

MOLECULAR SYSTEMATICS AND CRYPTIC DIVERSITY OF THE GENUS *DICTYOTA* (DICTYOTALES: PHAEOPHYTA) WITH SPECIAL REFERENCE TO SPECIES OCCURRING IN THE PHILIPPINES

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In order to study the molecular systematics and cryptic diversity of the brown macroalgal genus, *Dictyota* (Dictyotales: Phaeophyta), 3 objectives were set: 1. to make an inventory of the *Dictyota* species occurring in the Philippines; 2. to determine congruence between morphological and phylogenetic species concepts; 3. to study cryptic diversity in the *Dictyota dichotoma* complex. This thesis puts special emphasis on Philippine *Dictyota* species.

Inventory and morphological examination of specimens collected in the islands of Visayas in the Philippines revealed that at least 7 species of *Dictyota* can be found in the region. The species identified were the following: *Dictyota bartayresiana* Lamouroux, *D. canaliculata* De Clerck & Coppejans, *D. cervicornis* Kütz., *D. ceylanica* Kütz., *D. ciliolata* Sond. ex Kütz., *D. crispata* J.V. Lamour and *D. friabilis* Setchell. *Dictyota dichotoma* which had been frequently reported from several localities throughout the Philippines was not encountered during the present study. De Clerck (2003) seriously doubted the presence of the generitype, *D. dichotoma* (originally described from England) in tropical latitudes.

The phylogenetic analyses (focusing on Maximum likelihood tree outputs) used the LSU nrRNA gene, the plastid encoded *rbcL* gene, and interleaved nrRNA– LSU gene sequences of *Dictyota* species and other Dictyotaceae taxa as outgroups. The total numbers of taxa used for each dataset were 44, 35, and 29 taxa, respectively. Apart from Philippine samples, sequences were obtained from *Dictyota* and Dictyotales specimens from several different geographic regions. Some sequences deposited in GENBANK were also included in the analyses.

The family Dictyotaceae, the largest in the order Dictyotales, is subdivided into two tribes: Dictyoteae and Zonariae. The Dictyoteae are recognized by the single lens shaped apical cell as opposed to a row or group of apical cells found in the Zonariae. *Scoresbyella*, the only genus of Scoresbyellaceae and characterized by a wedge shaped vertically oriented apical cell, appears closely related to the Dictyoteae in the analyses.