

# SYNTHESIS OF HYBRID PEPTIDES FROM COMMON BEAN (*PHASEOLUS VULGARIS* L.) PROTEIN HYDROLYSATES

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Bioactive peptides (BPs) attract researchers' interest having a key role as antimicrobial, antihypertensive, anticancer, antioxidant etc. factors. Many bioactive peptides have been isolated from foods, through enzymatic hydrolysis. Oxidation is an important process in aerobic organisms. Oxidative stress and reactive oxygen species (ROS) are involved in the occurrence of many degenerative diseases such as diabetes, cancer, cardiovascular diseases, neurodegenerative disorders and, in general, ageing. The safety and wide distribution properties of the natural antioxidants have attracted more attention in recent years. Peptides in particular are considered an effective way to control various oxidative processes through their ability to recover free radicals, act as metallic chelators and oxygen quenchers. Generally, peptides with antioxidant activity are based on their specific amino acid sequences, which can be obtained from proteins through enzymatic hydrolysis.

Based on previous researches<sup>1</sup>, the natural peptides of the common bean *Phaseolus Vulgaris* L. protein hydrolysates have been characterized as antihypertensive, antifungal, anticancer and antioxidants. The purpose of the present study is the synthesis of hybrid peptides that are composed by incorporating in the amino acid sequence of the natural one's substances with antioxidant activity, such as caffeic acid, *trans*-cinnamic acid, carnosine etc. The peptides were prepared by standard SPPS methods<sup>2a</sup> in good yield. The purity of the final products was determined at least 95% by analytical RP-HPLC and their identity was confirmed by electrospray mass spectrometry (ES-MS). For the evaluation of antioxidant activity, pure peptide analogues were investigated experimentally by the FRAP<sup>2b</sup> and DPPH<sup>2c</sup> method. From the test results, it was obvious that modifications of the amino acid sequence of natural peptides affect the antioxidant properties of the analogues. The presence of aromatic substances both at the N-terminal end and in the middle of the sequence enhance the antioxidant properties.

Key words: bioactive peptides, antioxidant activity, Fmoc/*t*Bu chemistry.

## References

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