Short Communication

Using Voltammetry and EIS for Analysis of Pottery Materials

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Due to the different materials and/or different production conditions used to make pottery, including temperature, roasting time and oxidation/reduction conditions, the voltammetric signal of pottery powder could be used for potential archaeological analysis. In this work, we selected black pottery, gray pottery and red pottery as examples to confirm the hypothesis. Differential pulse voltammetry and electrochemical impedance spectroscopy were used as analytical methods. The results indicate that the voltammetric signals of Mn and Fe species in the pottery samples could be used as evidence for pottery identification. The observed difference was also confirmed by XRF analysis and physical property analysis.

Keywords: Voltammetric signal; Pottery analysis; Electrochemistry; Electrochemical impedance spectroscopy; Solid-state electrochemistry

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