ABSTRACT

The present study was conducted to isolate and characterized pathogenic bacteria from water samples collected from river Ravi near Shahdara. Spreading of collected water samples on agar plates was done and different isolated bacterial strains were streak on nutrient agar medium. To check the pathogenicity of isolated bacterial strains and to evaluate the microbial quality of river Ravi water blood agar test was performed on isolated bacterial strains. All four isolated bacterial strains showed β hemolysis that means all strains were pathogenic. Antibiotic susceptibility or antibiotic resistance test was also performed to check the resistance of isolated bacterial strains against different antibiotics. Two antibiotics including cefixime and meronem were used against all four isolated bacterial strains by disc diffusion method. Strain 4 showed resistance against cefixime and all other three strains showed minimum zone of inhibition against cefixime. Among all four strains, no strain showed resistance against meronem. Six antibiotics including doxycycline, oxytetracycline, chloramphenicol, ciprofloxacin, amoxicillin and azomax were used against all isolated bacterial strains by well diffusion method to check the antibiotic resistance or susceptibility of isolated bacterial strains. Among all antibiotics strain 4 showed resistance against oxytetracyline and strain 3 or strain 4 showed resistance against ceftriaxone. Silver nanoparticles and plant extracts of Neem (*Azadirachta indica*), *Calotropis procera*, *Cassia fistula* and *Eucalyptus radiata* were also used to check the antibacterial activity of isolated bacterial strains. The study showed that river Ravi water does not suitable for irrigation purpose due to presence of different pathogenic microbes in river water and ultimately cause different infections in humans. Due to overuse of antibiotics bacteria developed resistance against some antibiotics so nanoparticles and plant extracts should be used as antibacterial tools against which bacteria might not developed resistance.

Key words: Pathogenic bacteria, Antibiotic resistance, Antibiotic susceptibility, Nano particles, Plant extracts