

ABSTRACT

ANALYSIS OF TRIPHENYLTIN(IV) CHLORIDE COMPOUND USING VARIED GOLD WORKING-ELECTRODE BY CYCLIC VOLTAMMETRY TECHNIQUE AND SQUAREWAVE VOLTAMMETRY TECHNIQUE

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Triphenyltin(IV) chloride is a compound which has oftenly been tested as anticancer agent. In this research, the reactivity of triphenyltin(IV) chloride has been examined using cyclic voltammetry technique in order to develop the method of its chemical analysis. To validate the method, the standard solution of triphenyltin(IV) chloride by varying its concentration and was tested by varying working electrode of gold fabrication, gold modification and gold modification-nanoparticle. The measurement of triphenyltin(IV) chloride standard solution was observed using cyclic voltammetry method and squarewave voltammetry at potential range between 700 mV up to 1400 mV scan rate 100 mV/s using auxiliary electrode (Pt) and reference electrode (Ag). The validation method was tested by four paramaters: linearity, LOD, precision and accuration. The result showed that using cyclic voltammetry technique gave a better response using gold modification-nanoparticle (LOD = 0.96×10^{-10} M, $r = 0.99018$, and $SD = 0.77484$) while the squarewave voltammetry technique gave better results at gold modification-nanoparticle working-electrode (LOD = 0.38×10^{-10} M, $r = 0.9943$, and $SD = 1.09925$). The result also indicated that it is clear by the use of the squarewave voltammetry technique gave a better results than cyclic voltammetry technique.

Keyword : Cyclic voltammetry, Squarewave voltammetry, Triphenyltin(IV) chloride, Gold fabrication-working electrode, Gold modification-working electrode, Gold modification-nanoparticle, Method validation.