Abstract

In this modern world, the use different medicines is increasing day by day. In this regard, different bacterial strains have started to show resistance against many broad spectrum drugs. This process of genetic resistance became many alarming problems. So, this alarming situation demands the development of enhanced and new drugs design. In this regard, bio-synthetic silver nanoparticles (AgNPs) have played its important role to enhance the action of antibiotics. The use of nanoparticles in combination with antibiotics requires less amount of drug, which lessens their toxicity and side effects caused by antibiotics. Moreover, these nonconjugates show enhanced antibacterial activity as compared to free active drug molecules. Thus, simple silver nanoparticles (AgNPs) were prepared by green synthesis, using the extract of coriandrum sativum, commonly called as dhania. After the preparation passing through different steps of synthesis, finally they were characterized by UV-visible and FTIR spectroscopy. Their elemental analysis and morphology was confirmed by SEM-EDX. SEM micrographs confirmed their shape and size. Their size ranged between 24nm to 30nm. Simple AgNPs showed SPR peak at 430nm. While this peak was shown at 430nm by noncojugates AgNPs-cef. The FTIR data indicates the presence of OH group in bio-reduction of silver ions. But CO group was involved in the conjugation of cefadroxil with AgNPs. FTIR data also provided the peak at 518cm-1 and 544 cm-1 for AgNPs. Furthermore, the antibacterial activity was revealed different biological methods, like agar well diffusion method, disc diffusion method and their minimum inhibitory concentration (MIC) and minimum bacterial concentration (MIB) were calculated. For this antibacterial activity, four strains were used viz S. shigella, E. coli, B. subtilis and B. licheniformis. They showed positive response against bacterial strains. This concludes that silver nanoparticles plays an incredible role in the field of medicine and drugs, which is saving many human life.