

# Inhibition of $\alpha$ -glucosidase activity by selected edible seaweeds and fucoxanthin

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## ABSTRACT

A 5 mg/mL solution of water, methanol and acetone extracts of seaweeds were used for  $\alpha$ -glucosidase inhibition assay hyphenated with high performance liquid chromatography–mass spectrometry (HPLC–HRMS). The results showed acetone extracts of *Undaria pinnatifida* has the strongest inhibitory effect against  $\alpha$ -glucosidase activity with IC<sub>50</sub>  $0.08 \pm 0.002$  mg/mL. The active compound found in *Undaria pinnatifida* was identified as fucoxanthin. Analytical standard sample of fucoxanthin significantly inhibited  $\alpha$ -glucosidase with IC<sub>50</sub> value  $0.047 \pm 0.001$  mg/mL. An inhibition kinetics study indicates that fucoxanthin is showing mixed-type inhibition. These results suggest that *Undaria pinnatifida* has a potential to inhibit  $\alpha$ -glucosidase and may be used as a bioactive food ingredient for glycaemic control.

**KEYWORDS:** Seaweed, Glycaemic control, Hyperglycaemia,  $\alpha$ -Glucosidase, Fucoxanthin

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