Optimasi Ekstraksi dan Karakterisasi Ekstrak Limbah Batang Tembakau (*Nicotiana tabacum L.*)

Optimization of Extraction and Characterization of Tobacco Stem Waste Extracts (Nicotiana tabacum L.)

Dibimbing oleh : Dr. Titik Budiati, S. TP., MT., M. Sc.

Putri Adila

Study Program of Food Engineering Technology
Majoring of Agricultural Technology

ABSTRACT

Tobacco is an industrial crop whose leaves are mainly used as raw material for cigarette production, resulting in tobacco by-products such as stems, stalks, and roots being discarded as waste and not yet utilized to their full potential. Tobacco stalk waste, which still contains secondary metabolites, can be utilized for tobacco product diversification. Tobacco stem waste that still contains secondary metabolites can be extracted for tobacco product diversification. The extraction method used in this study was maceration. This study aimed to determine the optimal extraction conditions using ethanol solvent on the flavonoid content, phenolic content, antioxidant activity, and antimicrobial activity of the resulting extract. The factors in this study were the solvent ratio of 1:2 as the lower limit and 1:4 as the upper limit, as well as the heating temperature of 45ºC as the lower limit and 65ºC as the upper limit. The responses observed in the optimization process were the total flavonoid content, total phenolic content, and antioxidant activity. Based on the research conducted, the tobacco stem extract has a total flavonoid content of 3,58433 mg QE/ml; total phenolic content of 32,473 mg GEA/ml; and antioxidant activity with an inhibition percentage of 78,5817 and an IC_{50} of 36,77 ppm. The tobacco stem extract produced can also inhibit the growth of pathogenic microorganisms such as Pseudomonas aeruginosa, Escherichia coli, Bacillus cereus, Listeria monocytogenes, and the fungus Aspergillus niger.

Kata kunci : ***Tobacco stem, Flavonoids, Phenolics, Antioxidants, Antimicrobials***