

# Screening of Antioxidant activity in Icelandic Seaweed

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**The objective** was to screen for antioxidant activity in various types of edible Icelandic seaweed and evaluate the efficiency of different solvents to extract antioxidants.

**Materials and Methods:** Water and 70% acetone extracts were prepared from brown algae (*Fucus vesiculosus*, *F. serratus*, *Ascophyllum nodosum*, *Laminaria hyperborea*, *L. saccharina*, *L. digitata*, *Alaria esculenta*), red algae (*Palmaria palmata*, *Chondrus crispus*) and green algae (*Ulva lactuca*) and total amount of polyphenols was evaluated. Antioxidant activity was screened by 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging capacity, Oxygen Radical Absorbance Capacity (ORAC) and ferrous ion chelating capacity.

**Results:** 70% aqueous acetone was more effective to extract the antioxidants from the seaweed compared to water extraction. Significant difference was found both in polyphenols (phlorotannins) contents and antioxidant activities among different species ( $p < 0.05$ ). The highest polyphenol content was found in Fucaceae which consequently exhibited the highest antioxidant activities among the tested seaweeds. High correlation ( $R^2 > 0.98$ ) was found between the total polyphenolic contents of the seaweed extracts and their antioxidant activities evaluated as DPPH-scavenging capacity and ORAC value. The water extracts had higher ferrous ion chelating activity but no correlation was found with total polyphenolic content, indicating that other components such as low molecular weight polysaccharides, pigments, proteins or peptides may also contribute to the observed antioxidant activity of the extracts. Research is progressing to characterize the antioxidant compounds in the seaweed extracts and their antioxidant activity in food model systems.

## References:

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