

ABSTRACT

Naura Vania Thitasari, Optimization of the type of solvent for purple sweet potato extract (Ipomoea Butatas L. Poir) as a color indicator in hydroquinone analysis. Guided by Elok Widayanti, S. Si, M. Si.

Hydroquinone is a chemical compound that is often found in some cosmetics. The use of hydroquinone has been prohibited in the Regulation of the Head of the Food and Drug Supervisory Agency (BPOM) Number 18 of 2015 concerning Technical Requirements for Cosmetic Ingredients, because it can cause side effects such as irritation, vitiligo, and permanent darkening of the skin. In the process of monitoring cosmetic products, test tools are needed that provide fast, easy, practical, and safe results, including test kits made from both synthetic and natural materials. Natural test kits can be obtained from plants that contain anthocyanin compounds, one of which is purple sweet potato. The use of purple sweet potato anthocyanin as a test kit can be used to test hydroquinone. Optimization of solvents to extract purple sweet potatoes is needed to obtain optimal purple sweet potato extract results. So this study aims to determine the type of optimal solvent in purple sweet potato extract as a color indicator in hydroquinone analysis. The solvents used were 96% ethanol, and a mixture of 96% ethanol and 10% HCl (4:1). The results of the observation of the selectivity test of purple sweet potato extraction in 96% ethanol solvent produced a brownish yellow color while a mixture of 96% ethanol and 10% HCl produced a green color. The validation test used several parameters, namely linearity, detection limit and quantitation limit, precision and accuracy. The results of the linearity parameters with the linear regression curve analysis method $y = 0.0081x + 0.0288$ ($r = 0.9712$). The detection limit and quantitation limit values in 96% ethanol solvent were 0.17% and 0.56%. Based on the precision value, the Red color has a Standard Deviation value of 1.66%, which is in accordance with the requirements of % RSD <2%. Meanwhile, in the Green and Blue color components, higher % RSD values were obtained, namely 20.29% and 29.53%. The average percent recovery was in the range of 80% -110%, namely 98.08%. It can be concluded that a mixture of 96% ethanol and 10% HCl in a ratio of 4:1 can detect the presence of hydroquinone.

Keywords: *Purple Sweet Potato, Hydroquinone, Anthocyanin, Digital Imaging, Method Validation*