ABSTRACT

Skin is the largest organ in the human body and serves as the front line of defense against pollutants and protects the body from exposure to UV radiation from the sun. According to data from the Meteorology, Climatology, and Geophysics Agency (BMKG) in 2023, the ultraviolet index level in Indonesia is very high to extreme. According to aqicn.org, the Air Quality Index in Indonesia continued to deteriorate throughout 2023, ranging from moderate to unhealthy. This impacts the skin and increases the risk of premature aging. Premature aging can be prevented by using skin care products containing antioxidants. Edelweiss extract contains high antioxidants, but the main active compounds in edelweiss extract are sensitive to light and heat, allowing degradation. The antioxidant agent in the form of gold nanoparticles synthesized using the pulsed laser ablation method has a high level of purity and does not experience degradation. The combination of edelweiss extract and gold nanoparticles is a solution to increase antioxidant activity and minimize the possibility of degradation. The antioxidant test using the DPPH method then produces a percentage inhibition value, where the higher the percentage inhibition, the higher the antioxidant activity in inhibiting free radicals. Pure edelweiss extract had an inhibition percentage of 93.44%. Interestingly, the combination of edelweiss extract with gold nanoparticles with ablation times of 5, 10, 15, 20, and 25 minutes had inhibition percentages of 94.54%; 96.08%; 97.43%; 98.20%; and 99.48%, respectively. This indicates that the addition of gold nanoparticles to edelweiss extract can increase antioxidant activity.

Keywords: Gold, Nanoparticles, Pulsed Laser Ablation, Edelweiss, Antioxidants, Inhibition Percentage.