

酵素水解對可食用 *Gracilaria tenuistipitata*

蛋白質水解物抗氧化活性之探討

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摘 要

蛋白質水解物存在許多具有生理活性的胜肽，尤其從食用海洋資源中分離出的生物活性肽已被用作營養食品和功能食品。本研究將海龍鬚菜 *Gracilaria tenuistipitata* (GT) 蛋白水解物進行抗氧化活性探討。首先將紅藻先以數種醣解酵素作用後，再分別使用以不同蛋白酵素 (Alcalase 2.4L FG、Neutrane 0.8L 和 Flavourzyme 500MG) 並在不同的水解時間 (2、4、6、8、10 h) 製備了 15 組 GT 蛋白水解物，然後用硫酸銨沉澱並脫鹽再進行質體 DNA 氧化傷害模式。結果表明，GTF2H 具有較高的質體 DNA 氧化傷害保護能力。GTF2H-A 區 (2531-1400 Da) 顯示出有最高的質體 DNA 氧化傷害保護能力。海龍鬚菜的蛋白水解物可用作抗氧化的潛在功能性食品成分。

關鍵詞：*Gracilaria tenuistipitata*、蛋白質水解物、活性胜肽、質體 DNA 氧化傷害

DIO：10.6425/JNHUST.202303_37(1).0002

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Antioxidant activity of the Edible *Gracilaria tenuistipitata* protein hydrolysates after enzyme hydrolysis

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Abstract

Edible marine species are valuable sources of bioactive peptides. This study investigated the plasmid DNA oxidative damage of protein hydrolysates from the red algae *Gracilaria tenuistipitata*. Fifteen groups of protein hydrolysates were prepared by a two-step enzymatic hydrolysis of *Gracilaria tenuistipitata*: initial hydrolysis with several glycolytic enzymes, followed by three separate proteolytic reactions (Alcalase 2.4L FG, Neutrase 0.8L and Flavourzyme 500MG) for 2-10 h. Results showed that a hydrolysate GTF2H had the highest plasmid DNA oxidative damage *in vitro*. Fraction A (2531-1400 Da) derived from GTF2H displayed the highest plasmid DNA oxidative damage among fractions. Therefore, extracts of the red algae might be valuable antioxidative sources.

Keywords: *Gracilaria tenuistipitata*, protein hydrolysate, Bioactive peptides, plasmid DNA oxidative damage

DIO : 10.6425/JNHUST.202303_37(1).0002

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