МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ ЦЕНТР

МАТЕРІАЛИ
X ВСЕУКРАЇНСЬКОЇ НАУКОВО-ПРАКТИЧНОЇ КОНФЕРЕНЦІЇ СТУДЕНТІВ, АСПІРАНТІВ ТА ВИКЛАДАЧІВ ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО ЦЕНТРУ КАФЕДРИ ІНОЗЕМНИХ МОВ

"WITH FOREIGN LANGUAGES TO MUTUAL UNDERSTANDING, BETTER TECHNOLOGIES AND ECOLOGICALLY SAFER ENVIRONMENT"

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Carpathians, Donetsk, Poltava, Kharkiv, Kherson and Chernihiv regions. Hot water, steam and natural mixture of steam can have the best saving potential.

Everyone should feel his responsibility for the environment and our future.

THE STUDY AND ANALYSIS OF VARIOUS WATER PURIFICATION METHODS

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Water has always been an important and life-sustaining drink to humans and is essential for the survival of all known organisms. Though water is available in plenty, in the present day scenario availability of pure drinking water has become a rare commodity that is attributed to a number of known reasons.

One of the most persistent problems affecting people throughout the world is insufficient access to clean water and sanitation. Each year, around 3.6 million people die because of issues related to contaminated water, poor hygiene, and unsanitary conditions. If those households, most at risk could gain access to safe drinking water, more than 2 million lives could be saved.

Thus, we see that our health and our life depend on the purity of drinking water. But how exactly can contaminated water affect the deterioration of our health? Some of the effects of drinking contaminated water can be immediate, or not noticed for many years. These include gastrointestinal and stomach illnesses like: nausea, vomiting, cramps, diarrhea. Many factors affect the possible impact on health such as: the age and general health state of the person, the type of contaminant, the amount, how long the person has been drinking the contaminated water.

Problems with water are expected to get worse in the coming decades, due to the impact of growing industrialisation and urbanisation. It will lead to water scarcity globally, even in regions currently considered water-rich. To address these problems tremendous amount of research has to be conducted in identifying robust new methods of purifying water at lower cost and with less

energy, while at the same time minimizing the use of chemicals and impact on the environment.

Due to greater chances of water contamination in the supply systems, the US Environmental Protection Agency (EPA) is evaluating the use of a number of centralized water treatment concepts as „small system compliance technology" (USEPA, 1998). These include package treatment plants (i.e., factory assembled compact and ready to use water treatment systems), point-of-entry (POE) and point-of-use (POU) treatment units designed to process small amounts of water entering a given unit (e.g. building, office, household, etc.) or a specific tap/faucet within the unit.

Purification of water involves the removal of parasites, bacteria, algae, viruses, fungi, minerals (including toxic metals such as lead, copper, arsenic etc.), and man-made chemical pollutants. Many contaminants can be dangerous, but depending on the quality standards, others are removed to improve the smell, taste, and appearance of water.

According to the North Carolina Cooperative Extension Service, there are four types of contaminants that can enter your drinking supply: microbial pathogens like salmonella and dysentery, organic compounds like pesticides and solvents, inorganic compounds like arsenic and lead, and radioactive elements like radon.

In my work a review of various purification methods is presented beginning with the conventional methods like activated carbon, activated alumina, silica, diatomaceous earth etc. to the latest techniques using nanomaterials, carbon nanotubes and nanocomposites. Break through techniques like thin films, quantum dots and aerogels in the purification of drinking water are mentioned. As each method has its own advantages and limitations in terms of removing contaminants, efficiency and cost effectiveness a blend of techniques is considered to be more beneficial than using a single technique.

So the topic is important and relevant nowadays, as our health and life depend directly on the water, we drink, and water treatment is a vital process to protect our body from pollutants