

Antioxidant activity, DNA protecting effect, α -glucosidase and α -amylase inhibitory activities of bioactive peptides from traditional fermented sardine sauce

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In this study antioxidant activity, protection of mice sperm's DNA from oxidative damage resulting from hydroxyl radicals and anti-hyperglycemic capacity of Iranian traditional fermented fish sauce made from sardine (mahyaveh) was determined. The traditional fish sauce exhibited high antioxidant activity in scavenging ABTS and hydroxyl free radical with IC₅₀ values of 179 and 147 $\mu\text{g/mL}$ as well as ferric reducing antioxidant power (FRAP). The traditional product effectively inhibited mice sperm's DNA from oxidation induced by hydroxyl radicals as evidenced by lowering the formation of single stranded DNA with the coincidental higher viability in sperm cells ($P < 0.05$). The traditional fish sauce inhibited α -glucosidase and α -amylase activities with IC₅₀ values of 23.76 and 20.39 $\mu\text{g/mL}$, respectively which was comparable to that of trapeutic drug, acarbose. This study revealed that traditional fermented mahyaveh sauce was rich in bioactive peptides generated during fermentation and can be used as functional foods with antioxidant and anti-hyperglycemic activities.

Keywords: Antioxidant activity, Anti-diabetic activity, DNA protecting effect, Bioactive peptides, Mahyaveh

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