ABSTRACT

Biofilms play a very significant role in the antibiotic resistant that is threat to human health globally. Mostly, microbes mimic multicellular lifestyle to form biofilm by experiencing different phenotypic changes to adapt environmental conditions. The present study aimed on using many antibiofilm and biofilm dispersal agents to break the biofilms. The samples were collected from different regions of Sheikhupura dist. of healthy and infected fish *Oreochromis niloticus* (Nile Tilapia). Total eight strains were isolated from which six were pathogenic labelled as TDA, TDB TDC, TDD, TDE, and TDF two were probiotics labelled as THD´ and THA´. The antibacterial activity of these isolated pathogenic strains were measured by using disk diffusion method. The antibiotic susceptibility of all the strains was checked using antibiotics viz., levofloxacin (5µg/ml), ampicillin (10µg/ml), kanamycin (30µg/ml), and oxytetracycline (30µg/ml) following disk diffusion. All pathogenic strains were highly susceptible to all antibiotics except for strain TDA and TDC that are resistant to antibiotic ampicillin. The maximum zone of inhibition was shown by TDF (28 mm) against kanamycin. While the rest of pathogenic isolates showed zone of inhibition in the range of 6-24 mm. MIC and MBC of these pathogenic strains against levofloxacin, ampicillin, kanamycin and oxytetracycline was found to be (80µg/ml-86µg/ml), (50µg/ml-55 µg/ml), (25µg/ml-32µg/ml), (25µg/ml-30µg/ml) respectively. All the strains showed maximum biofilm formation at day 5 so, antibiofilm and biofilm dispersal activity of monospecies was observed. This whole study examined the antibiofilm and biofilm dispersal activity by using three different concentration as ½ MIC, MIC, 2× MIC. The concentration of both antibiotics and probiotics (alone) caused significant effect as antibiofilm and biofilm dispersal agent against all test strains. While the synergistic effect of antibiotics and probiotics caused the antibiofilm and biofilm dispersal activity up to 94%, showed highly significant results. These findings indicated that isolated probiotics (THD´ and THA´) and antibiotics has antibiofilm and biofilm dispersal potential against all the pathogens.

Keywords: Pathogens, Antibiotics, probiotics, biofilm dispersal.