Causes of Soil Pollution

1) Microplastics

Microplastics are emerging persistent contaminants of increasing concern. Although microplastics have been extensively detected in aquatic environments, their occurrence in soil ecosystems remains largely unexplored. This review focused on recent progress in analytical methods, pollution characteristics and ecological effects of microplastics in soils. In spite of the presence of microplastics in soils, no standardized methods are available for the quantification.

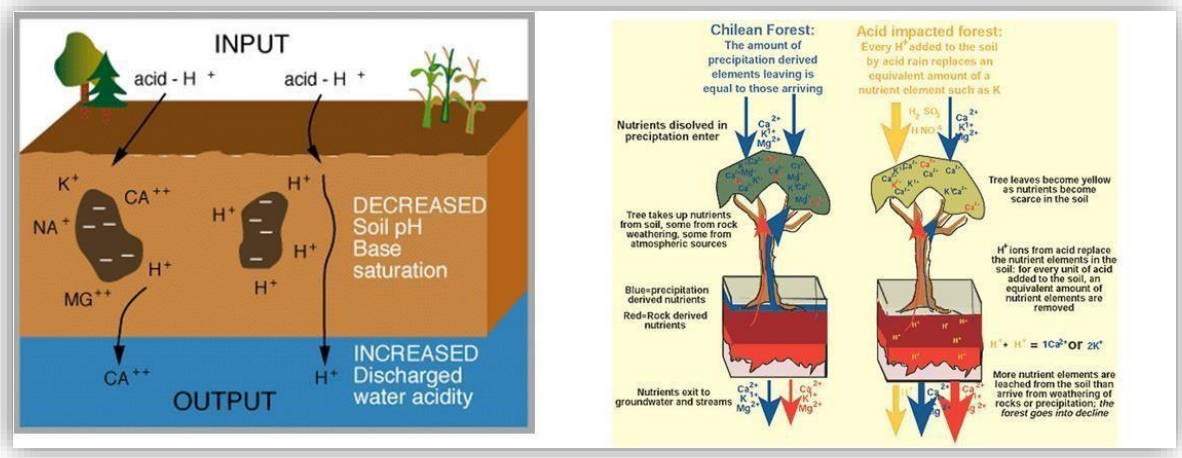
Uniform protocols including microplastic extraction and identification are urgently needed to develop. In soil environments, main sources of microplastics include mulching film, sludge, wastewater irrigation and atmospheric deposition. The fate of microplastics is closely related to soil physio-chemistry and biota. Existing evidence shows that microplastics can influence soil biota at different trophic levels, and even threaten human health through food chains. Therefore, further research is needed to fully reveal the fate and ecological risks of microplastics in soils; and necessary action is required to control microplastic pollution in terrestrial ecosystems.

2) Oil spills

While extracting mineral oil from the oil fields, an oil spill can occur and that crude oil can get mixed with the soil causing **soil pollution**. The chemicals in the mineral oil increase the soil Ph level and reduce the phosphorous concentration of the soil. The basic composition of the soil hence gets changed and the overall temperature rises.

3) Acid rain

Another contributor to soil pollution is acid rain. Acid rain is mainly caused by air pollution. When it rains, the contaminated air will add chemicals to the rain which increases the level of acidity. An increase in acidity will lead to soil pollution and affect the vegetation in an adverse way.



Effects of Acid rain on Soil

4) Intensive farming

Soil fertility is decreased because of **intensive farming** techniques. **Soil** invertebrates are fewer where inorganic fertilizers are used and crop residues are burned. Weed control is more efficient further limiting the range of species of plants and animals. **Intensive farming causes** more nitrate and phosphate **pollution** of surface waters.

5) Waste disposal

Soil pollution occurs due to untreated **disposal** of industrial **wastes** into soil; it has high toxic contaminants, which leads to **soil pollution.**

a) Oil and fuel dumping

Soil contamination can also happen as a result of underground storage tanks rupturing or the leaching of waste from landfills. Mining, fertilizer application, **oil** and **fuel dumping** and a multitude of other environmental issues can also cause **pollution** of the **soil**.

b) <u>Discharge of sewage</u>

Excessive and inefficient use of chemical pesticides can result in severe **soil pollution**. **Sewage** produced in urbanized areas can also contaminate **soil** (if not disposed of correctly). These wastes may also contain several carcinogenic substances. Other forms of waste that can **pollute soil** include nuclear waste, e-waste, and coal ash.

c) <u>Landfill & illegal dumping</u>

The end products of the sewer also end up in **landfills**. Also, cases of **illegal dumping** of chemicals have witnessed disposal of highly poisonous materials in **landfills**. Because these wastes contain toxins and a mix of chemicals, they majorly seep into the land and causes **soil pollution**.

d) <u>Electronic Waste</u>

The **pollution** of **soil**, water, and air by **e-waste** also pose a threat to human beings. **Soil** and water **pollution** can compromise the food chain, leading to a variety of neurological and organ problems. The dioxins released by burning **e-waste** can contribute to numerous health issues.

e) <u>Nuclear wastes</u>

Improper disposal of **radioactive/nuclear waste** can severely contaminate the soil and result in soil pollution. The **radioactive** matter present in this type of **waste** may mix with the components of the **soil**, rendering it highly toxic and infertile. Furthermore, any plants grown in such soils may absorb the **radiation** present in the soil and accumulate it within the bodies. This **radiation** may make its way up the food chain when herbivores consume these plants and carnivores consume those herbivores.

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