

## DECONTAMINATION OF WATERS POLLUTED WITH HEAVY METALS USING WASTES OF MEDICINAL HERBS

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**Abstract.** *This paper presents a purification method for waters infested with heavy metals by using dry and milled waste of medicinal herbs resulted from the extraction processes. There were used FT IR spectrophotometric methods of analysis (spectrophotometer Varian 640-IR) and atomic absorption methods (spectrophotometer AA-6200 Shimadzu).*

**Keywords:** plant powders, basic lead acetate, polluted water

### 1. Introduction

Following the extraction process of certain active principles from the medicinal herbs, annually results tones of plant wastes, which are thrown at the ecological garbage hole. These wastes get rid of active compounds and microelements, leaving behind cavities of the size of chemical compound structures or microelements issued. These cavities may capture other chemical elements, as well as organic chemical structures present in the waste waters.

In a study concerning contamination with hard metals of mountainous waters [8] there were observed concentrations of certain heavy metals (lead, cadmium and zinc) exceeding the normal limit, which endangers the river fauna. The literature in the area indicates a number of waste water treatment methods, among which we mention:

a) Bio-remediation of waste waters with a series of compounds resulted from the pharmaceutical industry. The method is based on the ability of degrading organic matter and to assimilate certain heavy metals by some aerobic and anaerobic microorganisms;

b) Phyto-remediation of waste waters represent a purification method using wastes from plants (roots, stems, leaves and so on). This is a method practiced even by nature, which overflow and deposit various plant debris in their bed;

c) The treatment of waste water with two substances: ZCTAG195 (0.25mL/L) as coagulant and MOGNAFLOC 919 (0,615 mL/L) as flocculants [4]. This is a purification and cleaning method for waste waters resulted from washing coal and minerals from specific exploitation;

d) Filtration of polluted waters with heavy metals through composite membranes based on nanomaterials of the MCM [4] and SAPO [3] class. The quality of the resulted waters depends on the performances of the used membranes. The application of this method in various industries (food, chemical,

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