

EXPIRATION TIME OF VIRGIN COCONUT OIL (VCO) FROM HALAL BIOADSORBENT FILTERING RESULTS BASED ON TURBIDITY QUALITY PARAMETERS

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BACKGROUND:

Indonesia is the largest coconut plantation country in Asia. One of the coconut diversification products is Virgin Coconut Oil (VCO). The main content of VCO is lauric acid which is easily metabolized in the body, so VCO is a promising raw materials in food and pharmaceutical industries. To meet the current trends of halal products, it is important to ensure the halalness of the VCO. In the purification stage of producing halal VCO in this research, a halal bioadsorbent was chosen to be used. This research aims to study the expiry date of VCO which was stored in transparent closed plastic bottles at a storage temperature of 28 oC.

METHOD:

The crude VCO was filtered using a halal bioadsorbent which was produced from coconut stem sawdust using the pyrolysis method. The VCO prduct then was stored in transparent plastic bottles at room temperature (28 oC). VCO turbidity measurements were carried out every week for 42 days using a turbidimeter. The rate of increase in turbidity is assumed to follow zero order so that it follows a linear equation. Assuming the expiration date of the VCO is based on a maximum turbidity value parameter of 5 NTU, the expiration period is predicted using this linear equation using the trial and error method.

RESULTS & DISCUSSION:

It was found that the changes in turbidity as a function of storage time can be approximated quite well with a linear equation, namely $T_b = 0.0025t + 1.1078$ with a correlation coefficient of $R^2 = 0.9813$. Using a trail and error method of linear equation, the VCO expiration period is 1557 days (4.3 years). A turbidity change in VCO could be visually detected and this could be a symptom of chemical changes. The chemical changes might be related to oxidation, hydrolysis, changes in peroxide numbers, changes in acid numbers, and others.

CONCLUSION:

The expiration date of VCO filtered from halal bioadsorbents stored in transparent plastic bottles at room temperature (28 oC) is 4.3 years which was marked by a turbidity value exceeding 5 NTU.

KEYWORDS: bioadsorbent, expired date, halal VCO, turbidity.