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First Record of the Freshwater Red Algal Genus *Batrachospermum* from Southern Sri Lanka

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ABSTRACT

Batrachospermum is a freshwater red alga, recorded in Hortain-Plains, while its existence in other regions in Sri Lanka remains unknown. During the field studies in the headwater region of Waturawa-Ela, a tributary of Gin Ganga in Deniyaya, a morphologically similar alga to *Batrachospermum* was observed in two locations. One location was at the stream origin while the other one was downstream (~1km). The present study aimed to investigate the abundance and the taxonomic position of the observed red alga. Field observations were conducted from November-2019 to December-2020. Algal coverage was estimated using a quadrate, while water quality was determined by measuring pH, temperature, salinity, TDS, dissolved concentrations of oxygen and nutrients. The chlorophyll content of algae was also measured. Red algae covered a wider area of the substrate in the upstream site (4-22%) compared to the downstream site (6-13%). Water quality was in pristine environmental condition with oligotrophic nutrient levels that might have provided an ideal condition for this species. Morphological identification was done microscopically using identification keys. Two morphologically distinct types were identified as olive green and purple, while it was identified as *Batrachospermum* sp. The olive-green type was rich in Chlorophyll-a (89.89±2.76 mg/gFW) while purple type contained approximately similar amounts of Chlorophyll-a (60.09±5.2 mg/gFW) and Chlorophyll-b (50.88±7.33 mg/gFW). A region of the plastid-encoded ribulose-1,5-biphosphate (*rbc*L, 1,282 bp) gene was amplified with universal primers, F150 forward and *rcb*L reverse. Amplified DNA fragments showed low nucleotide identity (35-37%) to other red algae species used in the alignment. As this is the first record of freshwater red algae in Southern Sri Lanka, further studies with other marker genes such as 18S rRNA and 5′ region of the cytochrome *c* oxidase subunit I (COI-5P) genes with better query coverage are required to confirm the identity of this species in the genus *Batrachospermum.*

Keywords: *Headwaters, Batrachospermum, Chlorophyll, morphology, 16S rRNA*