TRACE ELEMENTS AS A POLLUTANTS IN THE TERESTRIAL ECOSYSTEM AND ITS IMPACTS ON HUMAN HEALTH

1. INTRODUCTION

Trace / important metals [ex. Cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), lead (Pb), iron (Fe), manganese (Mn), mercury (Hg), nickel (Ni), Uranium (U), [Zn (Zn)] is a segment with an atomic weight more evident than 20, and is described by a similar process of atomic electron interaction in the outer orbit (Kibria et al., 2010). In any case, engineered substances are terrible (e.g. continuation, injury, bioaccumulation) In some cases, some of their endocrine disorders are similar to the cause of malignant tumors (Kibria et al., 2016a; Kibria et al., 2016b). In case of doubt, substances in conductors that are generally considered toxic and have total biomass can become a concern. Metals can exist in water and life forms in various material structures and can be mixed with various materials. In marine structures, the most important metals to consider are Cd, Cu, Hg, Pb, Hg and Zn. These parts are harmful to organisms outside the defined concentration range, but for lower absorption they can be basic absorbents (such as copper and zinc). The following metals arranged in the ocean space may come from typical anthropogenic sources. These sources include terrestrial minerals, windswept silicate dust, volcanic waves, ocean waves and consumption. Emissions from human activities such as mining, industry and wastewater treatment are similar to those of electronic waste (personal computers, printers, copiers, televisions, telephones and toys) and agro-industry (agricultural fertilizers), all examples of artificial sources. The degree of following the metal (Kibria et al. 2010). The resulting toxic components include copper, cadmium, lead, chromium, arsenic and mercury, which are necessary for organisms within a certain level and if these metals are more concentrated, they will cause harm to organisms. The metal structure of these ingredients is generally non-toxic, but if used in a fine powder structure, it can be harmful if inhaled or ingested. In most cases, their mixture with different ingredients is harmful to life forms. Copper, chromium, cadmium and lead are the basic elements Pollution of water resources

with a density greater than 6 g / cm3. The content of Cu, Cd, Pb and Cr in the dirt array fluctuates between 1000 ppm and very little. However, the manganese content of the array dirt is between 20 and 10,000 ppm. Several soils may have a higher grouping of these following components.

1.1 Trace Metals in Air

In about 5 urban areas in the United States, the focus and distribution of the molecular dimensions of subsequent metals have been estimated. The metals present in the air that are more prominent than 1 container / cubic meter found in the appliances include iron, lead, zinc and magnesium, which are present in considerable quantities from coal-based power plants, steel and metal foundries / Processing plant bronze and several sources will be discussed in later sections. A large number of other metal components below are found in modern fillers and materials. The size of the molecules following the metals in the air can provide an indication of a source. Most metals linked to inorganic salts in coal and mechanical materials are not as unstable as metals related to nature during ignition. Subsequently, inorganic metal salts are produced in the form of similar large particles.

1.2 Sources of Trace Metals

1.2.1 Fuel

The burning of power creates an important source of metal particles which subsequently enter the environment. In the 1970s alone, the United States burned over 500 million tons of coal, over 100 billion gallons of engine fuel and nearly 60 billion gallons of fuel. Natural weight.

Metal	Concentration, μg/m³	MMD,[a] μm	Particles <1 μm, %
Fe	0.6–1.8	2.35–3.57	12–35
Pb	0.3–3.2	0.2–1.43	59–74
Zn	0.1–1.7	0.58–1.79	14–72
Cu	0.05–0.9	0.87–2.78	16–61
Ni	0.04–0.11	0.83–1.67	28–55
Mn	0.02–0.17	1.34–3.04	13–40
V	0.06–0.86	0.35–1.25	41–72
Cd	0–0.08	1.54–3.1	22–28
Ba	0–0.09	1.95–2.26	20–31
Cr	0.005–0.31	1.5–1.9	45–74
Sn	0–0.09	0.93–1.53	28–55
Mg	0.42–7.21	4.5–7.2	17–23

[a] The mass median diameter (MMD) represents the approximate "average" aerody-

1.2.2 Industrial Materials

Many mechanical procedures have the potential to increase air pressure to follow the weight of the metal. Crushing, purification, mixing and various operating procedures can cause the aging of mechanical materials. For example, an inspection of a metal / bronze baghouse collected from a zinc / copper foundry activity revealed that the grouping of silver, beryllium, cadmium, chromium, manganese, nickel, lead and vanadium is greater. Encountered is a lot. . Similarly, after examining the subsequent metals in fly ash and those found in coal, it turned out that the concentration of aluminum, chromium, copper, iron, magnesium and manganese dust in fly ash expanded. Obviously, many subsequent metals are not captured in the finished products or in the basic debris due to the combustion of coal, but are atomized in control devices or in the air.

1.3 Speciation of metals

Various physical and chemical parameters (including hardness (fixed Ca and Mg), alkalinity, pH, characteristic disintegration problems (DOM) and redox potential) clearly influence the shape of the metal in fresh water (salinity ≤2.5 ppt). water is considered the main physical and chemical variable and has been quantitatively identified for the toxicity of metals in fresh water.

1.4 Bioavailability of metals

The bioavailability of metals (the ability of metals to bind or cross / through the cell layers) is generally influenced by the physico-chemical structure or morphology of the metals. Furthermore, the bioavailability of metals in fresh water will decrease with increasing hardness, while Ca and Mg will compete with metals, thus limiting the surface of the cell membrane to reach its destination. A decrease in pH can establish the bio-accessibility of metals to biological forms of fresh water, which can lead to the desorption of metals from colloidal and particulate problems and to the separation of some inorganic and natural metal structures.

1.5 Water pollution sources and implications

The main source of pollution of water resources is constituted by cut farms, losses of waste water from plants and transformation areas, and is characterized by pollution from point sources. With a good method of expansion from point sources, this method of measuring water pollution is reduced and can be inspected and controlled without significant elongations. Even so, in the sources of diffuse pollution, toxic substances also enter the water from different sources, such as the climate, rural manure (i.e. fertilizers and pesticides), infiltrations, mechanical waste water, infiltrations of groundwater. The effects of pollution from sources of diffusion can be uncomfortable. Most of the strategies have been created to deal with pollution from point sources. Water pollution reduces the decomposition of fixed oxygen in water sources and influences the pH and temperature levels, which must be stable for marine organisms to be sustained in the environment. Oxygen is considered a limiting factor for the development and improvement of fish and their metabolic activities require large quantities of oxygen. Expanding temperature levels may reduce the solubility of oxygen in the water, thereby reducing its focus on fish problems.

2. Effects of heavy metals on humans

Sharks, swordfish, marlin and fish are known for their longevity and can collect extremely high confluence levels of mercury. Methylmercury has been present in fish for about 02 years, which can make fish bigger and more seasoned (ruthless species) that contain higher levels of methylmercury. Along these lines of thought, the use of fish contaminated with methylmercury is the fundamental source for people who get rich in methylmercury. The surprising "water am disease" is a good example of mercury bioaccumulation and biomagnification. It is conceivable

that the development of human or biological crops on contaminated soils could favor the absorption and accumulation of metals in the leaves of absorbable plants, thus causing potential damage to human and biological well-being. The water in the water system can transfer the decomposed metals to agricultural land and then collect them in the soil. The exchange of metal from soil to plants is a key way for humans to introduce metal pollution. For example, the natural pecking approach (vegetative of the soil) is considered one of the most important ways to introduce metals into humans. It is known that the most important dietary metals in the human body, such as cadmium and lead, can cause truly effective medical problems.

Mercury pollution caused by organic mercury is more harmful than mercury itself. Methylmercury and ethyl mercury promote human evolutionary lifestyles through fish, so organic mercury is quickly ingested into fish by natural mercury along these routes. The main poison of methyl mercury (Me Hg) is the effect on the sensory system and examples of mercury injuries recorded in Japan have caused many deaths. In addition, long-term victims and their offspring present mental disorders, cerebral palsy and silence, which can be observed in young people discovered during the fetal period. Despite the fact that Zn and Cu are basic ingredients, they are at the center of nutrition, no matter what Furthermore, fodder plants are of concern because they are toxic to people and living things. Lead and cadmium are considered potential carcinogens and are related to the causes of various diseases, in particular cardiovascular diseases, kidney diseases, sensory system diseases and blood diseases, just like bone diseases.

3. Effects of elevated trace/heavy metals and humans:

Cadmium (Cd)- Cadmium can be bio-enriched in mussels, clams, prawns, lobsters and fish, so that it can be transferred to humans through opaque fish. Since plants in agricultural land accumulate Cd in the soil, there is a high possibility / probability of transferring the Cd from the crop to people when agricultural land is unlikely to be submerged by the waste water from the Cd. Cadmium has been named class 1 carcinogen (causing malignant growth). The ingestion of oats contaminated with cadmium can cause malignant growth and cause heart, lung, kidney and bone diseases, as well as disappointing regeneration and uselessness.

Chromium (Cr)- The International Agency for Research on Cancer (IARC) lists hexavalent chromium (IV) as a carcinogen.

Copper (Cu)- Copper is an essential trace element for humans, however high levels of copper or copper poisoning can cause cirrhosis (liver disease) and, in extreme cases, human death.

Lead (Pb)- Planting crops and vegetables for human or animal consumption on soil / water contaminated with Pb can result in the absorption and accumulation of edible plant parts, thus posing a threat to human and animal health. Lead is considered a carcinogenic potential and can damage the body's cardiovascular, renal, nervous and circulatory systems.

Mercury (Hg)- Rising mercury levels can damage the human nervous system and brain and the kidneys. Most of the food exposed to human mercury are fish and mollusks contaminated with methylmercury. Methylmercury compounds are almost completely absorbed from the gastrointestinal tract. Methylmercury is fatter soluble than inorganic mercury and can pass through biofilms, especially in the brain, spinal cord, peripheral nerves and placenta. It can cause cirrhosis (liver disease) and even in extreme cases it can cause human death.

LIST OF ABBREVIATIONS

Abbreviation	Full	Abbreviation	Full
Zn	Zinc	OC	Organic carbon
Fe	Iron	OM	Organic matter
C	Carbon	P	Phosphorus
C/N	Carbon to nitrogen ratio	S	Sulfur
Mg	Magnesium	Pb	Lead
Cu	Copper	Al	Aluminum

SUMMARY

Trace metals are familiar with the nature of fuel combustion, cremation and modern sources of emissions, which has raised widespread concern among air pollution experts. The two metals in urban air (including lead and vanadium) are connected to predominantly submicron-sized particles, so there is an internal respiratory risk. Emissions from human activities such as mining, industry and wastewater treatment are similar to emissions from electronic waste (PCs, printers, copiers, televisions, PDAs and toys) and agriculture (agricultural manure), which they are all examples of major human sources. Follow the metal grade. Metal pollution can damage the

picture of marine life through barbaric and sublethal effects and can lead to the reduction or collapse of species in certain circumstances due to the extension of vulnerability, thus exacerbating suffering, reducing lethality and wealth. The vegetation that is proficient in land and water usually changes, like green development, Weak animals (molluscs, mussels) and fish will accumulate with metal in different sets of sizes (from thousands to various occasions) that exceed the level set in maritime conditions. Increasing the yield of human or animal use on deteriorating soils can cause the subsequent absorption and assembly of metals in the delightful desert of plants, which represents an enormous potential danger to humans and animals. The water from the water frame can send separate metals to the plant fields and collect in the soil along these lines. Trade in metals from soil to plants is a key way for humans to introduce metal demolition.

Water pollution today comes from different sources, such as plants, normal water and water infiltrations from landfills. These toxic, common, complementary or overwhelming metal hazards are harmful to normal natural frames and long-term damage to individuals. Various systems have been proposed for the treatment of overwhelming metal water pollution, which includes electro digestion, molecular exchange, electro kinetics and contamination mechanisms, similar to the extraction of plants. The luminosity, the filtration of the layer, the propagation of the air, the precipitations, the coagulation-flocculation, the molecular exchange and the electrochemical treatment can also be used to empty the polluting substances of the water. Organic mercury is immediately absorbed into fish and along these routes, mercury and ethyl mercury promote advanced lifestyles through fish, so mercury becomes regular mercury. The main toxic effect of methyl mercury (Me Hg) is the effect on the tactile frame.

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