

# **A comparative study of the novel spectrophotometric methods versus conventional ones for the simultaneous determination of Esomeprazole magnesium trihydrate and Naproxen in their binary mixture**

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## **Abstract**

Two novel simple, specific, accurate and precise spectrophotometric methods manipulating ratio spectra are developed and validated for simultaneous determination of Esomeprazole magnesium trihydrate (ESO) and Naproxen (NAP) namely; absorbance subtraction and ratio difference. The results were compared to that of the conventional spectrophotometric methods namely; dual wavelength and isoabsorptive point coupled with first derivative of ratio spectra and derivative ratio. The suggested methods were validated in compliance with the ICH guidelines and were successfully applied for determination of ESO and NAP in their laboratory prepared mixtures and pharmaceutical preparation. No preliminary separation steps are required for the proposed spectrophotometric procedures. The statistical comparison showed that there is no significant difference between the proposed methods and the reported method with respect to both accuracy and precision

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