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# Singlet Oxygen Quenching activity of Silver Nanoparticles Synthesized using Gorocho Banana Peel (*Musa acuminata*)

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**Abstract :** Gorocho banana is one of plantain type, locally grown crops in North Sulawesi and potential as excellent source bioactivities including antioxidant phytochemical content and macronutrients. The silver nanoparticles have made by mixing gorocho banana peel extract with silver nitrate solution ( $10^{-3}$  M) at room temperature. The silver nanoparticles were characterized using spectrophotometer UV-Vis and infrared (IR), while the morphology and particle size have determined by SEM (Scanning Electron Microscope). The anti-photooxidative activity of silver nanoparticles with the concentration 40; 60100 and 200 mg/mL were evaluated in linoleic acid emulsion system that containing 5  $\mu$ g/mL erythrosine as sensitizer and illuminated with fluorescent 4000 lux for 5 hours. The UV-Vis spectra shows that surface plasmon resonance (SPR) at wavelength 423-442 nm. It proves that there was a reduction of silver ion ( $Ag^+$ ) to silver ( $Ag^0$ ) and indicates the formation of silver particles. The spectra of IR at  $4302\text{ cm}^{-1}$  shows that the presence of hydroxyl groups (OH) from polyphenol compounds in gorocho banana peel extracts while the IR spectra of silver nanoparticles at the ribbon  $3448\text{ cm}^{-1}$ . The characterization with SEM shows that silver nanoparticles have sized by the range at 254-768 nm; 41-98 nm and 53-90 nm. On assessment with the silver nanoparticles having effect on singlet oxygen quenching at all of concentration levels compared to banana gorocho extract. The results of this research proves that antioxidant of banana gorocho peels extract can act as an agent to synthesized silver nanoparticles possess singlet oxygen quenching activity.

**Keywords :** banana gorocho peels, silver nanopartikel, characterization, singlet oxygen quenching.

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