

## NATURAL TANNIN AS A GREEN AND INEXPENSIVE REAGENT FOR Mn(II) DETERMINATION USING DIGITAL IMAGE COLORIMETRY METHOD

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**Abstract.** In this study, Digital Image Colourimetry (DIC) with natural tannins as a complexing agent was used to determine Mn(II) in aqueous media. The calibration curve had a correlation coefficient of 0.995, indicating suitability for Mn(II) detection in aqueous media. Although the standard spectrophotometry method with NaIO<sub>4</sub> showed better results, the DIC method remained within an acceptable range. Both methods showed no significant difference in measurement average and variance. Common cations in natural water interfered with Mn(II) detection at a tolerance of less than 5%, except for Fe(III), which can be easily precipitated before Mn(II) analysis. The DIC method applied to three water samples showed acceptable recovery, offering an easy, inexpensive, and green solution for Mn(II) determination.

**Keywords:** neurotoxic element, spot analysis, Mn(II)-tannin complexation, colorimetric assay, method validation.