Determination of Iodate in Cooking Salt Using an Electrochemical Probe

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Voltammetry is a technique based on the application of potential to a working electrode immersed in an electrochemical cell. Depending on the applied potential, compounds in the cell may undergo oxidation or reduction, generating a current that may be measured. In this work this compound was 4-Dimethyl-aminoantipyrine (DMAA). This compound may also react with the potassium iodate, which is added to cooking salt. Adding this compose to salt was essential for the control of diseases related to iodine deficiency. Currently, the National Health Surveillance Agency requires an amount of iodine between 20 and 60 mg to each kilo of salt produced in Brazil. Therefore, I had as objective the development of a method for quantitative determination of iodine in cooking salt based on voltammetry. I performed differential pulse voltammograms in a cell containing 3,6 g of NaCl in different concentrations of potassium iodate. The current peak values (Ip) were used to obtain Ip(DMAA) vs [iodate] plots, in na iodate concentration range. If the cell volume (10 mL) is saturated with 3,6 g of table salt, it was possible to compare it with previous peaks, showing me the iodate concentration in the cell. This experiment was performed with samples I and II of brand A and samples I and II of brand B. The iodate concentration in each of them was respectively 14.94; 52.38; 52.38; 59.52 mg/kg. The feasibility of applying the method in the quantitative determination of iodine in table salt could be stated in this project.

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