Effect of Norfloxacin on antibiotic resistance of E. Coli

Abstrak

Seven antibiotics including norﬂoxacin (NOR) were tested via disk susceptibility test on E. coli culture isolated from the MLSS of the two types of lab-scale sequencing batch reactors (SBR), a common SBR and an SBR with rnicroﬁltration membrane (SB-MBR) for treatment of synthetic municipal wastewater. The same experiment treating the NOR-added wastewater to examine the possible induction of resistance to itself and the other antibiotics. The MLSS from Bangl culture (TISTR780) were spiked daily into both reactors. The reactors were continuously operated under 2hr/2hr of aeration/non-aeration cycle and resistances to antibiotics of E. coli in MLSS were monitored. When NOR was not added, the SB-MBR showed lower percentages of resistant E. coli than the SBR did to amoxicillin/clavulanic acid, amikacin, nalidixic acid, tetracycline and chloramphenicol. Oppositely, the SB-MBR treating the NOR-added wastewater appeared to promote resistances of E. coli to nalidixic acid, sulfamethoxasole and tetracycline probably due to a long SRT and low DO compared to that of SBR. Although its mechanism should be analyzed with molecular techniques in further studies, this NOR-induced expression of resistance resulted in a higher occurrence of multidrug resistant E. coli in the SB-MBR than that in the SBR.