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ELECTRODEPOSITION OF PTCU PARTICLES FOR THE OXIDATION OF GLUCOSE IN NEUTRAL PH WITH POSSIBLE APPLICATION IN MICROGRAVITY ENVIRONMENTS FOR HUMAN HEALTH MONITORING

Abstract

When the human body is exposed to ingravity conditions begins an adaption process in the entire organism. In particular the circulatory system changes causing a reduction in the plasma volume decreases by 20%, and also the fluids in the body tend to move from the lower to the upper limbs, chest and head. Accordingly, the control of certain vital parameters in real time is necessary, as is the concentration of glucose in blood. In this paper the synthesis of bimetallic Cu and Pt particles reported by electrochemical techniques chronoamperometry and cyclic voltammetry on a glassy carbon electrode that could be used as electrocatalyst in a glucose meter to work in microgravity environments. The electroplating was evaluated as a catalyst for glucose oxidation at neutral pH was obtained and the CuPt particles have the ability to oxidise glucose at pH 7.4 (phosphate buffer, PBS), which is the physiological pH.the linearity of the electrical response of the deposit was found to give a 99.55% statistical fit to the linear model and a LOD of 1.36 mM and 4.52 mM LOC. It said reservoir by SEM showing particles below 1 micron in diameter and XRD was characterized by demonstrating the existence of both Cu and Pt. A pilot design in a CNC was constructed to perform deposits and testing blood, although it continues working in this direction for a useful design as the end of work.