

Natalian *Botryocladia* (Rhodymeniales, Rhodophyceae), Including Description of a New, Long Axis-forming Species

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Abstract

Four species of *Botryocladia* are present in Natal, *B. madagascariensis* and *B. beckeriana* being previously recorded in this region, and the range of *B. leptopoda* is extended southward from Tanzania to northern Natal. The fourth species is a new species, *B. pienaarrii*, that was found growing in lower intertidal and subtidal habitats. The four species all form elongate axes but are distinct from one another and have vesicles of different sizes and arrangement that are attached to upright solid branches in patterns characteristic for each species. Structural and reproductive characters are discussed for the four species, and they are compared with similar species from other regions.

Introduction

Botryocladia Kylin (1931) (*nom. cons.*) includes thirty species (Aponte Díaz 1988, Brodie and Guiry 1988) of Rhodymeniaceae having hollow, mucilage-filled, vesiculate branches distributed along short to long upright axes that consist of solid pseudoparenchymatous tissue. Species mostly occur in tropical to subtropical marine coastal regions, but some are also known in cold temperature waters, i.e. along the Pacific coast of North America from California to Vancouver Island [*B. pseudodichotoma* (Farlow) Kylin] and along the south coast of Australia [*B. obovata* (Sonder) Kylin].

Botryocladia has sympodially branched elongate axes (Kylin 1956) and species are segregated into two major groups (Feldmann and Børdard 1965),

- 1) those with short axes and relatively few vesicles, and
- 2) those with elongate axes (50 to 500 mm long) and usually having many vesicles.

Additional characters used to separate species are shape, position and size of vesicles, position and size of secretory cells and characters of each vesicle's cortical layer. Reproductive structures are produced on

vesicles in *Botryocladia*, but characters of reproductive organs are not generally used in separation of species.

Two species are previously recorded in South Africa, *B. madagascariensis* G. Feldmann (1945), occurring in intertidal habitats and having thalli up to approximately 10 cm long, and *B. beckeriana* (Holmes) Pappenfuss (1958), a subtidal species from Natal and the eastern Cape in which thalli may be over 70 cm long. *Botryocladia madagascariensis* has vesicles (up to 6 mm long) that appear to be produced on all sides of the mature cylindrical axis. The Natal specimens assigned to this species bear larger vesicles (up to 10 mm) that are distichously arranged, at least in early stages of development. Vesicles in *B. beckeriana* are borne distichously on a compressed axis and are 1–2 mm long. A third species, *B. leptopoda* (J. Agardh) Kylin, previously known from Australia, Japan and tropical east Africa, was found in recent collections of marine algae from the northern coast of Natal. *Botryocladia pienaarrii* is a new species described herein from low intertidal habitats in Natal and the eastern Cape Province. Comparative structural and reproductive analyses are provided for each of the species, and comments are given on the reliability of characters used to separate species of *Botryocladia*.