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Contamination by agricultural-chemical fertilizers

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Abstract
As for water pollution with agricultural fertilizers, whether nitrogenous, phosphates or potash, which are increasingly used due to the limited arable soil, and the trend towards expansion in intensive agriculture to increase the agricultural productivity of food with the steady growth of the population. For example, water pollution arises from agricultural fertilizers if they are used in an uncalculated way, which leads to an excess of the plant's need, so it dissolves in irrigation water that is disposed of in drains, or accumulates over time to reach the groundwater in which the proportion of nitrates and phosphates compounds is high. Rain plays a role in carrying the remainder of it into the soil and transporting it to adjacent waterways.

Keywords: agriculture, chemical fertilizers, environment, chemical materials

Introduction

Pollution by fertilizers and agricultural-chemical fertilizers: Pollution with sewage, factory waste and fertilizers poses a great danger and is considered a major problem in the world because of its impact on the general environment and the health of living organisms. Water pollution with fertilizers, Insecticides are used in the fields of agriculture and public health to eliminate pests and insects. In general, the use of pesticides leads to an environmental imbalance by polluting the various elements of the environment, including soil, water, plants and animals, in a way that is difficult to re-balance. These include sites subject to contamination with pesticides, via groundwater, wells, springs, rivers, lakes, reservoirs and ponds. Drinking water is contaminated with pesticides in more than one way, including accidental movement from neighboring areas during the spraying process, or as a result of leakage from lands that deal with pesticides in conjunction with the movement of water, or direct pollution occurs by using pesticides to eliminate the Nile rose, for example, which spreads on a page The Nile River in Egypt, and thus pesticide residues, represent a serious problem both for human health; In terms of its effect on the respiratory system, skin and eyes, or as a destructive to fish and harmful to crops; Especially the cotton plant when irrigated with water that was treated with those pesticides in the case of eliminating the Nile rose, for example. It is also harmful to coffee-producing animals when they drink contaminated water.

There are harmful health effects of pesticides dissolved in water that may transfer to the soil and result in the cultivation of contaminated plants or as a result of animals eating plants that have been watered with contaminated water or drinking directly from contaminated water.

Pollution with Phosphate Fertilizers

Phosphate compounds are among the most important water pollutants, as an increase in their percentage in the water harms the lives of many living organisms that live in the water. Excessive phosphate compounds have harmful effects, including:

This type of fertilizer is characterized by its chemical stability, which makes it persist in the soil for a long time, as plants and crops cannot absorb everything that is added to the soil. In addition to its toxicity, it is exaggerated in its use, to the detriment of everyone who deals with water for drinking and agriculture (humans and animals), which requires that phosphate compounds in drinking water not exceed certain limits decided by the relevant local authorities. Phosphate compounds work on the excessive growth of algae and some aquatic plants in closed water bodies such as lakes, which receive - in most cases - sewage, until they reach a state of saturation that leads over time to being devoid of oxygen, thus eliminating the fish and other marine organisms in them. Agricultural wastewater, rainwater, and groundwater contribute much more phosphorous compounds to waterways than sewage and industrial pollutants.

Water Pollution with Nitrate Fertilizers

It is considered one of the largest and most dangerous pollution problems in the world, and it takes one of several forms: Excessive use of nitrogenous citrus in the soil leads to an increase in its concentration in the waterways to make it more friendly than the plants need, and it seeps over time into the groundwater, or rainwater washes it with it into the waterways used by humans. The

presence of a high percentage of nitrates in many plants that are used in the preparation of human food.

Agricultural Wastes

Agricultural wastes are fertilizers and pesticides that are discharged into waterways if left uncirculated, which lead to polluting the water with acids, alkalis, dyes, hydrocarbons, toxic salts, fats, blood and bacteria, and thus this type of waste includes a mixture of chemical pollutants, pesticides and agricultural fertilizers. Chemical substances that are used to increase plant, animal and fish production and their residues, which have a harmful effect on health, and all of them are characterized as having a maximum permissible limit determined by the concerned national authorities and international bodies, which must not be exceeded in order to preserve the health of the food consumer, such as Residues of pesticides, fungicides and weeds such as aromatic chlorine compounds, polychlorinated biphenyls (PCBs), dioxins and phosphorous pesticides. Also residues of agricultural fertilizers such as nitrate and phosphate. As well as the remains of veterinary medicines and the use of hormones for fattening poultry and raising fish stocks. Greenpeace showed in 2006 in China that 25% of the products of agricultural markets and shops contained banned pesticides. 70% of the tomatoes tested contained the banned pesticide Lindane, and nearly 40% of the samples contained a mixture of three or more types of pesticides. Like vegetables, fruits were also examined. It was found that samples of tangerines, strawberries and grapes were contaminated with banned pesticides, including the highly toxic pesticide Methamidophos. Also, this fruit can be obtained from the Hong Kong market. Hence, Greenpeace says that there is no comprehensive control and control of fruit production in Hong Kong as of 2006. And in Vietnam in 2007, news broke about the presence of formaldehyde, a carcinogen found in the national vegetable dish, Ph, which raised concerns about Vietnamese food. Also, vegetables and fruits have been found to contain banned pesticides. “Health agencies have acknowledged that Vietnamese soy sauce, the second most popular sauce in Vietnam after fish sauce, has been shockingly full of carcinogens since at least 2001,” the news that shocked the Thanh Nin daily. Which he came up with, "Why didn't anyone tell us?" Whereas 3-MCPD is the carcinogen in Asian sauces and its metabolite is 1, 3-DCP, which was a problem before the year 2000 affecting many continents

Water Pollution with Pesticides

Insecticides are used in the fields of agriculture and public health to eliminate pests and insects. In general, the use of pesticides leads to an environmental imbalance by polluting the various elements of the environment, including soil, water, plants and animals, in a way that is difficult to re-balance. These include sites subject to contamination with pesticides, via groundwater, wells, springs, rivers, lakes, reservoirs and ponds. Drinking water is contaminated with pesticides in more than one way, including accidental movement from neighboring areas during the spraying process, or as a result of leakage from lands that deal with pesticides in conjunction with the movement of water, or direct pollution occurs by using pesticides to eliminate the Nile rose, for example, which spreads on a page The Nile River in Egypt, and thus pesticide residues, represent a serious problem both for human health; In terms of its effect on the respiratory system, skin and eyes, or as a destructive to fish and harmful to crops; Especially the cotton plant when irrigated with water that was treated with those pesticides in the case of eliminating the Nile rose, for example. It is also harmful to coffee-producing animals when they drink contaminated water.

There are harmful health effects of pesticides dissolved in water that may transfer to the soil and result in the cultivation of contaminated plants or as a result of animals eating plants that have been irrigated with contaminated water or drinking directly from contaminated water, which are:

- Symptoms of chest allergies, asthma, atherosclerosis, and the emergence of cancer symptoms.
- Liver enlargement, the emergence of skin diseases and eye diseases, and the occurrence of stomach disorders.
- Memory loss and after signs of sluggishness and lethargy.
- Destruction of genetic elements in cells, formation of deformed embryos.
- Despite the tragedies surrounding dealing with pesticides, they cannot be completely dispensed with, because this means the spread of insects and pests in a frightening manner. It is possible to refrain from using some pesticides for more than 10 years in some lands, but any plant grown in these lands still contains the residues of these pesticides.

Ways to Prevent Water from Pollution

Fresh water pollution remains a major cause of disease and death in most developing countries of the world, and it takes the following forms: The depletion of large quantities of dissolved oxygen in the water, as a result of what is mixed with sewage, agricultural and industrial waste, which leads to a decrease in the number of aquatic life.

The increase in the proportion of chemicals in the water leads to the poisoning of the living beings, as rivers are almost devoid of any manifestations of life due to the high concentration of chemical pollutants in them. The flourishing and growth of bacteria, parasites and microorganisms in the water, which reduces its value as a source of drinking, irrigation or even swimming and recreation.

The lack of light that penetrates the water to float pollutants on the surface of the water, and light is necessary for the growth of aquatic plant organisms such as algae and plankton. To conserve natural water, a lot of strict laws and legislation must be enacted to try to reduce water pollution, in addition to government building stations for water purification and treatment of waste and waste, as well as setting an upper limit for the concentration of pollutants in water to ensure a minimum

level of water safety. All this is in addition to raising awareness in the various media, the international information network and in places of worship of the importance of water conservation.

Some of the Other Solutions to Tackle this Pollution Are

The speed of treatment of sewage before it reaches the soil or other water bodies, which can be reused again in irrigation of agricultural lands, but without polluting the soil and plants eaten by humans and animals. Elimination of the maritime transport activity, and the spillage of oil into sea waters - or navigational rivers - through burning or suction. Attempting to bury radioactive waste in some specific deserts, because it seeps out and threatens the safety of groundwater. Imposing security precautions on a large scale in order to maintain the safety of groundwater as a safe source of drinking water, by preventing agriculture, construction, or any industrial activity that may harm the safety of water. Attempting to recycle some of the factory waste instead of dumping it in drains and reaching the groundwater similarly as long as there is no harm in reusing it again. Periodic chemical and biological analysis of water by specialized laboratories, to ensure standards by which water quality is achieved and not polluted. Reducing air pollution that contributes to the pollution of rainwater, and its transformation into acidic water raises many overlapping problems. It is the availability of human awareness that believes in the necessity of preserving water from pollution.

When the environment is polluted with fertilizers and pesticides and their leakage into the groundwater, the groundwater returns again to release those pollutants on the ground, which make their way from the groundwater to the environment. This type of water pollution can also occur naturally due to the presence of a secondary and unwanted component, impurities in groundwater, in which case it is more likely to be referred to as a chemical or physical change in water quality rather than as pollution. The pollutant often causes a pollutant column to be emitted into the aquifer. Water movement and dispersal within the aquifer spread pollutants over a wider area. The advancing limit, often called the emission edge, can intersect with groundwater wells or with surface water such as seeps and springs, making the water supply unsafe for humans and wildlife. The vertical emission movement, called the vertical emission interface, can be analyzed by a hydrological transport model or a groundwater model. Analysis of groundwater pollution may focus on soil characteristics, in situ geology, hydrogeology, hydrology and the nature of pollutants.

Conclusion

Pollution can occur through sewage systems, landfills, effluents from sewage treatment plants, leaking sewers, petrol filling stations, or from excessive fertilizer use in agriculture. Contamination can also occur from naturally occurring pollutants, such as arsenic or fluoride. The use of polluted groundwater poses risks to public health through poisoning or the spread of disease. Various mechanisms affect the transport of pollutants, such as diffusion, absorption, precipitation and dissolution in groundwater. The interaction of groundwater pollution with surface water is analyzed using hydrological transmission models.

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