



Antioxidant and Photoprotective Activity of Brown Seaweed from North Sulawesi Coast

Chatrien A. Sinjal^{1*}, Rizald M. Rompas¹,
Deiske A. Sumilat¹, Edi Suryanto²

¹Department of Marine Science, Postgraduate Program,
Sam Ratulangi University, Manado, Indonesia

²Department of Chemistry, Faculty of Mathematics and Natural Science,
Sam Ratulangi University, Manado, Indonesia

Abstract: Marine ecosystems have a high diversity of living organisms compared to terrestrial ecosystems and provide abundant resources for human nutrition and health. The aims of this research were to determine total phenolic content, examine antioxidant and photoprotective activity, and characterize brown seaweed *Sargassum* sp, *Turbinaria* sp, and *Padina* sp from North Sulawesi coast component. The total phenolic content was determined using folin ciocalteau method, antioxidant activity was evaluated using total antioxidant, photoprotective was evaluated using Sun Protector Factor (SPF), and characterization of brown seaweed extract using UV-vis and IR Spectrophotometry. The results showed that total phenolic content from *Sargassum* sp 5,20 mg GAE/g, *Turbinaria* sp 1,47 GAE/g, and *Padina* sp 27,45 GAE/g. Total antioxidant of *Sargassum* sp 0,496 mg AAE/g, *Turbinaria* sp mg AAE/g, and *Padina* sp 0,295 mg AAE/g. The SPF value of *Padina* sp extracted with hexane 20.530, ethyl acetate 28.505, butanol 11.040, ethanol 13.705, and acetone 3.403. Characterisation of brown seaweed extract using spectrophotometer UV-vis consists of phenolic compound, carotenoid, and chlorophyll. FTIR spectra of brown seaweed extract showed that *Sargassum* sp contain (C-halide), (N-O), (-C=O), (N-H), (C-H) and (OH-) groups, *Turbinaria* sp (C-halide), (C=C), (N-H), (C-H) and (OH) groups, and *Padina* sp (C-halide), (C=C), (N-H), (C-H) and (OH-) groups. Brown seaweed possesses antioxidant and photoprotective activity.

Keywords: brown seaweed, total phenolic content, antioxidant, Sun Protector Factor, North Sulawesi.

Chatrien A. Sinjal et al //International Journal of ChemTech Research, 2018,11(06): 121-133.

DOI= <http://dx.doi.org/10.20902/IJCTR.2018.110617>
