

Title: FAST METHODOLOGIES TO IDENTIFY SOIL CONTAMINANTS USING YEAST

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Abstract

The fast urban industrialization, contaminated environment and mainly soils are increasing all over the world, offering higher and higher risk to human health. In this way a fast identification of contaminated areas is extremely important for bioremediation actions. Several organisms and microorganisms are suitable for experimental protocols for toxically screening, which it can be fast and easy-to-do, as well as extrapolated to superior eukaryotes. *Saccharomyces cerevisiae* yeast have high homology to superior eukaryotes, allowing toxic studies with human beings and it presents easy cultivation method, maintenance and it is very sensible to environmental changes. Objectives: to use yeast in the presence of toxic agents for detection purposes the TTC technique (2,3,5 triphenyl 2H tetrazolium chloride). From a role of 16 yeast strains, three methods were tested for cadmium and gasoline contamination: the yeast were inoculated 1×10^6 cells.mL⁻¹, in flasks containing 50 mL of YEPD media and different cadmium doses during 6 hours. Methods used for evaluation were: yeast growth (D.O., 580nm); TTC and micro plating technique, after 6 hours of growth. Data show high efficiency on three strains used: one *S. cerevisiae* PE-2 and two *Candida*: *C. guilhermondii* 78-50 and *C. freyschussii* 2936. From the 3 tests and the three strains first selected, the best yeast so far used for detection of cadmium and gasoline contaminants was the *S. cerevisiae* PE-2 and the best methodology was the micro plating which gives excellent repeatability and it works with at least 30 replicates Both techniques are going to be used further studies, including contaminated soils. In both methods, yeast cell can be used as toxic monitoring organisms and it provides a fast, economic and reliable methodology for both cadmium and gasoline contaminated environments.

Key words: yeast, cadmium, gasoline

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