

## Bioluminescence in Puttalam Lagoon of Sri Lanka

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Bioluminescence involves oxidation of Luciferin in conjunction with luciferase enzyme. This is a common and well studied phenomenon in marine environment. Bioluminescence in lagoons receives less attention compared to the marine bioluminescence. This study was conducted in order to find out the organism(s) exhibiting bioluminescence and factors favouring the proliferation of same in Puttalam Lagoon. Samples were obtained once a month in December 2016, February and March, 2017. Six sampling locations were selected in Puttalam Lagoon and sampling was done after sun set. Surface zooplankton samples were collected towing a plankton net horizontally with a mesh size of 180 µm and preserved in 5% buffered formalin. Bioluminescent zooplankton were identified using existing guides. Surface water samples were collected to determine nitrite, nitrate and orthophosphate levels in each location. Zooplankton abundance was estimated (ind./m<sup>3</sup>) and was statistically related to nutrient data. Among the zooplankton species encountered, only two species (*Oikopleura dioica* and *Cypridina* sp.) were found to be bioluminescent. Nitrite content varied from 0.127± 0.02 mg/l to 0.412±0.071 mg/l. Nitrate content showed variation from 0.023±0.014 mg/l to 0.397±0.021 mg/l. Orthophosphate content varied from 0.039±0.014 mg/l to 0.134±0.013 mg/l. There was no significant relation of nutrient content with bioluminescence zooplankton abundance during the study period. Further studies are required to identify more bioluminescent species in Puttalam Lagoon and their spatial and temporal variation with physio-chemical parameters.

Keywords: bioluminescence, *Cypridina* sp., lagoon, nutrients

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