

# **Preparation of Nanoparticles from Parijoto Leaves (*Medinilla Speciosa* Blume) and Its Application as Antimicrobial Agent in Liquid Bath Soap**

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## **ABSTRACT**

Parijoto (*Medinilla Speciosa* Blume)-an iconic species of the city of Sleman-contains flavonoids that have various biological activities, but their potential as antimicrobial agents in soap has not been tested. The purpose of this study was to utilize parijoto leaves as a high-efficiency local product to be developed as nanoparticle liquid soap in accordance with the Indonesian National Standard (SNI) and to test its activity as an antimicrobial.

Silver nanoparticles (AgNPs) were prepared by optimizing concentration, time and pH. The manufacture of liquid soap is carried out by the reaction of saponification of vegetable oil with KOH through the hot process method. Making liquid soap from parijoto leaves is done by adding ethanol extract of parijoto leaves (soap A), silver nanoparticles of parijoto leaves (soap B), and liquid soap without parijoto leaves as a comparison (soap C). Liquid soap quality testing is carried out according to SNI 4085:2017. Furthermore, antimicrobial activity was tested using several bacteria and fungi. The antimicrobial activity test was carried out using the Kirby-Bauer diffusion method.

The results showed that the optimum conditions for the synthesis of parijoto leaf silver nanoparticles were obtained at a variation of 1:1 sample concentration, 2 mM AgNO<sub>3</sub> concentration, pH 4 and incubation time of 48 hours. The soap quality test showed that all samples met SNI 2017. Liquid soap with ethanol extract of parijoto leaves was more active as an antimicrobial than silver nanoparticle soap.

Kata Kunci: *parijoto, antimicrobial, silver nanoparticles*