

## **Resistance of native bacteria isolated from activated sludge towards iron and manganese**

### **ABSTRACT**

A study was conducted to observe the resistance of native isolated bacteria towards selected heavy metals (iron; Fe and manganese; Mn) in a separate exposure. Isolated bacteria were evaluated by culturing them in nutrient broth medium that contained approximately  $3 \times 10^6$  CFU/mL bacteria with different initial concentrations (0, 50, 100 and 200 mg/L). Result showed that a plate with bacterial growth indicated bacterial resistance, which was verified based on CFU/mL. At 0 mg/L, bacteria grew well on the plate with Fe and Mn. The bacterial number began to decrease at 50 and 100 mg/L for Fe and at 200 mg/L for Mn. Only a few colonies survived (isolate AM2) the toxicity of high Fe amount; the isolated bacteria almost showed no growth along the plate. AM2, AM3 and AM4 presented resistance to Mn until 200 mg/L, but not AM6. The bacteria showed no growth at 100 and 200 mg/L. Thus, the Fe and Mn concentrations that can be applied during acclimatisation ranged from 0 mg/L to 200 mg/L with isolated AM2 and AM4 for Fe and Mn removal.

**Keyword:** Biosorption, Drinking water resources; Iron, Manganese; Resistance bacteria