

## ABSTRACT

### ANALYSIS OF FORMALIN CONTENT IN HAIR STRAIGHTENING CREAM USING NASH REACTION WITH UV-VIS SPECTROPHOTOMETRY METHOD

**Mitha Salsabilla**

Formalin, also known as formaldehyde, serves multiple purposes such as a repellent for flies and various insects, a preservative for corpses, certain cosmetic products, and a nail hardener. Among these applications, formaldehyde is commonly found in hair straightening cream cosmetics. Hair straightening cream is favored in the market for its capacity to straighten hair, rendering it tidier and more manageable. This study aimed to ascertain the formalin content and levels in hair straightening cream products available in the market through UV-Vis spectrophotometric quantitative analysis employing Nash's reagent. The research process encompassed several stages: formalin standardization to determine the optimal wavelength and calibration curve, formulation of Nash's reagent, preparation of hair straightening cream samples, extraction of formalin from these samples, and quantitative analysis of formalin using Nash's reagent. The findings revealed that the actual formalin content after standardization was 37.95%. The optimum wavelength for formalin with Nash's reagent was determined as 410 nm, derived from a working standard solution of 0.6641 mg/L, with a correlation coefficient ( $r$ ) of 0.9966. Subsequently, a quantitative analysis of formalin content in hair straightening creams available in the market was conducted, revealing that three samples contained formalin, irrespective of whether their labels indicated formalin content or formaldehyde-releasing preservatives. However, the formaldehyde levels detected in these samples fell within the permissible range set by BPOM, not exceeding 0.2%. Therefore, it can be concluded that the hair straightening cream samples met regulatory requirements.

**Keywords:** formalin, hair straightening cream, Nash's reagent, UV-Vis spectrophotometry