

**PRELIMINARY SCREENING OF MARINE ALGAL
SPECIES FOR ISOLATION OF
BIOACTIVE COMPOUNDS FROM
Caulerpa racemosa, *Sargassum crassifolium* and *Ulva
reticulata***

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
in partial fulfillment of the requirement of
the degree of
Bachelor of Science in Aquatic Resources Technology

By

**DISSANAYAKE MUDIYANSELAGE BUDDHIKA KANCHANA
SAMARAKOON**

**Department of Animal Science
Faculty of Animal Science and Export Agriculture
Uva Wellassa University**

2018

ABSTRACT

Phytochemicals have been proved to be a reliable pharmaceutical source having beneficial biological activities for the treatment of ailments in traditional Sri Lankan, Indian and Chinese medicines. In this context, seaweed species have been concerned as one of the important phytochemical sources. The current study explored three seaweed species, *Caulerpa racemosa*, *Sargassum crassifolium* and *Ulva reticulata*. Samples were collected from the southern coast of Sri Lanka and identified to the species level using species keys for macroalgae. The samples were processed to remove foreign material and shade dried prior to two different extraction protocols. As a preliminary step for the identification and isolation of target compounds, the extracts were driven through different screening protocols. Extraction protocols were followed for the phytochemical screening and DPPH scavenging activity separately. Sequential extraction was followed for the assessment of antioxidant activity. Terpenoids, steroids, phenolic compounds, flavonoids, saponins and alkaloids were present in all three species in detectable levels. Considering DPPH radical scavenging activity, methanolic extract of *C. racemosa* has shown significantly higher activity with a mean of 54.41 ± 0.85 % and methanolic extract of *U. reticulata* has shown a significantly lower activity with a mean of 21.06 ± 0.04 %. Methanolic extracts of *C. racemosa* and *S. crassifolium* and ethyl ether extracts of *U. reticulata* and *S. crassifolium* have shown significantly higher radical scavenging activity. Water has shown poorer radical scavenging activity for all three species. Based on the results obtained, all three species have active compounds. Polar fractions of *C. racemosa* and *S. crassifolium* and non-polar fractions from *U. reticulata* suitable to use for isolation of bioactive compounds. It is suggested to carry out isolation activities for significantly higher activity fractions of the extracts which could be used to identify appropriate solvent extraction and as a potent antioxidant, they can consider for applications in pharmaceutical industry.

Keywords: Marine algae, Bioactive compounds, DPPH, Antioxidant activity, Extract