One step 10 minute microwave synthesis of silver nanoparticles using mannan. / J. A. L. Hartman, N. Christian, P. Couture, K. M. Hart, J. Hinds, S. Marinelli, A. O. Pinchuk. / Nano Studies. – 2015. – # 12. – pp. 15-24. – eng.

Silver nanoparticles have been synthesized using a rapid 10 min, one-step microwave synthesis method by the reduction of Ag^{+} ions in an aqueous solution of mannan, which is the linear polysaccharide polymer of the reducing sugar mannose and the natural ligand for the mannose receptor. The mannan functions as the sole reducing, encapsulating, and stabilizing agent in the microwave synthesis. The nanoparticles were characterized using UV–visible spectroscopy and nanoparticle size was estimated using dynamic light scattering and scanning electron microscopy. The average size of the silver nanoparticles was estimated to be 79.00 ± 3.99 nm with a surface plasmon resonance peak at 433 ± 0.71 nm. The silver nanoparticles were observed for 3 months for stability with no noticeable aggregation. Fig. 5, Ref. 29.

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