimycotic properties. In the study, *D. humifusa* was the only species to be able to hinder *Escherichia coli* growth. Furthermore, its extracts have inhibitory activity for Acetylcholinesterase (AChE), an enzyme which interferes with Acetylcholine, neurotransmitter involved in neurological disorders. Incrementing concentrations of Acetylcholine through inhibition of AChE, is considered the most efficient treatment against Alzheimer disease. For this reason, *D. humifusa* may be of interest for pharmaceutical bioprospection (Stirk *et al.*, 2007).

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

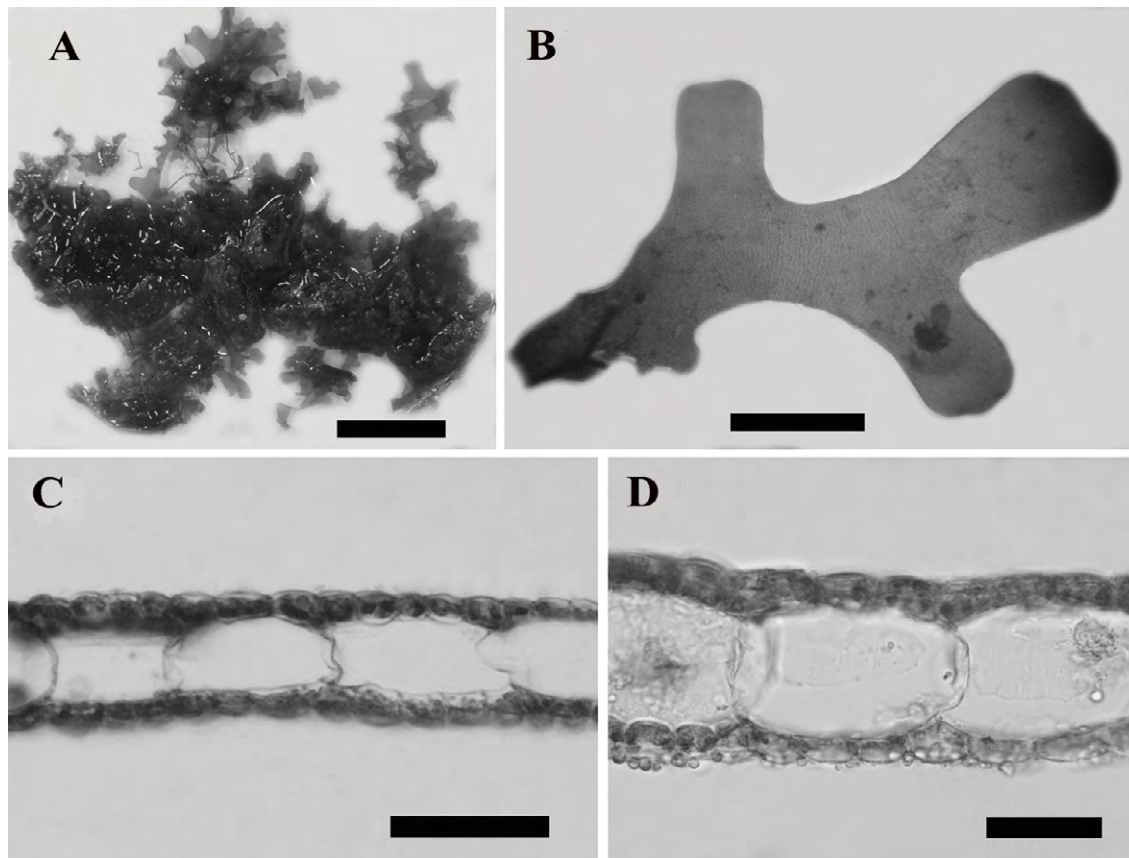


Figure 2. *Dictyota humifusa*. Fig. 2A. Habit, scale bar: 2 cm. Fig. 2B. Detail of branching blade, scale bar: 3 cm. Fig. 2C. Transversal section of blade, scale bar: 100 μm . Fig. 2D. Detail of transversal section, scale bar: 50 μm .

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