

A novel method for the spectrophotometric determination of Cu(II) using salicylaldehyde acetoacetic acid hydrazone as the reagent. Application to water, alloys and grape leaves

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**Abstract.** Salicylaldehyde acetoacetic acid hydrazone (SHZN) reacts with copper (II) to form a highly stable 1:1 complex in a medium pH 2 at room temperature. The complex has maximum absorption at 425 nm with a molar absorptivity coefficient of  $22.5 \times 10^4 \text{ L mol}^{-1} \text{ cm}^{-1}$  and stability constant  $9.947 \times 10^8$ . A visible spectrophotometric method using SHZN was developed and the reaction conditions (pH, stability of the complex, amount of reagent required) were optimized and corresponding linearity range (0.0499 – 0.4994  $\mu\text{g/mL}$ ), Sandell sensitivity ( $0.0002824 \mu\text{g cm}^{-2}$ ) and tolerance limit of various foreign ions were reported. The method was simple, sensitive and accurate and was successfully applied for the determination of copper (II) in synthetic water samples, grape leaves and alloy samples.

**Keywords:** Copper (II), Salicylaldehyde acetoacetic acid hydrazone, Spectrophotometry, Synthetic water samples, Grape leaves, Alloys.