Development of Spectrophotometric Method for the Determination of Nickel Using 2, 4, 6, 6/-Tetrahydroxy-3/-Sulphoazobenzene

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An important use of nickel in the food industry as a catalyst is evident from its use in the hydrogenation of oils. Nickel is an important element due to its high strength and resistance to corrosion in many media [1]. There is a growing interest in nickel determination. Nickel is a moderately toxic element as compared with other transition metals. However, it is known that inhalation of nickel and its compounds can lead to serious problems, including respiratory cancer. Due to low level of this element for their simple and ease spectrophotometric determination in various biological and industrial sample an aggregation and solubilization is required [2].

For this purpose, the new method has been developed for the determination of nickel with 2,4,6,6/-tetrahydroxy-3/-sulphoazobenzene which have synthesized by us [4]. The method is very sensitive and selective for the direct determination of nickel. The optimum pH and absorbance of complexes formed of 2,4,6,6/-tetrahydroxy-3/-sulphoazobenzene with nickel are between 6-7; 495 nm for Ni. The system obeys Beer’s law at 0.08-5 µg mL⁻¹ of nickel concentration. The molar absorptivity is 2.23x10⁴ L mol⁻¹ cm⁻¹ for nickel. The molar compositions of the complexes are 1:1 at optimum conditions.

References