ABSTRACT

Alopecia or baldness can occur due to side effects of chemotherapy, stress, taking drugs, hormonal imbalances, menopause, the presence of bacteria and fungi that cause dandruff, sun exposure, and the use of chemicals such as hair straighteners, curlers and hair dyes. Hair loss is handled by doing hair care, namely hair tonic. This study aims to make an innovative cosmeceutical formula of nanoparticle hair tonic combination of Nilam leaf extract and Mulberry leaf (nano*Nilamberry*) to stimulate hair growth and test its activity as an antibacterial. nano*Nilamberry* was made by ionic gelation method. The effectiveness of hair tonic was tested on rabbits for 28 days by observing the growth of hair length, growth rate and hair weight of rabbits. The results showed that nano*NilamBerry* hair tonic met the characteristics of nanoparticles with a particle size of 196.8 nm, Polydispersity Index 0.58 and Zeta Potential +24.8. In the antibacterial activity test, Nilam-Mulberry leaf extract hair tonic produced DDH of 16.36 ± 0.35 mm and nano*NilamBerry* hair tonic of 18.4 ± 0.30 mm on *Staphylococcus epidermidis*. The hair tonic formula did not cause irritation on healthy rabbit skin. The average rate of hair growth in the administration of nano*NilamBerry* hair tonic is 0.13 cm and in the administration of hair tonic combination of Nilam-Mulberry leaf extract is 0.09 cm. The average hair weight of rabbits given nano*NilamBerry* hair tonic is 32.36 ± 0.40 mg and in the hair tonic combination of Nilam-Mulberry leaf extract is 27.33 ± 0.31. nano*NilamBerry* has the best activity in increasing hair growth with 3.04x faster than those who do not get hair tonic, and 1.45x faster than a simple combination of extracts. The conclusion of this study is that nano*NilamBerry* hair tonic has antibacterial activity and accelerates hair growth compared to a simple combination of Nilam-Murbei leaf extract hair tonic.

Keywords: Nilam leaf; Mulberry leaf; hair tonic; nanoparticles; antibacterial; hair growth