**Green Synthesis of Copper Nanoparticles by Using Macaranga Indica for Biomedical and Drinking Water Purification Applications**

**Gajanan Hegdea,b,** Tanuja Khadreb

1. Environmental Lab, Indian Institute for Human Settlements, Bengaluru
2. Department of Chemistry, APJ Abdul Kalam University, Indore

[ghegde@iihs.ac.in](mailto:ghegde@iihs.ac.in)/urgaju@gmail.com

**Key Words**: Copper Nano Particles, Macaranga Indica, Drinking water purification, Biomedical applications.

Green synthesis of stable copper nanoparticles is carried out by using Macaranga indica plant extract. Macaranga indica is a medicinal plant widely available in the western ghats region of Karnataka. This plant has medicinal properties like antibacterial, antioxidant, antidiabetic, cytotoxic, and antidysentery and is commonly used by village peoples of the western ghat region. In this present study, we have used bark extract of M. indica to prepare stable copper nanoparticles using the microwave irrigation method. Synthesized nanoparticles are characterized by using various techniques like UV-vis spectra, XRD, FESEM, EDX, and FTIR. The above techniques used here confirm that the synthesized nanoparticles are monodispersed crystalline structure, spherical in shape, and have a size of ~22 nm. These green synthesized nanoparticles have shown effective removal of bacteria like E. coli and thermotolerant bacteria in the drinking water samples. These are also having good antioxidant and antifungal properties when compared with the standards.

**References:**

[1]. R. Jeyaraman, J. Kadarkaraithangam, M. Arumugam, R. Govindasamy, A.R. Abdul, Mater. Lett. 71 (2012) 114.

[2]. K. Raja, A. Saravanakumar, R. Vijayakumar, Spectrochem. Acta A 97 (2012) 490.