

Additions of two red algae to marine macro algal flora of Kerala Coast, India

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भारत में केरल तट के समुद्रीय दीर्घ शैवाल वनस्पतिजात में दो लाल शैवालों का संयोजन

एस. के. यादव, एम. पलानीसामी एवं जी. वी. एस. मूर्ति

सारांश

वर्ष 2011-2014 में केरल तट पर किये गये व्यापक समन्वेषणों के फलस्वरूप दो लाल शैवालों (रोडोफायसी) हैलोपेल्टिस ऑस्ट्रेलिस (जे. अगार्ध) जी. डब्ल्यू. सोन्डर्स (रोडोमिनीऐसी) एवं डायसिया फ्लैजिलिफेरा बोर्गेसन (डायसिऐसी) के नवीन वितरणपरक अभिलेख प्राप्त किये गये हैं। प्रस्तुत शोध पत्र में इन दोनों जातियों के सही उद्घरण के साथ प्रगणित कर, संक्षेप वर्णन, प्राप्ति एवं संबद्ध जातियों पर टिप्पण दिया गया है।

ABSTRACT

Comprehensive explorations conducted in Kerala coast during 2011-2014 revealed new distributional record of two Red algae (Rhodophyceae) namely *Halopeltis australis* (J. Agardh) G.W. Saunders (Rhodymeniaceae) and *Dasya flagellifera* Boergesen (Dasyaceae). Both taxa are enumerated here with the correct citation, a short description, notes on its occurrence and associated species.

Keywords: Additions, Flora, Kerala Coast, Marine Macro Algae, Rhodophyceae

INTRODUCTION

The state of Kerala, with its 580 km long coastline remarkably endowed with significant natural rocky landscapes which play an important role in supporting seaweed vegetation. A perusal of literature reveals that many sporadic explorations has been undertaken to assess the seaweed resources (Nair & al., 1982; Chennubhotla & al., 1990; Mathew, 1991; Panikkar & Ampili, 1993; Anilkumar & Panikkar, 1992, 1994, 1997; Kaliaperumal & Chennubhotla, 1997; Anilkumar,

2003; Kaladharan, 2005; Sulekha & Panikkar, 2006; Netti and Panikkar, 2009). During the present study, 56 species of Red seaweeds are reported from Kerala coast. However, two taxa i.e. *Halopeltis australis* (J. Agardh) G.W. Saunders (Rhodymeniaceae) and *Dasya flagellifera* Boergesen (Dasyaceae) that are collected for the first time from Kerala coast, thus can be treated as new. Both taxa are enumerated here with the correct citation, a short description, notes on its occurrence and associated species.

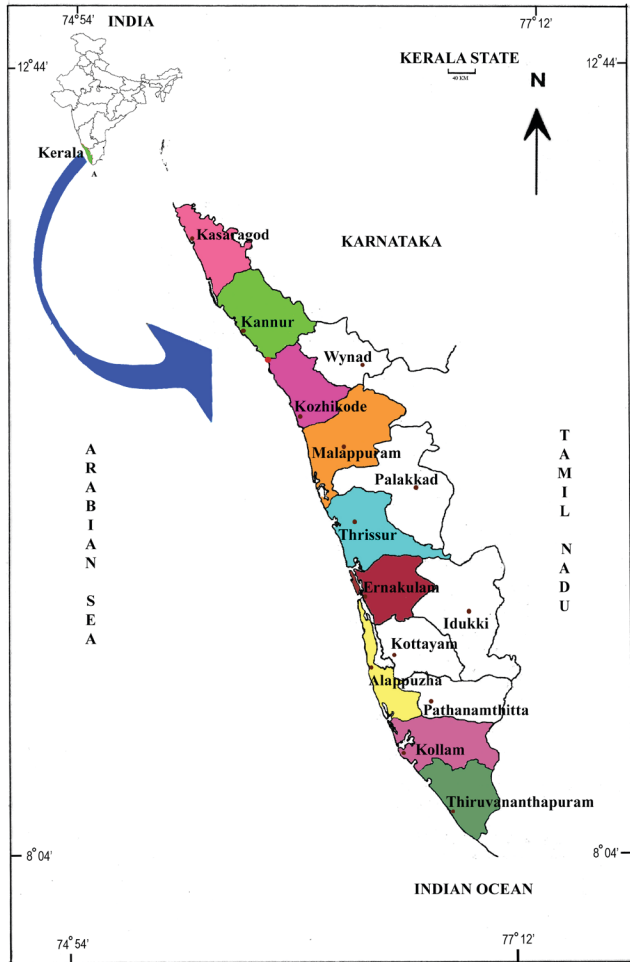


Fig. 1: Map showing Kerala coast

TAXONOMIC TREATMENT

Halopeltis J. Agardh

Halopeltis australis (J. Agardh) G.W. Saunders in G.W. Saunders & B. McDonald, Botany 88: 657, figs. 77. 2010. *Acropeltis australis* J. Agardh Bot. Zeit. 3: 56. 1845. *Rhodymenia australis* Sond., Bot. Zeit. 3:56. 1845 (*nom. illeg.*); K. S. Sriniv., Phycol. Ind.: 1: 22, Pl. 22. 1969; Desikachary & al., Rhodophyta 2 (2B): 167. 1998. *Rhodymenia sonderi* P.C. Silva, Cat. Benth. Mar. Alg. Ind. Ocean: 370. 1996; Kalimuthu, Stud. Indian Rhodym. 23. 2000; Oza & Zaidi, Rev. Checkl. Ind. Mar. Alg.: 63. 2001; Jha & al., Seaweeds Gujarat: 187. 2009; P.S.N. Rao & Gupta, Algae India 3: 52. 2015.

(Plate 1a-d)

Thallus dark-purple red in colour, frondose, up to 15 cm long, bushy, erect, epilithic. Holdfast small, discoid, firmly attached. Stipe cylindrical or stalked to slightly flat, 0.5-2 mm long and 180-560 µm wide. Fronds almost

uniformly flattened, up to 3 mm wide, usually dichotomously branched, angles between branches usually acute, cartilaginous; surface smooth; margins usually entire, occasionally irregularly proliferated in apical region, proliferations up to 1 cm long; apex usually obtuse.

Microscopic: Cells in surface view spherical to oval, 1.80-4.75 µm across, thin walled, sparsely arranged. In cross section, thallus up to 435 µm thick, differentiated into outer cortex and central medullary layers; cortex multi-layered, up to 95 µm thick, cells oval to spherical, 6-18 µm across, compact; medulla multi-layered, up to 200 µm thick, cells spherical to oval or slightly elongate, 20-58 µm across, progressively smaller towards periphery, thin walled. Spermatangia scattered over the surface; carposporangia develop in chains; cystocarps protruding or scattered on frond surface, usually hemispherical, slightly constricted at base, up to 500 µm across; tetrasporangia develop in nemathecial sori, mostly concentrated below frond apices, usually subspherical, cruciately divided.

Occurrence: Post-monsoon season. Rare.

Distribution: KERALA: Kozhikode and Thiruvananthapuram districts. INDIA: Andaman Islands, Goa, Gujarat, Karnataka, Maharashtra and Tamil Nadu.

Notes: In most of the literature, this species has been treated as *Rhodymenia sonderi* P.C. Silva. However, recently Saunder & McDonald (2010), based on the molecular study and DNA barcoding placed this taxon under the genus *Halopeltis* and named as *H. australis*.

This species usually found in association with *Bryopsis plumosa*, *Champia compressa*, *Dictyota dichotoma*, *Gracilaria corticata* and *Hypnea musciformis* in narrow crevices of rocks or in rock pools under heavy surf-exposed areas in intertidal region. During the field surveys, this species was collected only once from the Thikkodi coast (Plate 1 a).

Specimens examined: KERALA: Kozhikode Distr.: Thikkodi (near light house area), 08.10.2013, M. Palanisamy & S. K. Yadav 129484 (MH).

Dasya C. Agardh

Dasya flagellifera Boergesen, Biol. Meddel. Kongel Danske Vidensk.Selsk. 11(6): 50, f. 7,8. pl. 1.1934; K.S. Sriniv. in Bull. Bot. Surv. India 7: 248. 1965; P.C. Silva & al., Cat. Benth. Mar. Alg. Ind. Ocean: 436. 1996; Desikachary & al., Rhodophyta 2 (2B): 278. 1998; Oza & Zaidi, Rev. Checkl. Ind. Mar. Alg.: 75. 2001; P.S.N. Rao & Gupta, Algae India 3: 57. 2015.

(Plate 1 e-f)

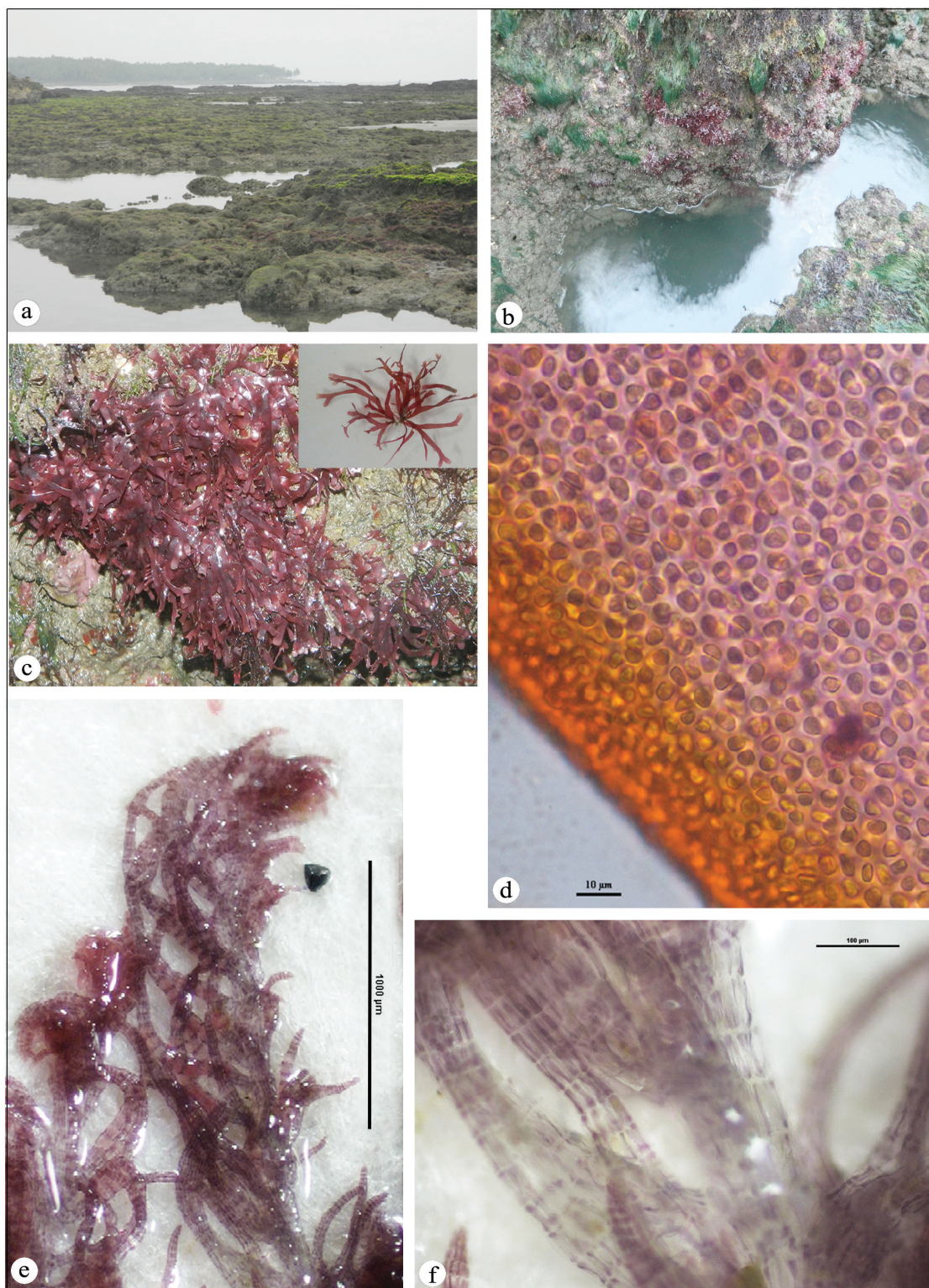


Plate -1: a. View of Thikkodi coast during low tide; b-d. *Halopeltis australis* (J. Agardh) G.W. Saunders: b. Habitat; c. Habit and closeup of thallus; d. Microscopic image showing surface cells of thallus (40×); e-f. *Dasya flagellifera* Boergesen: e. Microscopic image showing upper part of a young thallus (Herbarium specimen); f. Microscopic images showing profuse branching in upper part of frond (10×).

Thallus dark to purple or pinkish red in colour and turns black after drying, filamentous, up to 10 cm long, sympodial, corticated, bushy, tufted, gregarious, densely and irregularly branched, erect, usually epilithic. Holdfast minute, inconspicuous, rhizoidal or discoid, firmly attached on rocky substrata in intertidal regions. Stipe filamentous, variable in length. Frond filamentous, profusely and irregularly branched with pseudolaterals; pseudolaterals flagella like, $180\text{--}600 \times 15\text{--}45 \mu\text{m}$, slightly curved upwards, fastigiate, deciduous in older parts and dense and crowded in younger parts of the thallus, polysiphonous towards base and gradually tapering and become monosiphonous towards apex.

Microscopic: Axial cell with 5 pericentral cells. Tetrasporangia develop in stichidia on branches of pseudolaterals; stichidia ovate to oblong and gradually become subcylindrical, tetrahedrally developed.

Occurrence: Summer season. Rare.

Distribution: KERALA: Thiruvananthapuram. INDIA: Gujarat, Maharashtra and Tamil Nadu. Endemic to Indian coast (Oza & Zaidi, 2001).

Note: This species was originally reported by Boergesen (1934) from Okha port of Gujarat coast, India. The specimen collected here from Kerala (Vizhinjam coast) was in very young stage and found growing in association with *Gelidium micropterum* near the fresh water inlet into sea.

Specimens examined: Thiruvananthapuram Distr.: Vizhinjam coast, 13.06.2013, M. Palanisamy & S. K. Yadav 128556 (MH).

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