

EFFECT OF CONCENTRATION OF IMPERATA CYLINDRICA L LEAF EXTRACT ON SYNTHESIS PROCESS OF GOLD NANOPARTICLES

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Sari

Gold Nanoparticles (GoldNPs) successful was performed using HAuCl_4 precursor as Au^{3+} ion source with 7×10^{-4} M concentration. The research aims to know effect of concentration variation of Imperata cylindrica L leaf extract on synthesis process of gold nanoparticles. The research used of green synthesis method. Colloid of nanoparticles which is formed in analyzed using UV-Vis Spectrophotometer, FT-IR Spectroscopy, PSA, PZC, XRD and TEM. The results of synthesis showed the best concentration of Imperata cylindrica L leaf extract at 3,46%, happen a shift of wavelength at UV-Vis from 216 nm to 530 nm with 1.779 absorbance value. The PSA analysis showed a particle size of 51.87 nm and a PZC value of -19.2 mV. The result of FT-IR indicated a shift of wavenumber in the hydroxyl group from 3354 cm^{-1} to 3390 cm^{-1} and showed a interaction of hydroxyl group at imperata cylindrica L leaf extract with Au^{3+} ion. TEM analysis shows the morphology of GoldNPs that spherical shape with a particle size of 20 nm. XRD calculation results show crystallite size of gold nanoparticles is 15.47 nm.

Kata Kunci

Imperata cylindrica L, Gold Nanoparticles (GoldNPs), Green Synthesis