

Developing Herbal Acid-Base Indicators from Pomegranate Seeds

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Abstract: *Natural indicators derived from plant sources offer an eco-friendly and cost-effective alternative to synthetic acid-base indicators. This study explores the potential of pomegranate (Punicagranatum) seed extract as a natural pH indicator. The extract was prepared using aqueous and ethanol-based solvents and tested against standard acidic and basic solutions to evaluate its color transition range. The results demonstrated distinct and reproducible color changes across varying pH levels, indicating the presence of anthocyanins and other flavonoids responsible for pH sensitivity. The study highlights the efficacy of pomegranate seed extract as a viable natural indicator, promoting sustainable and non-toxic alternatives for laboratory and industrial applications.*

Keywords: Pomegranate seeds, natural indicators, acid-base titration, anthocyanins, eco-friendly chemistry, pH sensitivity, sustainable alternatives

