

A b s t r a c t

T i t l e	The characteristics of antibiotic resistance of <i>Escherichia coli</i> in treated wastewater and water environment
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[summary]

Antimicrobial resistance can make the management of bacterial infections in humans more difficult. The incidence and the profiles of resistance to antibiotics were examined for *Escherichia coli* isolated from water environments, such as Mt. Takao, treated wastewater, different locations of the Tama river. The resistant bacteria to 3-7 kinds of antibiotics were selected by the agar dilution method. The profile of the resistance was examined by disk diffusion method with 9-14 kinds of antibiotics. The identification of *E. coli* was confirmed using an intestinal bacteria identification kit. It was also investigated whether DNA extracted from the resistant bacteria transforms bacteria without antibiotics resistance.

The numbers of resistant bacteria were 33/1055 for Mt. Takao, 311/951 for the Tama river and 257/1603 for treated wastewater. In the Tama River, 24/24 were *E. coli* as a result of the intestinal bacteria identification kit, and 52/76 were *E. coli* in the samples of Mt. Takao. The bacteria isolated from Mt. Takao showed relatively simple profiles of the resistance only to one antibiotic. Those isolated from the Tama river showed higher resistance to 4th generation cephalosporins for downstream samples. On clear days the isolates from the Tama river showed the similar characteristics of those isolated from the treated wastewater, while on the occasion of rain events a considerable number of isolates were resistant only to tetracycline (84/146) possibly due to the effect of livestock farming. The number of resistant bacteria to human-use antibiotics of latter-generation cephalosporins, new quinolones and aminoglycosides, were 5 for treated wastewater, 6 for the Tama river upstream samples, and a few for down stream samples.