

A simple and effective method for RNA isolation and cDNA library construction from the brown seaweed *Sargassum polycystum* (Fucales, Phaeophyceae)

ABSTRACT

The isolation of high-quality RNA from brown seaweeds has always been problematic due to a high content of polyphenolic compounds and polysaccharides in their tissues. This study presents a simple and effective method for isolating high-quality RNA from the brown seaweeds *Sargassum* (*Sargassum polycystum*, *Sargassum siliquosum*, *Sargassum baccularia*, and *Sargassum binderi*), *Padina tetrastromatica*, *Turbinaria conoides*, *Dictyota* sp., and *Hormophysa cuneiformis* using cetyltrimethylammonium bromide and selective lithium chloride precipitation. Approximately 25643 g g⁻¹ fresh weight of total RNA was obtained from these brown algae. The A₂₆₀/A₂₈₀ absorbance ratio of these RNA samples are between 1.995 ± 0.027 and 2.122 ± 0.013, with distinct 28S and 18S ribosomal RNA bands visible on a formaldehyde agarose gel. The RNA obtained from *S. polycystum* was found to be suitable for many downstream applications such as reverse transcription polymerase chain reaction, cloning, synthesis of cDNA, and construction of cDNA library for the generation of expressed sequence tags.

Keyword: Biotechnology; cDNA library construction; CTAB; Phaeophyta; RNA isolation; *Sargassum polycystum*