

**THE EFFECTS OF LAMINARIN ON SKIN AGING-RELATED
ENZYMES**

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This Final Year Project Report entitled “**The Effects of Laminarin on Skin Aging-Related Enzymes**” was submitted by Nur Rasyidah Binti Yusoff in partial fulfilment of the requirements for Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

THE EFFECTS OF LAMINARIN ON SKIN AGING-RELATED ENZYMES

Skin aging is a serious health concern affecting millions of individuals. Malaysians are exposed to high UV radiation annually. Some of the currently available skincare products contain deleterious chemicals that exacerbate skin conditions. Natural-based skincare products emerge as the preferred alternative. Laminarin is one of the polysaccharides that can be extracted from Laminarin spp. seaweeds. It has been shown to possess numerous ethnomedicinal properties. In this study, the antioxidant and anti-tyrosinase activities of laminarin was tested. The antioxidant activity of laminarin was tested using DPPH Scavenging Assay and inhibition of tyrosinase was assessed using Tyrosinase Inhibition Assay. The inhibition of tyrosinase was assessed based on its activity to oxidize 3,4-dihydroxyphenylalanine (L-DOPA). Laminarin exhibited a minimal radical scavenging activity on DPPH 2.70% compared to its positive control, ascorbic acid 92.95% at 0.15 mg/ml. For the tyrosinase inhibition assay, laminarin did not exhibit any inhibition activity on tyrosinase activity. Kojic acid, served as the positive control, inhibited 85.73% of tyrosinase activity, indicating that the assays were correctly executed. In conclusion, laminarin shows a minimal radical scavenging activity on DPPH and did not exhibit any inhibition activity on tyrosinase activity. Since there are several isoforms of laminarin with different molecular weight, it recommended that the assays are repeated on low- and high-molecular weight laminarin. Other assays such as anti-collagenase, anti-elastase, anti-hyaluronidase should also be performed to get a better picture of the benefits of laminarin on the skin.