Effect of Enzyme-digested Protein Hydrolysates Derived from Clarias batrachus (Keli Fish) on Brassica rapa subsp. Chinensis (Bok Choy)

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Abstract:

Protein hydrolysate (PH) is a material that contains numerous amino acids which serve as liquid fertilizer for vegetative crops. Different research also reported the positive effect of PH in improving the plant's growth. However, no detailed study was available on the effect of the specific type of PH for optimal plant growth. In this study, Brassica rapa subsp. Chinensis (Bok Choy) were treated in five different groups (n=5) of Clarias batrachus (Keli Fish) PH concentration from 0 to 8000 ppm to find out the optimal concentration of PH for Bok Choy growth. The weight, height, total chlorophyll content (TCC), total phenolic content (TPC), total flavonoid content (TFC), and antioxidative potential were measured to study the effect of PH. The heavy metal contents (Pb and Cd) were determined to compliace food safety. Results showed that Bok Choy with 6000 ppm PH treatment had highest dry mass and length, TCC, TPC, TFC and antioxidative potential. In addition, all treatment groups showed increasing trend of parameters with increasing PH concentration. However, the trend started to decline at 8000 ppm treatment. In conclusion, this study found that treatment of Keli fish PH significantly enhances the growth of Bok Choy, where the optimum growth of Bok Choy was observed using 6000 ppm PH.

Keywords:

Protein Hydrolysate; Brassica rapa subsp. Chinensis; Clarias batrachus; Biochemical Content; Antixoidative Potential.