Preparation of DPP-IV inhibitory peptides from Milkfish (*Chanos chanos*) frame and effect on type 2 diabetes

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Outline

I. Introduction

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Abstract

In recent years, with the development of medicine and the control of infectious diseases, the increase in obesity has led to an increase in the incidence of type 2 diabetes (T2D). T2D is a chronic metabolic disease caused by insulin resistance. Recent studies have shown that fish proteins can be hydrolyzed to produce bioactive peptides. One of the most important farmed fish in Taiwan today is milkfish, which is rich in nutritional value, but after processing, it will produce by-products such as fish frame, scales and skin. However, it is considered as waste and discarded, causing environmental pollution, so in this study is to explore the physiological activities of peptides after hydrolysis of freeze-drying milkfish frame with the most suitable enzymes. First, milkfish frame was hydrolyzed with Pepsin, Papain and Bromelain at different concentrations of enzyme-substrate ratios for 8 hours. The results showed that the best peptide content was 2%, and the pepsin hydrolysate had the highest peptide content (283.64mg/g), soluble protein content, yield. Then, using 2% enzyme substrate ratio to determine the physiological activity of the hydrolysate, Pepsin hydrolysate was the best DPP-IV inhibition ability with a value of 68.47%. After ultrafiltration, the hydrolysate of Pepsin < 1kDa increased its DPP-IV inhibitory to 86.49%. However, antioxidant activity can also be enhanced by ultrafiltration and simulated gastrointestinal digestion. Therefore, the small molecule hydrolysate has better DPP-IV inhibitory ability and antioxidant activity, and it has the potential to be made into a product for regulating blood sugar.

I. Refrence

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