

**METHOD VALIDATION AND DETERMINATION OF SACCHARIN
IN SPORT DRINKS BY SPECTROPHOTOMETRIC
TECHNIQUE**

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JANUARY 2020

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ABSTRACT

METHOD VALIDATION AND DETERMINATION OF SACCHARIN IN SPORT DRINKS BY SPECTROPHOTOMETRY

Saccharin is one of the most well-known artificial sweetener that widely used since a long time ago. Saccharin is commonly used as sweetener to replace sugar in foods and beverages as it is 300-400 times sweeter than normal sugar. The presence of saccharin that exceeds the permitted level of 300 mg L⁻¹ in drinks might cause severe health effect to the consumers. Hence, the amount of saccharin in drink products must be analyzed. A sensitive, accurate, simple, rapid and low-cost analytical method is required for the determination of saccharin. The spectrophotometric method has been proposed for the quantitative analysis of saccharin. The calibration curve was linear from 0 mg L⁻¹ to 10 mg L⁻¹ of saccharin standard solution with a regression coefficient (R²) of 0.9999. The limit of detection (LOD) obtained was 0.25 mg L⁻¹. The precisions in terms of relative standard deviation (RSD) were 0.39 %, 0.28 % and 0.69 % for 2 mg L⁻¹ saccharin in consecutive three days. Meanwhile, the RSD were 0.62 %, 0.23 % and 0.06 % for 5 mg L⁻¹. Lastly for concentration of 8 mg L⁻¹, the RSD were 0.11 %, 0.07 % and 0.07 % for three consecutive days. The recoveries achieved for 3 and 6 mg L⁻¹ of saccharin standard solution in the isotonic sport drinks were 89.33 % and 92.66 %, respectively. Three tested isotonic sport drinks contain no saccharin and the rest contain saccharin below the permitted level. It can be concluded that this proposed method is accurate, simple, fast, low cost and has a potential to be an alternative method for routine analysis of saccharin in isotonic sport drinks.