



IDENTIFICATION OF THE POTENTIAL BIOACTIVE PEPTIDES IN EDIBLE BIRD'S NEST

Khuzma Din¹, Amiza Mat Amin^{1,2}✉, Fisal Ahmad^{1,2}, Amin Ismail³, Adawiyah Suriza Shuib⁴

¹Faculty of Fisheries and Food Science Universiti Malaysia Terengganu, 21030 Kuala Nerus, Terengganu, Malaysia

²Food Security Research Cluster, Universiti Malaysia Terengganu, 21030 Kuala Nerus, Terengganu, Malaysia.

³Faculty of Medicine and Health Science, Universiti Putra Terengganu, Jalan Universiti 1, 43400 Serdang, Selangor, Malaysia

⁴Institute of Biological Sciences, Faculty of Science, Universiti Malaya, 250603 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur, Malaysia.

✉ama@umt.edu.my

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ABSTRACT

The major component in edible bird's nest (EBN) is protein. Thus, it is a potential source of bioactive peptides. Thus, this study aimed to determine the potential bioactive peptides from proteomic profiles of EBN using BIOPEP database. In this study, a proteomic profiling of soluble EBN proteins was carried out using high sensitivity liquid chromatography tandem mass spectrometry. Five proteins were selected as potential precursors for bioactive peptides which were deleted in malignant brain tumors 1, lysyl oxidase 3, acidic mammalian chitinase, NK-lysin and mucin-5AC for further analysis. It was found that the chosen proteins gave six dominant bioactivities which were angiotensin-converting enzyme (ACE) inhibitor, dipeptidyl peptidase-IV (DPP IV) inhibitor, dipeptidyl peptidase-III (DPP III) inhibitor, antioxidative, stimulating and renin inhibitor. Furthermore, the most potential bioactive peptides from soluble EBN proteins were angiotensin-converting enzyme (ACE) inhibitor and dipeptidyl peptidase-IV (DPP IV) inhibitor. Meanwhile for *in silico* proteolysis of EBN proteins using 33 type of enzymes, stem bromelain and pepsin were found to give the highest degree hydrolysis and to produce the highest number of bioactive peptides. Five tripeptides were generated after gastrointestinal digestion simulation for each ACE inhibitory activity, which were IRA, YPG, MKY, IVR and AVL and DPP IV inhibitory peptides that were WRD, WRT, WRS, VPL and APG, respectively. However, all these tripeptides have been reported in previous studies. This study showed that EBN has a promising source of bioactive peptide and *in silico* approach provide better understanding of theoretical and prediction of functional peptides.
