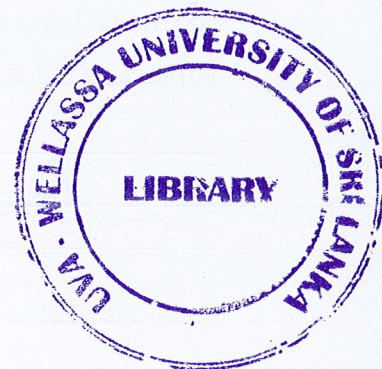


**HERBAL TEA UTILIZING TWO BROWN
SEaweEDS; *SARGASSUM CRISTAEOFOLIUM* AND
*SARGASSUM CRASSIFOLIUM***



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By

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ABSTRACT

Sargassum is a genus of brown seaweed rich in bioactive compounds such as fucoidan which has various health-promoting properties including anti-cancer activity, anti-viral activity, and anti-inflammatory activity. This study examines the potential to develop herbal tea using *Sargassum cristaeifolium* and *Sargassum crassifolium* Seaweeds were collected from the southern coastal area of Sri Lanka and identified using a morphological key. Each seaweed type was thoroughly cleaned, blanched and dehydrated either by oven-drying (40°C for 48h) or freeze-drying technique and ground to a coarse powder. Dried *Sargassum* powders were analyzed for moisture content, total phenolics (Folin-ciocalteu method), total flavonoids (Aluminum chloride method), radical scavenging activity (DPPH method), total carotenoids, and fucoidan content (spectrophotometric method). Freeze-dried *Sargassum* powders gave significantly higher total phenolic content ($P < 0.05$) compared to the oven-dried *Sargassum* powder. Total phenolics content of *S. crassifolium* and *S. cristaeifolium* were 0.73 ± 0.12 and 1.27 ± 0.32 mg gallic acid equivalents/g dry weight, respectively. Total flavonoid contents were not significantly different among the two types of seaweed powder considering one drying method. Freeze-dried *Sargassum* powders gave significantly higher radical scavenging activity ($P < 0.05$) than oven-dried *Sargassum* powder. Radical Scavenging activities of freeze-dried *S. crassifolium* and *S. cristaeifolium* powders were $34.6\% \pm 1.87$ and $46.83 \pm 8.30\%$, respectively. Oven-dried *Sargassum* powders gave significantly higher total carotenoid content ($P < 0.05$) than freeze-dried powders. For the *S. crassifolium* it was 1.88 ± 0.002 $\mu\text{g/g}$ dry weight while it was 1.86 ± 0.089 $\mu\text{g/g}$ dry weight for *S. cristaeifolium*. Freeze-dried *Sargassum* powder gave higher fucoidan content than oven-dried powder but there was no significant difference in the fucoidan content considering the four treatments and their tea liquors. Fucoidan content of the freeze-dried *S. crassifolium* seaweed powder was 30.74 ± 6.36 mg/200 mL, while that of *S. cristaeifolium* was 30.0 ± 4.09 mg/200 mL. Highest overall acceptability was taken from the oven-dried *S. cristaeifolium* tea from the sensory evaluation. Results revealed that *Sargassum* powders can be successfully used as herbal tea with functional properties.

Keywords: Antioxidant activity, Freeze-drying, Fucoidan, Herbal tea, *Sargassum*