

POST-7

**SQUARE WAVE STRIPPING VOLTAMMETRIC
DETERMINATION OF MALATHION PESTICIDES IN DIFFERENT
MATRICES**

Eman A. Al-Harbi†, A. Hamza, A. S. Bashammakh A. A. Al-Sibaai and M.S. El-Shahawi

Department of Chemistry, Faculty of Science, King Abdulaziz University, P. O. Box 80203, Jeddah 21589, Kingdom of Saudi Arabia. E-mail: loona2005@hotmail.com

A highly sensitive, simple and selective square wave stripping voltammetric procedure for the quantitative determination of malathion pesticide in commercial formulations, water, vegetables and soil has been developed. The method is based upon accumulation of the copper (II) –malathion complex at the hanging mercury dropping electrode (HMDE) at pH 2 and measuring the reduction peak current of the adsorbed complex species of malathion at -0.42 V versus Ag/AgCl reference electrode by both square wave (SWCSV) and differential pulse cathodic stripping voltammetry (DPCSV). The influence of different parameters that control the accumulation step e.g. pH, accumulation potential and time, etc was studied. Linear calibration dependences were found in the concentration range 3×10^{-9} - 2×10^{-7} mol L⁻¹ and as low as lower limits of detection (LOD) and quantitation of 3×10^{-10} and 3×10^{-9} mol L⁻¹ were achieved, respectively employing SWCSV technique. The proposed method was used successfully to determine trace and ultra trace concentration of malathion in water, pesticides formulation, vegetables and soil. Moreover, the nature and mechanism of the observed electrode couples of malathion and copper (II) – malathion were critically investigated at HMDE and Pt working electrodes.