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Commentary

Toxic Chemicals Used in the Treatment Process of Drinking Water

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INTRODUCTION

The majority of Indian consumers of drinking water are aware that chemicals are employed in the treatment process to ensure that the water is safe to ingest. However, people may be unaware that the usage of certain of these chemicals, such as chlorine, can result in the development of harmful byproducts that are not regulated.

Chloramine and chlorine are used in drinking water treatment plants to disinfect the water. Chloramine and chlorine both have advantages and disadvantages, according to research. Chlorine is an extremely efficient disinfectant [1].

Waterborne bacteria such as Cryptosporidium, E. coli, Hepatitis A, Giardia intestinalis, and other pathogens can contaminate drinking water sources, causing illness and disease.

Drinking water sources can be contaminated, and disease-causing substances must be removed with proper treatment. To supply safe drinking water to their communities, public drinking water systems employ a variety of water treatment processes. Coagulation and flocculation, sedimentation, filtration, and disinfection are the most frequent procedures in water treatment utilized by community water systems today [2].

The process of removing unwanted chemicals, biological pollutants, suspended particles, and gases from water is known as water purification. The goal is to provide water that is suitable for a variety of uses. Although most water is cleaned and disinfected for drinking purposes, it can also be used for medical, pharmaceutical, chemical, and industrial purposes. Water cleansing has been done in a variety of ways throughout history [3]. Physical procedures like filtration, sedimentation, and distillation are utilized; biological processes like slow sand filters or biologically active carbon are used; and chemical processes like flocculation are used.

Purification of water can reduce the quantity of suspended particles, parasites, bacteria, algae, viruses, and fungi, as well as a variety of dissolved and particulate materials.

The addition of chemicals to aid in the removal of particles floating in water is one of the initial steps in most traditional water purification methods. Clay and silt are examples of inorganic particles, while algae, bacteria, viruses, and protozoa are examples of organic particles. Cloudiness and colour of water are caused by both inorganic and organic particles [4].

A fast sand filter is the most popular form of filter. Water travels vertically through sand, which is frequently covered in an activated carbon or anthracite coal layer. Organic molecules that contribute to flavor and odour are removed by the top layer. Because the distance between sand particles is greater than the distance between the smallest suspended particles, basic filtering is insufficient. The majority of particles pass through the surface layers, however they get stuck in pore spaces or stick to sand particles. Filtration is effective all the way down to the filter's depth. This feature of the filter is critical to its operation: if the top layer of sand blocked all particles, the filter would quickly clog.

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