

## Metal Resistance of *Chromobacterium* sp. Brazilian Isolates

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### Abstract:

All metals are natural constituents of the environment and are found in varying levels in all ground and surface waters. Metals are persistent and tend to accumulate in the environment, especially in the sediments and the chemical characteristics of metals are responsible for the fact that all metals become toxic at some elevated concentration. With increasing of pollution in industrial areas, interest in organisms resistant to heavy metals has become important because they are potential transformers of heavy metals in metals less toxic. Resistance of bacteria to metals has been studied for many years, and these microorganisms resistant to heavy metals can be used in future projects for the bioremediation of contaminated environments. *Chromobacterium violaceum* produce violacein, a purple pigment with potential activities such as antimicrobial, antiviral, antitumoral among others. The biotechnological potential of *C. violaceum* includes also the production of cyanide, solubilization of gold through a mercury-free process, synthesis of bioplastics and hydrolysis of plastic films. The aim this study is to evaluate the resistance to heavy metal of Brazilian isolates of *Chromobacterium* sp. Assays of resistance to copper, nickel, chromium, cobalt, iron, zinc, arsenate/arsenite and mercury, was determined in microplates, containing different concentrations of heavy metals (0.5 mM, 1 mM-10 mM and 0.1 mM-1 mM for arsenate/arsenite/mercury). The lowest concentration of heavy metals at which no growth occurred was considered as MIC. *Chromobacterium* sp. isolates presented different answers for metals evaluated, growth of most of the isolates was significantly inhibited by 0.5 to 3 mM for arsenate, cobalt, nickel, zinc and chromium. Isolate CBMAI 301 had presented bacterial growth in the concentrations of 9 mM to arsenate. Only 2 isolates (CBMAI 301, 310) showed growth for arsenite to 0.1-0.2 mM. Isolates presented better resistance to iron and copper (4-10 mM). It was not observed the mercury resistance. *Chromobacterium* sp. can be considered potential bioremediation as representatives of the genera *Bacillus*, *Pseudomonas* and *Acinetobacter*. So important is the study of microorganisms for the recovery of environments contaminated with heavy metals. **Financial support:** FAPESP, CNPq.

**Key words:** *Chromobacterium* sp., Metal Resistance, Bioremediation Potential