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Environmental Pollutants and their Impact on Human Health: A Review

Estabraq Mohammed Ati,Suhad Yassein Abed, Rana Fadhil Abbas
and Dr. Reyam Naji Ajmi

Abstract---*There are tens of thousands of chemicals used in industry, agriculture, and homes Hospitals, tanneries, animal transplants and foundries. The number of organic chemicals is estimated which is used in industry in developing countries with about 50,000 compounds and thousands of pesticides. It is used to weed and weed. The matter is more difficult to address the issue of chemical pollutants in terms of research or processing is the nature of this material. These materials do not fall within what scientists study where the conditions of different matter and the degree of its interaction with other and the products of its decomposition and its impact on organisms extensively. Although these compounds have organic properties, they cannot be analyzed with enzymes, for example, because most of them are organic compounds of the original hydrogen atoms chemical groups, and thus lost the property of the original organic materials if their origin was sugars or amino acids, or others, which is why it does not apply to known organic laws interaction, decomposition and others.*

Keywords---*Environmental Pollutants, Biological Treatment, Health Risk.*

I. INTRODUCTION

1.1 Background

There are multiple pollutants and their sources such as dyeing materials, medicine and agricultural chemicals occupy the first concern, as it is 50 of the material used, these substances are lost in nature in the form of a pollutant, and thepercentage of loss these occur in stages during operation, testing, production, packaging, and transport waste the use and excess of use, as well as the compounds resulting from the interaction of detergents with the remnants of these materials at each stage(Abdel-Sabour and Aly, 2000).

Petroleum and petrochemicals: in petroleum, part of it is released as polluting the environment during exploration, drilling, extraction, transport and use. The most prevalent petrochemicals are various types of plastics and motor vehicle tires, other pollutants may have a very harmful biological effect on human and animal health directly, such as hospital, home, slaughterhouse, plantation and galvanic waste and foundries, these pollutants are distributed in the environment in three main places: (air, water, soil)(Al-Ajzan, 1984).

1.2 Biological Treatment

It is the process of selecting a living organism that can get rid of some pollutants in the environment surrounding us (water - air - soil). And when choosing an organism: plant - animal – microorganism(bacteria) to remove some environmental pollutants, these pollutants are expected to be the treated pollutant was not affected at all.Production

Estabraq Mohammed Ati, M.Sc., Department of Biology Science, Mustansiriyah University, POX 46079, Iraq-Baghdad.
Suhad Yassein Abed, M.Sc., Department of Biology Science, Mustansiriyah University, POX 46079, Iraq-Baghdad.
Rana Fadhil Abbas, M.Sc., Department of Biology Science, Mustansiriyah University, POX 46079, Iraq-Baghdad.
Dr. Reyam Naji Ajmi, Department of Biology Science, Mustansiriyah University, POX 46079, Iraq-Baghdad.
E-mail: reyam80a@uomustansiriyah.edu.iq,

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of new compounds that is easy to analyze environment and producing inert compounds that are not harmful to the environment this producing less dangerous compounds than the original compound outputs must be thoroughly tested so that they are not more dangerous(Allen, et al., 1974).

1.3 Using microorganisms to test soil pollution

Two-thirds of the Earth in this universe mixes with microorganisms, and these organisms are important in demolitions, and decomposition of organic matter, especially toxic ones, which are the main factor in a cycle carbon, nitrogen, phosphorus, and sulfur in nature and maintain the continuity of these elements sufficient enough soil for plant and animal life(Anderson, et al., 2004). There are many bacteria and fungi that play a role important in the continuity of soil fertility. This complex condition of the soil from the presence of many organisms makes intervention in the soil for treatment dynamically using microorganisms requires a careful scientific effort so as not to be affected functions or numbers, the rest of the creatures are quality, which is harmful to the natural composition of the soil. There are several methods for measuring pollution in the soil due to chemicals, including:

Soil respiration (soil production of carbon dioxide) and soil enzymatic activity such as glycolysis urea with urease and phosphate compounds with phosphatase. In the case of measuring the degree of pollution using a microbialorganism: We must choose a sensitive organism such as nitrifying bacteria, which is responsible for also, (ISO) oxidizes ammonia to the net. There are several methods mentioned in the ISO program (14238). There are regulatory laws that determine the effect of pollutants on soil organisms (ATSDR, 1999).

1.4 Using advanced plants to test soil pollution

The roots of plants are among the most active biological surfaces, and many global methods have been tried to measure the degree of toxicity of pollutants on developed plants, more types of pollutants according to their chemical nature such as a high-risk soil pollutants can be divided into four groups: Heavy metals, Polychlorinated Biphenyl PCB, Polycyclic hydrocarbons aromatic PHA, Chlorinated pesticides insecticides (Baker, *et al.,* 2004).

Under each heading is a large group of vehicles mentioned in an organized publication the critical focus of this, the Federal Environmental Agency, The critical focus of some pollutants the concentration is defined as the highest concentration of the pollutant that the biological body can tolerate and if it has crossed. Article focus has become harmful and pollutant effect varies with the land use and its duration with human contactit(Ajmi, 2013).

The importance of biological treatment:

1. Converting inactive compounds into active compounds.
2. Removing materials that take a long time to decompose, such as plastics.
3. Conversion of pollutants to safe or at least inactive compounds.
4. Preserving human life and environmental resources.
5. Treating pollutants that cannot be chemically treated, such as asphalt.
6. Reducing the use of chemicals to treat pollutants.
7. Saving the lives of animals and aquatic plants.
8. Clean the soil from pollutants and reuse them.

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9. Preserving the water resources and reusing the therapist from them.

Biological treatment of water and soil pollutants using in soil by bio char to treat soil contaminated with possible toxic elements most biochars have a larger surface area, and after aging they can also have a greater cation exchange potential than some soil types, and are therefore able to increase the retention of positive carbonaceous substances in the soil. Moreover, by raising the soil pH, biochar can also enhance the freezing of PTEs on soil minerals and organic materials.

Biochar may also retain PTEs through more specific types of surface reactions (for example, ligand exchange),precipitation and oxidation reactions the changes in the pH caused by biochar will also affect these reactions, modification reduces the release of toxic elements under conditions of oxidation and reduction in contaminated floodplain soils. It can be used to treat soil contaminated with potential toxic elements (PTEs)(Holden, 2007; Hussein, 2009). However, the BC BC efficacy for inhibition of PTEs in highly contaminated floodplain soils has not been studied under conditions of dynamic oxidation and reduction. Thus the effect of the specific oxidation conditions prior to oxidation is determined on the release dynamics of dissolved aluminum (Al), arsenic (As), cadmium (Cd), copper (Cu), nickel (Ni), and zinc nickel (zinc) in highly polluted soil (CS) and in the same treated soil. A decrease in the bioavailability of minerals and BCR supported procedure for connecting the CD to carbonate, copper and zinc with oxyhydroxides and carbonates, and Pb with oxyhydroxides. These stages were most likely responsible reduced bioavailability of heavy metals. Lead in local soils can release minerals in a wide variety of types or shapes, such as hydroxides, carbonates, sulfates, and carboxyl and their bioavailability threatens the soil and water quality of the surrounding ecosystems, and the associated quality of agricultural crops and the health of the human. Bioavailability tends to lead to bioaccumulation that attacks biological organisms leading to toxic bioavailability traditional practices of "drilling and digging" to remove contaminated soil and sediments are expensive, and there is a need to develop cost-effective remedial treatment strategies in situ(Kališová, et al., 2003;Lyubenova, *et al.*, 2010). One option is to add an absorption factor to contaminated soil or sediments. For this purpose, activated carbon (AC) - defined as a activated carbon material (for example, steam, and chemical treatment) to increase absorption properties - is used as an absorbent agent for on-site treatment. Alternating current can be made from biomass, anthracite or coal, by pyrolysis followed by activation by steam or a strong base (Matera, et al., 2007; Mansur and Garba, 2010).

The possibility of using microorganisms in bio-mining as a way to get rid of environmental pollution is clear. But on the other hand, biotechnologies offer the potential to treat existing pollution for treatment rather than mineral extraction, even if the latter can be a secondary benefit. Attempts to treat the environment fall within the so-called Bioremediation and include several mechanisms and means, perhaps the most important of which is the exploitation of plants within the field of Phytoremediation. Treatments in addition to industrial waste include wastewater and city waste(Muhammad, 2003; Ajmi and Zeki, 2015).

The biological treatment aims to recycle factory waste and treat other sources of pollution, whether it is mineral or organic materials such as oil waste, but the prosperity of these activities is mainly related to economic aspects and then to other factors. Biological treatment should not be very expensive, although sometimes it is possible to turn a blind eye to the cost if pollution materials are dangerous, such as radiation. From previous experiences, it was noted

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that the biological treatments were not at the level that they aspired to, due to the high cost, and that the neighborhoods that were used, especially bacteria, were among the species that collect small amounts of pollutants and minerals. In addition to not ensuring that cells can release pollutants again and return to square one, especially since most of the resistance mechanisms studied are dependent on the processes of external flow of molecules or ions. Therefore, the use of biology or resistance bacteria of the type that uses the external stream is ineffective(Quezada, *et al.,* 2007; Yadav,*et al.,* 2010).

Bioaccumulation by bioaccumulations is used in biological treatments, which can collect ions or substances within cells such as plants or microorganisms such as bacteria, fungi, yeasts and algae when they grow in environments in which contaminants abound, whether minerals or others. Which you use as a defensive method against the toxicity of substances, but some neighborhoods have few concentrations and cells can collect them by the effective transfer process as is the case with some strains of Clostridium sex that accumulate the tungsten ion at a level that reaches thousands of times its concentration In the surrounding environment(Kališová, *et al*., 2003; Zehra,*et al.,* 2009).

Therefore, bioaccumulatives are dual-purpose, the first is to get rid of toxic ions in the environment and the second can be used as bioaccumulations to extract minerals from them, especially when the latter are at low concentrations, as happens in the use of algae in water environments. The neighborhoods are used to make biomedical devices for use in detecting devastating pollution more studies in this field focus on bacteria, especially the species Pseudomonas, and it has been previously shown that heavy metals are some of them necessary for life, but with very few concentrations. When there are high concentrations, the neighborhoods capture them from the ocean and inside the cells; the neighborhoods have developed ways to reduce their harm, including Restricting minerals inside special parts of the cell, such as using gaps in yeasts and Converting ions into insoluble compounds such as converting them into sulfides, carbides, or other compounds. Therefore, the process of sniping ions or materials with ligaments is effective in removing their toxicity, and this method is important for the activities of microorganisms as well as for regulating Biogeochemistry of heavy metals in cells in addition to the possibility of using them in biological treatments. The collection of ions in bacteria is dependent on the mineral ion as well as the type of bacteria (Kaewchai and Prasertsan,2002; Muhammad, 2003).For example, the nickel ion Ni2 + is confined to specific parts at the ends of bacilli cells or collects at the outer limits of bacteria, such as Ps.aeruginosa is also the case with the cadmium ion which is left at the outer limits in the form of granules symmetric in a layer with a portion of it left in the cellular fluid. As for uranium, it remains in this bacterium diffuse in the cytoplasm. Other minerals can form deposits of certain geometrical shapes. In general, the negative bacteria of a dye pigment collect ions at the outer limits, and this is due to the characteristics of the outer membrane and the cell wall of the negative ionic nature that the groups of carboxyl and phosphoryl and other components of the outer membrane and the cell wall contribute to, and when exposed to bacteria such as Ps. *Syringae* or Ps. *aeruginosa* or E. *coli* for high concentrations of nickel, copper or cadmium ions, the largest grouping is in the surrounding space, as levels reach 60%, followed by cell walls and outer membranes that collect about 30% of ions, and then comes the cytoplasm in the last degree as it contains Almost 10%. The minerals also collect in different forms, for example, nickel collects in the form of phosphides Ni12P5, Ni5P4, NiP2 and also in the form of Ni3C, and this indicates its interaction with

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the groups of Phosphoryl and carboxyl from the cell components to form insoluble crystals. In other neighborhoods, such as *Alcaligeneseutrophus*, nickel collects as crystals with hydroxides and carbonates. Bullets gather in Ps. *aeruginosa* in the form of insoluble lead phosphate. Uranium collects as crystalline hydrogen phosphate, when the metal ion is bound with one of the aforementioned groups, it acts as a nucleus that facilitates the formation of more complex complexes around the formed nucleus. Therefore, deposits grow rapidly at the expense of its ions, such as -OH, = SO4, = HCO3- CO3, -PO4 3, etc., and minerals prefer to bind With a specific ligament, for example, nickel is preferred to bind to phosphide rather than to carboxyl(Matera, *et al.,* 2007; Yadav, *et al.,* 2010).

In addition to this, some neighborhoods produce proteins that specialize in binding some ions and are found in the surrounding space and outer membrane, as in the binding of copper ions in Ps. *Syringae*. Therefore, microbial cells are considered as biosorbents that can be used in adsorption of minerals, as in the case of uranium when using Ps cells. *aeruginosa* and yeast(Chen and Wang, 2007).

II. CONCLUSION

The process of getting rid of pollutants or treating them biologically is the solution proposed for research by scientists, so it remains the basic solution that we have and we can implement it is control. In the quantity and quality of pollutants emitted from human activity, as well as reducing the size of these pollutants until we reduce the size of the problem, or at least not get worse quickly. We are honest on this planet and a must we have to perform honesty and secure it for our grandchildren in a way that enables them to live an appropriate ecosystem.

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