

ABSTRACT

QUANTITATIVE ANALYSIS OF FORMALIN IN SHAMPOO COSMETIC PRODUCTS CIRCULATING IN THE COMMUNITY USING UV-VIS SPECTROPHOTOMETRY AND THE NASH REAGENT METHOD

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Cosmetics are materials used on the outside of the body to care for and beautify oneself in order to enhance attractiveness and self-confidence. One of the cosmetic products widely used in the community is shampoo for hair care. One type of preservative commonly used in cosmetics is formalin. The use of formalin is limited to the maximum permitted concentration. The maximum permitted use of formalin in cosmetics is 0.1% for oral hygiene products and 0.2% for all cosmetic products other than oral hygiene products. If the formalin content in cosmetics exceeds 0.05%, the product must be labelled "contains formalin". This study was conducted to analyse the formalin content in shampoo samples using the UV-Vis spectrophotometry method and Nash reagents. The stages in this study are the selection of samples to be analysed, then the preparation of NaOH, the standardisation of H₂SO₄, the preparation of a standard solution of formalin, the preparation of Nash reagents, the preparation of Nash reagents without acetyl acetone, the determination of the maximum wavelength, the preparation of calibration curves and the quantitative testing of formalin on samples using the UV-Vis spectrophotometry method. The results obtained from this study were the actual level of formalin solution after curing by 37.95%; the selected wavelength of formalin with Nash reagent was found at 410 nm obtained from a working raw solution of 0.664125 mg/L with an absorbance of 0.371. The correlation coefficient (r) of the calibration curve is 0.9933. In addition, a quantitative analysis of the formalin content in shampoos circulating in the community was carried out on a total of 7 samples. Out of the 7 samples, there were 2 samples with an average content higher than 0.05% or 500 ppm.

Keywords: cosmetics, shampoo, formalin, nash reagents, UV-Vis spectrophotometry