

Purification and Characterization of Antioxidant Peptides from Shrimp Enzymatic Hydrolysis Products

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Abstract

Marine biological antioxidant peptides have become a hotspots in multidisciplinary research such as modern biomedicine. In this study, the lyophilized powder of shrimp paste was used as raw material, and the protease produced by the protease-producing strain isolated from the shrimp paste raw material was hydrolyze. A total of 10g Shrimp powder was dissolved in 50 mL distilled water and the pH of the solution was adjusted to 6.0 using 1M HCl. Then, ST-1protease was added at a ratio of enzyme to substrate. The mixture was incubated at 50 °C with shaking. After 6 h incubation, the mixture was heated at 100 °C for 15 min to inactivate the ST-1protease. Alcohol precipitation: The solution was cooled to 40 °C and rota-evaporated to remove water. Anhydrous ethanol was then added and the solution was settled for 12 h. The solution was centrifuged at 8000 rpm for 15 min and the supernatant was dried under vacuum to obtain shrimp paste peptides (SPs), which was then separated and purified by a gel column G-25. The results of the antioxidant activity test showed that the component three exhibited high antioxidant activity; the component three was collected and separated by reverse high phase liquid phase (RP-HPLC) to obtain four components. The isolated antioxidant peptide exhibits high DPPH scavenging activity, relatively good hydroxide radical and superoxide anion scavenging activity. Antioxidant peptides have broad prospects for development in medical, cosmetic, cosmetic and food applications.

marine food microbial and microbial metabolites has been devoted for several years.

Speaker Publications:

1. Jang, H.L., A.M. Liceaga, and K.Y. Yoon, Purification, characterisation and stability of an antioxidant peptide derived from sandfish (*Arctoscopus japonicus*) protein hydrolysates. *Journal of Functional Foods*, 2016. 20: p. 433-442.
2. Xu, S., et al., Antioxidant Characteristics and Identification of Peptides from Sorghum Kafirin Hydrolysates. *Journal of Food Science*, 2019. 84(3).
3. Zhao, W.H., et al., Preparation, identification, and activity evaluation of ten antioxidant peptides from protein hydrolysate of swim bladders of miiuy croaker (*Miichthys miiuy*). *Journal of Functional Foods*, 2018. 47: p. 503-511
4. Zhang, B., et al., Identification of antioxidant peptides derived from egg-white protein and its protective effects on H₂O₂-induced cell damage. *International Journal of Food Science & Technology*, 2019. 54(6): p. 2219-2227
5. Reda, F.M. and A.Z. Refaie, Purification and characterization of pedioxanthin (carotenoid pigment) produced by *Pediococcus pentosaceus* N33 strain isolated from pickles. *Food Biotechnology*, 2019. 33(3): p. 217-236.

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Biography:

Liu Xueqin, Jiangsu Ocean University, Lianyungang City, Jiangsu Province, is a graduate student in the Key Laboratory of Marine Bioresources and Environment of Jiangsu Province. Under the guidance of the instructor, research on the activity of