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Research Paper

Study and Evaluation of Heavy Metals in Medicinal Plants

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ABSTRACT

The medicinal plants have nutritive properties and are commonly used for the treatment of various ailments by local physicians in the Medak District of Telangana, from where the plants were collected. The concentration level of heavy metals such as Fe, N, C, Zn , Mn Cu Cr, and PB in the selected plants was studied, compared, and analysed. Study and Analysis of medicinal plants for heavy metals concentrations of great value for health care, for protecting the public from the hazardous effects of these heavy metals. Indigenous plants are commonly used in a large number of medicines being analyzed, in four selected medicinal plants such as Phyllanthus disticbus, Brassica nigra, Brassica oleracea, and Daucus carota by flame atomic absorption spectrophotometer (FAAS). The results revealed that the selected medicinal plants accumulate these elements at different concentrations.

INTRODUCTION

The concentration level of heavy metals such as Fe, Ni, Cd, Zn Mn, C, Cr, and Cd in the selected plants was studied, compared, and analyzed. The selected medicinal plants accumulate these elements at different concentrations. Study and Analysis of medicinal plants for heavy metals concentration are of great value for health care, for protecting the public from the hazardous effects of these heavy metals. Indigenous plants are commonly used in a large number of medicines.

They are used, in the treatment of various diseases. According to the World Health Organization (WHO) reports, about 80% of the world's population is dependent upon indigenous medicinal plants for the treatment of diseases. The nutritive value, as well as the toxicity of medicinal plants, can be studied through chemical analysis and by tracing the heavy metals [1-5].

The deposition of heavy metals in soils occurs through industrial areas, and the indiscriminate use of fertilizers, sewage, and pesticides. Heavy metals are inorganic chemical hazards, such as lead (Pb), chromium (Cr), arsenic (As), zinc (Zn), cadmium (Cd), copper (Cu), mercury (Hg), and nickel (Ni) are found in the contaminated Soils.

Heavy metals are released into the environment by anthropogenic activities and their total concentration in soils persists for a long time. The presence of toxic metals in soil can severely inhibit the biodegradation of organic contaminants. Contamination of Heavy metals in soil may create a hazard to humans and also disturb the ecosystem. Natural and anthropogenic sources of Heavy metals, accumulate in soil and plants and result in environmental issues through contamination problems. The present study aims to assess heavy metal contamination in certain medicinal plants in the Medak district [6-9].

Materials and Methods

There are various types of Essential and nonessential heavy metals like iron (Fe), nickel (Ni), manganese (Mn), zinc (Zn), copper (Cu), cadmium (Cd), chromium (Cr), and lead (Pb) being analyzed, in four selected medicinal plants such as Phyllanthus disticbus, Brassica nigra, Brassica oleracea and Daucas carrota by flame atomic absorption spectrophotometer (FAAS). These medicinal plants have nutritive properties and are commonly used, for the treatment of various ailments by local physicians in the Medak District of Telangana, from where they were collected. The results showed that performance in OOD data was improved by training with more heterogeneous data from a greater variety of scanners and methods. In contrast to this, the focus of our work is on how to strengthen models when data from other institutions, or domains, is not readily available. Additionally in MRI, [6] proposal for a causality-inspired data augmentation methodology for single-source domain generalisation for medical image segmentation was compared to various SSDG approaches, with their method outperforming them all. BigAug achieves performance that is similar to the two state-of-the-art algorithms in four distinct, hitherto unexplored

The concentration level of heavy metals such as Fe Ni, Cd, Zn Mn, Cu, Cr, and Cd in the selected plants was studied, compared, and analyzed. The selected medicinal plants accumulate these elements at different concentrations. Study and analysis of medicinal plants for heavy metals concentration are of great value for health care for protecting the public from the hazardous effects of these heavy metals. Indigenous plants are commonly used in a large number of medicines. They are used, in the treatment of various diseases. According to the World Health Organization (WHO) reports, about 80% of the world's population is dependent upon indigenous medicinal plants for the treatment of diseases. The nutritive value, as well as the toxicity of medicinal plants, can be studied through chemical analysis and by tracing the heavy metals. Heavy metal contamination of water and soil causes toxicity leading to a decrease in yield and productivity. The complex mechanisms of molecular, physiological, and Biochemical, tissue, have to be analyzed and to check the toxicity.

There are many reports which have shown the toxicity of soil by Heavy Metals and the present study is being carried out to compare the amount of Heavy metals absorbed by Medicinal Plants. The nature and amount of Phytoremediation being performed by the Plants.

Results and Discussion

Essential and nonessential heavy metals like iron (Fe), nickel (Ni), manganese (Mn), zinc (Zn), copper (Cu), cadmium (Cd), chromium (Cr), and lead (Pb) were analyzed in four selected medicinal plants viz., Phyllanthus disticbus, Brassica nigra, Brassica oleracea and Daucas carrota by flame atomic absorption spectrophotometer (FAAS). These medicinal plants are extensively used as traditional medicine for the treatment of various ailments by local physicians in the area from where these plants were collected. The concentration level of heavy metals in the selected plants was found in the decreasing order as Fe > Zn > Mn > Cu > Ni > Cr > Cd > Pb. The results revealed that the selected medicinal plants accumulate these elements at different concentrations. Monitoring such medicinal plants for heavy metals concentration is of great importance for physicians, health planners, health care professionals, and policymakers in protecting the public from the adverse effects of these heavy metals [11-16].

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