

双齿围沙蚕蛋白源抗氧化肽的制备

摘要：抗氧化肽所体现出来的抗氧化作用主要通过抑制过多的氧化自由基的生成，从而达到人们预期的延缓衰老的目的。但是目前市面上的抗氧化产品种类繁多，层出不穷，多为保健、美容产品，且其效果参差不齐，大都差强人意。本课题以双齿围沙蚕作为原料，通过碱性蛋白酶酶解双齿围沙蚕蛋白制备抗氧化肽，研究影响酶解反应效率的因素，如 pH、温度、料液比等。本文通过单因素实验、正交试验设计，分析结果表明，温度对酶解双齿围沙蚕制备肽的影响最大。经过优化之后得到最佳工艺为料液比 1:4，pH=9，酶解温度为 50℃，制备的酶解肽液经过一级，二级超滤层析后得到不同分子量的肽片段，检测其对 DPPH 的清除率，结果表明，分子量在 3kDa 以下效率最高，达到了 70.45%。本课题研究的目的在于通过对沙蚕蛋白源抗氧化肽的分离纯化技术和活性评价方法的研究和应用，旨在为进一步开发利用沙蚕提供实验依据，对未来市场抗衰老、增强抵抗力保健产品的研发和应用具有极其重要的意义。

关键词：双齿围沙蚕；最佳酶种；抗氧化肽；活性评价

Preparation of protein-derived antioxidant peptides in *Perinereis aibuhitensis* Grube

Abstract:The antioxidant effect of antioxidant peptides is mainly through inhibiting the formation of excessive oxidative free radicals, so as to achieve the expected goal of delaying aging. However, there are many kinds of antioxidant products on the market, most of which are health care and beauty products. In this project, the bidentate pericarp silkworm was used as raw material to prepare antioxidant peptides by enzymatic hydrolysis of bidentate pericarp silkworm protein with basic protease.

The factors affecting the efficiency of enzymatic hydrolysis were studied, such as pH, temperature, feed to liquid ratio, etc. In this paper, the results of single factor experiment and orthogonal experiment show that temperature has the greatest influence on the preparation of peptides by enzymatic hydrolysis. After optimization, the optimal process was as follows: the ratio of feed to liquid was 1:4, pH was 9, and the enzymatic hydrolysis temperature was 50°C. After the preparation of enzymatic hydrolysate solution, the peptide fragments with different molecular weights were obtained through the first-order and second-order ultrafiltration chromatography, and the clearance rate of DPPH was detected. The results showed that the efficiency was highest when the molecular weight was below 3kDa, reaching 70.45%. The purpose of this research is to study and apply the separation and purification technology and activity evaluation method of antioxidant peptides from sericulture sericulture protein source, so as to provide experimental basis for the further development and utilization of sericulture sericulture, which is of great significance for the research and development and application of anti-aging and anti-resistance health care products in the future market.

Key words:*Perinereis aibuhitensis* Grube ; Best enzyme species ; Antioxidant activity

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