

## Abstract

The present study deals with the isolation and molecular characterization of pathogenic bacteria present in tannery waste-water. Waste-water samples were collected from upstream and downstream locations of Latif Tanneries Ltd. Sahiwal. Various morphological and biochemical tests were performed to identify isolated bacterial strains by culturing bacteria on selective media. Minimum inhibitory concentration tests were performed against *Zingiber officinalis* (ginger) and *Curcuma longa* (turmeric) plants organic extracts in different solvents. Antibiotic resistance tests were also performed to observe the resistance of bacteria against different applied antibiotics. One species was resistant against Cefixime, Voriconazole and Fluconazole while all the five strains were susceptible against Clarithromycin and Meropenem. Blood agar test was also performed to identify different pathogenic bacteria. Antibacterial effects of nano particles and bacterocin were also tested against isolated bacterial strains. The bacterial strains were identified as *Pseudomonas auregionsa* strain (NCBI Gen bank accession no. KX911719), *Bacillus aquimaris* strain (NCBI Gen bank accession no. KX911720), *Serratia mercescens* strain (NCBI Gen bank accession no. KX911721), *Klebisella oxytoca* strain (NCBI Gen bank accession no. KX911722) and *Staphylococcus epidermids* strain (NCBI Gen bank accession no. KX911722). The result revealed that water samples of Latif Tanneries Ltd. Sahiwal at upstream and downstream sites were contaminated with pathogenic bacteria. Due to the presence of these pathogenic bacteria, that water is unsuitable for any domestic and irrigation purposes.