1. Introduction

Nanotechnology is one of the essential areas of research in modern sciences. The field of nanotechnology is expanding very rapidly, creating an incredible impact on human life including pharmaceutical, food, health, chemical industry, electronics, energy science, cosmetics, space industries, and environmental sciences [1].The emergence of infectious diseases in general causes a serious threat to public health worldwide especially with the emergence of antibiotic-resistant strains of bacteria. Gram-positive and Gram-negative bacterial strains are considered as presenting a major public health problem, and as a result, antibiotics have been used to control infections resulting from community and hospital settings [2].Various physical and chemical means of nanoparticle (NP) synthesis like chemical reduction using metallic salts, microemulsion using surfactants, sonochemistry using ultrasound, microwave using microwave radiation, and electrochemistry using electricity require high-capital input for reagents, radiation, and toxic chemicals which are both environmentally toxic and a tedious protocol [3].Since few decades ago, the advance in nanoparticles technology have played a remarkable role in medical, pharmaceutical and textile industries. Metal nanoparticles like silver, zinc and gold have been used as therapeutic agents in medical institutes for some years [4].In the sphere of research, nanotechnology is a relatively new approach. This technology is now widely used in diversified fields. The smaller dimension of nanomaterials, ranges from 1–100 nanometers (nm) , alters their physicochemical properties like shape, size, and chemical composition. In the twenty-first century, a more in-depth investigation of metallic NPs was carried out by several researchers (5).Copper oxide (CuO) is one of potential p-type semiconductors and gains considerable attentions due to its excellent optical, electrical, physical, and magnetic properties. CuO with narrow band gap of 1.2 eV is extensively used in various applications such as catalysis [6],Copper oxide nanostructures have attracted sig﷽nificant attention because of their wide range of applications such as high-Tc superconductors [7],orange (MO) is an azo dye used in textiles, food stuffs, paper, and leather industries. However, the release of MO and its products in the environment cause serious pollution prob﷽lems (Iravani, 2011).[8] The facile and eco-friendly fabrication of metal nanoparticles is increasing day by day because of their veritable application in medicines, optics, biotechnology, and photocatalysis. The unique chemical and physical properties of the CuO have drawn much attention into the study of its nanoparticles as opposite to other nanoparticles [9].e emergence of infectious diseases in general causes a serious threat to public health worldwide especially with the emergence of antibiotic-resistant strains of bacteria. Gram﷽positive and Gram-negative bacterial strains are considered as presenting a major public health problem, and as a result, antibiotics have been used to control infections resulting from community and hospital settings [10].

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