# TARTRAZINE AND SUNSET YELLOW ANALYSIS IN SOFT DRINKS BY SPECTROPHOTOMETRIC METHOD

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## ABSTRACT

### TARTRAZINE AND SUNSET YELLOW ANALYSIS IN SOFT DRINKS BY SPECTROPHOTOMETRIC METHOD

Food dye is one of widely used additives in food industry to improve and enhance the attractiveness of the foodstuff. Tartrazine and sunset yellow are synthetic food dye which contain azo (N=N) functional group in their chemical structures. These dyes can become carcinogenic as the azo groups can transform into aromatic amine after being metabolized by gastrointestinal microflora. Hence, a sensitive, accurate, simple, rapid and low cost analytical method is required for the determination of tartrazine and sunset yellow. The spectrophotometric method has been proposed for the quantitative analysis of tartrazine and sunset yellow. The calibration curve was linear from 2 mg $L^{-1}$ to 10 mg $L^{-1}$ with regression coefficient of 0.9998 for both tartrazine and sunset yellow. The measurement was carried out at maximum wavelength ($\lambda_{max}$) of 426 nm for tartrazine and $\lambda_{max}$ of 515 nm for sunset yellow. The limit of detection (LOD) and limit of quantification (LOQ) for tartrazine were 0.035 mg $L^{-1}$ and 0.12 mg $L^{-1}$. Meanwhile, the LOD and LOQ for sunset yellow were 0.04 mg $L^{-1}$ and 0.14 mg $L^{-1,}$ respectively. The proposed technique is precise as all the calculated RSD for intra-day and inter-day precision less than 2 %. The percentage of recoveries for tartrazine in soft drink sample for 2 mg $L^{-1}$ and 5 mg $L^{-1}$ of tartrazine standard solution was 75.15 % and 80.45 % while the percentage of recoveries for sunset yellow was 81.50 % and 83.00 % respectively. The sunset yellow content in S6, S3, S4, S9 and S10 were 0.6, 0.47, 0.77, 0.55 and 0.86 mg $L^{-1}$. There were no tartrazine detected in the all soft drink samples. It can be concluded that the proposed spectrophotometric technique is simple, rapid, accurate, precise, rugged and robust.