Green Synthesis of Antibacterial Silver Nanoparticles from Georgia Peach

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Purpose: Silver nanoparticles have variety of applications due to their size and antibacterial properties. A green synthesis of silver nanoparticles is highly sought after due to their comparative benefits over chemical methods. The purpose of this experiment was to evaluate the potential of Georgia grown peaches for green synthesis of silver nanoparticles. Question: Can silver nanoparticles be synthesized with antibacterial activity from Georgia peach? Hypothesis: If the extract of Georgia peach fruit and leaves are used in lieu of chemicals, like other plant extracts, it will synthesize silver nanoparticles exhibiting antimicrobial properties. Procedure: Leaves and fruit of Georgia grown peach were used in combination with silver nitrate (30 mM) for the synthesis of nanoparticles. The bioreduction of Ag+ ion in solution was monitored using UV spectrometer and the morphology of the AgNPs was examined using scanning electron microscopy. The antibacterial activity of silver nanoparticles was analyzed using agar well-diffusion method against non-pathogenic bacteria Escherichia coli. Conclusion: The SEM results verified the synthesis of silver nanoparticles and the larger area of zone of inhibition reflected the effectiveness of the peach samples in controlling microbial activity. Georgia peach leaves can be used in lieu of chemicals, like other plant extracts, for biogenic synthesis of silver nanoparticles exhibiting antimicrobial properties. A temperature of 60°C was found to be suitable for the synthesis of silver nanoparticles.

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