

## عنوان مقاله:

Identification of clinically antibiotic resistant genes Aac(3)-IIa and Aac(6')-Ib in wastewater samples by multiplex PCR

## محل انتشار:

مجله مدیریت ومهندسی بهداشت محیط, دوره 2, شماره 2 (سال: 1394)

تعداد صفحات اصل مقاله: 6

## نویسندگان:

Naser Samadi - *MSc of Cellular and Molecule Research Center, Faculty of medicine, Urmia University of Medical Sciences, Urmia, Iran*

Rahim Aali - *Assistant Professor of Department of Environmental Health Engineering, Faculty of Nursing and Health, Urmia University of Medical Sciences, Urmia, Iran*

Esfafil Asgari - *Instructor of Department of Environmental Health Engineering, Faculty of Nursing and Health, Urmia University of Medical Sciences, Urmia, Iran*

Hamed Mirhosaeini - *Instructor of Medical Microbiology, Department of Environmental Health Engineering, Faculty of Health, Arak University of Medical Sciences, Arak, Iran*

## خلاصه مقاله:

**Background:** Aminoglycoside antibiotics are widely used in medical centers, particularly to treat infections. The resistance developed against these agents is a huge concern in health care. A number of researchers have reported that hospital and municipal wastewaters are among the most important dissemination sources of these agent into the environment. Some, however, do not agree with this opinion. In the present study, the prevalence of aminoglycoside resistance genes was investigated in raw and effluent wastewater from hospital and municipal wastewater treatment plants. **Methods:** To conduct this descriptive-analytical study, 30 samples were taken according to sampling principles and cold cycle and transferred to the molecular laboratory. DNA was extracted by the freeze-thaw method using a kit (Promega). The genes aac(3)-IIa and aac(6')-Ib which code aminoglycoside resistance were examined in this study. **Results:** The results indicated that the studied genes are present in 35% of urban and hospital wastewaters, and their frequency percentage is higher in hospital wastewater (52%) than urban wastewater (48%). The studied genes were identified in 61% of raw hospital wastewater samples; however, they were not detected in the output wastewater from the studied treatment plants. **Conclusion:** Although, the studied genes were not detected in the final effluent, there is a high potential for their release into the environment. The current study demonstrated that the coding genes of aminoglycoside antibiotic resistance are present in raw urban and hospital wastewaters. In the case of improper exploitation of wastewater treatment plants, the output water can contaminate other environmental sections, such as soil and water resources, and result in the emission of these contaminants.

## کلمات کلیدی:

Antibiotic resistance, Aminoglycosides, Urban and hospital wastewaters

## لینک ثابت مقاله در پایگاه سیویلیکا:

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