MICROWAVE – ASSISTED EXTRACTION OF SULFATED POLYSACCHARIDE (FUCOIDAN) FROM *Sargassum oligocystum* Montagne

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ABSTRACT

Algae have been a source of food and medicine for humans. It contains sulfated polysaccharides that have been used as drugs. Fucoidan, a sulfated polysaccharide, found in brown algae have received more attention in recent years due to its potential biological properties that are important in cosmetics, pharmaceuticals and health industries. Fucoidan was recovered from brown seaweed *Sargassum oligocystum* Montagne by microwave – assisted extraction (MAE) technology. Different conditions of extraction time (10, 15 and 20 min) at 0.150kW were evaluated and the optimal fucoidan yield was 1.255 ± 0.0068 %, obtained at 20 minutes. Using this condition, a different set of samples was subjected to hot water extraction (HWE) and the average yield was 0.9767 ± 0.0002 %. The extracts from both methods were subjected to physico-chemical tests like gelling temperature, melting temperature, FTIR analysis, total carbohydrate content and total sulfate content. Having gelling and melting temperature values of 32 °C and 91°C for MA extracts and 30 °C and 89 °C for HW extracts showed qualities of a good agar gel. The total carbohydrate contents were 75.31 ± 0.015 % and 74.06 ± 0.0113 %, for MAE and HWE, respectively. It was also observed that the sulfate content of extracted fucoidan decreased with increasing extraction time. This study shows that MAE is an efficient technology to recover fucoidan from *Sargassum oligocystum* Montagne compared with the conventional heating method. This method provided enhanced extraction efficiency at reduced process time.