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Spectrophotometric determination of micro amounts of Palladium (II) using Thymol Blue as an analytical reagent

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ABSTRACT

Thymol Blue dye is used as a reagent for the spectrophotometric determination of Pd(II). The reagent forms a yellow colored complex with palladium(II) instantaneously at pH 3.0-5.0. A twofold molar concentration of the reagent is necessary for the full development of the colour intensity. Beer's law is valid over the concentration range 0.0-9.57 $\mu\text{g ml}^{-1}$ and the optimum range for the effective spectrophotometric determination is 1.06-9.57 μgml^{-1} . The complex has absorption maximum at 470 nm with molar absorptivity $2.12 \times 10^4 \text{ Lmol}^{-1}\text{cm}^{-1}$ and sensitivity is 0.47 ng ml^{-1} respectively. The standard deviation has been found to be 0.0006.

Keywords: Thymol Blue, Palladium, Spectrophotometry.
