The order Gelidiiales in Southeast Asia

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Abstract: This paper gives a checklist of the Gelidiiales in Southeast Asia comprising 34 species belonging to seven genera which have been reported in different publications from 1847 to 2008. The number of species reported are Gelidium (21 species), Pterocladia (4 species), Gelidiella (4 species), Parviphycus (2 species), Phyllophora (1 species), Pterocladia (1 species) and Porphyrglossum (1 species). Indonesia has the highest number (20 species) of Gelidiaceae in Southeast Asia followed by the Philippines (18 species), Vietnam (14 species), Malaysia (8 species), Singapore (3 species), Myanmar (2 species) and Thailand (1 species). Gelidiella acerosa and Gelidium pusillum are common species reported for most countries of the region.

Introduction

Gelidiaceae is a relatively small order of red algae that includes some economic species possessing high quality agar and agarose. The Polysiphonia-type of life history was the characteristic used by Kylin (1923) to segregate Gelidiaceae from other families in Nemaliales with haplobiontic life-histones (Santelices, 1990). Presence of nutritive cells during carposporogonic development and transverse division of a single apical cell, were the other characteristics used by Papenfuss (1966) for further characterisation of Gelidiaceae. Pit plug characteristics and the way of spermatangia formation were later added (Pueschel & Cole, 1982; Gabrielson & Garbary, 1966, 1987; Santelices, 1990).

Interest in commercial utilization of gelidialian agar, resulted in studies on quality and quantity of agar content in different species of Gelidiaceae (Akatsuka, 1970; Armisen & Galatas, 1987; Santelices, 1987; Kaparan et al., 1994; Oliveira et al., 1998; Melo, 1998; Prasad et al., 2006; Ganesan et al., 2008) as well as their mass cultivation (Ganesa et al., 2009; Datta et al., 1990; Kumar et al., 2004; Mairh et al., 1990; Michael, 2008, Rollon et al., 2003).

The order Gelidiaceae comprises three families including Gelidiaceae, Pterocladaceae and Gelidiellaceae. Gelidiaceae, the largest family of the order, was established by Kützing (1843) and 12 genera have been introduced in this family, of which seven genera are currently accepted genera and the rest have been suggested as synonyms to other taxa of the family (Table 1), based on detailed morphological studies and modern molecular analyses in recent years. The family Gelidiellaceae was erected by Fan (1961) to accommodate the members of the order which lack rhizines in their structure. In this family three genera have been reported, with two of them accepted as valid taxa (Table 1). Based on detailed studies on attachment system to substratum, the third family, Pterocladaceae, was established to accommodate the members of the order having peg-like coalescent rhizoidal attachment system (Perrone et al., 2006), while the members with brush-like and independent unicellular rhizoidal attachment systems were classified in the Gelidiaceae and Gelidiellaceae respectively. Of the four genera in the family Pterocladaceae, three genera have been accepted as current valid genera (Table 1).
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Editors
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