

## Determination of tryptophan using carbon paste electrode modified multi-walled carbon Nano tube

\*<sup>1</sup>Toktam Pedram rad, <sup>1</sup>Mahboobeh Masroornia, <sup>1</sup>Mahdi pedram rad

<sup>1</sup>Department of Chemistry, Faculty of Science, Mashhad Branch, Islamic Azad University, Mashhad, Iran

[\\*tpedramrad@yahoo.com](mailto:tpedramrad@yahoo.com)

### Abstract

Tryptophan is an amino acid needed for normal growth in infants and for nitrogen balance in adults. It is encoded in the standard genetic code as the codon UGG. Among many methods for determination of tryptophan in biological samples, MWCNT - modified with MWCNT is reported and electrochemical behavior of tryptophan at it is described. The effect of pH and effect of carbon paste composition on the mechanism of the electrode process was investigated. Differential pulse voltammetry (DPV) measurements were performed in 0.1M phosphate buffer solution pH=7. The DPV peak current was found to be linear with the tryptophan concentration in the range  $1 \times 10^{-3}$  to  $1 \times 10^{-6}$  M. The modified electrode shows good selectivity, sensitivity, reproducibility and high stability. CPE is highly selective sensors for inorganic and organic electrochemistry. The modified electrodes showed the best resolution of voltammetric peaks of tryptophan.

**Keyword:** carbon paste electrode, tryptophan, multi-walled carbon nanotube