Synthesis, Characterization and Antibacterial Activity Spherical Gold Nanoparticles Derived from Biomass

Asmaa Harby[a], Ola M. El-Borady[b,] Maged El-Kemery[c]

[a,b] Institute for Nanoscience and Nanotechnology, Kafrelsheikh University, Kafrelsheikh, Egypt

[c]President of Kafrelsheik University, Egypt

Abstract: Gold nanoparticles (AuNPS) exhibit an effective role as antibacterial and antimicrobial, owing to expensive chemical methods that was used to synthesis AuNPS, most researchers directed their concerns to green synthesis. Here, the present study deals with synthesis and morphological characterization of AuNPS derived from rice a husk and sugarcane biomass material which is most abundant hugely in Egypt, the antimicrobial activity was also examined. The size of nanoparticles as determined by TEM imaging was about 20 nm for both samples. AuNPS were tested on several types of gram (+ve) and gram (-ve) bacteria (Bacillus thuringiensis, Bacillus lichniforms, Bacillus cereus, Bacillus subtlis, Enterococcus faecalis, Pseudomonas aeruginosa, Pseudomonas putida, Enterobacter ludwigii, klebsiella pneumonia, E. coli). These AuNPS exhibit antimicrobial effect on Bacillus lichniforms, Bacillus cereus, Enterococcus faecalis.

Keywords: gold, rice husk, sugarcane, Bacillus cereus, antimicrobial.