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# Effect of Chemical Pollution, Bacterial Contamination on Cancer Cells

**Nagham Mahmood Aljamali**

*Professor, Ph.D., Organic Chemistry, Synthetic Chemistry Field, Iraq*

## Abstract

Chemical pollution and bacterial contamination have a significant impact on increasing the spread of cancer cells in the body., Volatile organic compounds are one of the most important outdoor air pollutants, and they are often divided into two categories: methane compounds and non-methane compounds. The methane in methane compounds is one of the greenhouse gases that causes global warming, and non-methane volatile organic compounds cause leukemia. during prolonged exposure. While some other chemical compounds are used as a treatment for cancer by using them as anti-tumors.

***Keywords:*** *Chemical pollution, anticancer, antimicrobial, contamination.*

## Introduction

Chemical pollution and bacterial contamination have a significant impact on increasing the spread of cancer cells in the body., Toxic organic compounds have a toxic effect through the damage that that substance can do to a living organism[1-3], and toxicity may reflect an effect on an entire organism, such as an animal, a specific bacteria[4-6], or a particular plant, and it may represent an effect on parts of that organism such as cells (cytotoxicity) [7-12] Or organs such as the liver (hepatotoxicity), a word used metaphorically to describe toxic effects on larger and more complex groups such as the family or even society. Toxicology is based on the fact that the effects caused by toxins depend on the dose in which it was taken, even water can be toxic and lead to what is known as water poisoning if taken in very high quantities and doses, and in contrast even in highly toxic substances such as snake venom, there is a specific dose that varies depending on the type of poison[13-16], eating less than it does not result in any harmful or toxic effect that can be observed, and as the toxicity of substances varies with their doses, toxicity and its amount differ in different living species and races, which makes the analysis of toxicity across species a real problem, and therefore modern models and standards are being developed to bypass animal experiments. While preserving the concepts of toxicity and associated facts[17-20].

While some of the chemical compounds prepared in research are considered as anti-cancer cells, especially when these chemical compounds are linked with cancer drugs to increase their anti-tumor activity[5-8]. Secondary pollutants are also pollutants that are not directly emitted to the atmosphere, but are formed when primary pollutants interact in the atmosphere, the most important of which are: particles formed from gaseous primary pollutants and compounds found in photochemical smog: ordinary smog

**Corresponding Author:**
**Dr. Nagham Mahmood Aljamali**
Professor, Ph.D., Organic Chemistry, Synthetic Chemistry Field, Iraq
e-mail: dr.nagham_mj@yahoo.com

is formed From a mixture of sulfur dioxide and smog resulting from burning coal. As for modern smog, it results from vehicles and industrial emissions that interact in the atmosphere by sunlight to form secondary pollutants, and when they combine with primary pollutants, photochemical smog is formed. Ground ozone layer: which is formed from nitrogen oxides and volatile organic compounds, and ozone is the main component in the troposphere, and it is an important component[21-23] in the stratosphere known as the ozone layer, and leads chemical reactions, and photochemical reactions accompanying many of the chemical processes that occur in the atmosphere air during the day and night.

**The effect of chemical-metal pollutants on cancer cells:** Natural food pollutants mean any strange natural component present in food and can cause a danger to the health of the consumer, and although it is characterized as the least dangerous source of pollution, it may sometimes cause serious problems for the food product incurring high costs as compensation. Examples of these pollutants are: Contaminants that reach food during growth and harvest, such as stones, dirt, metals, insects and their residues., Contaminants that reach food during the manufacturing and handling process, such as glass residues, bones, metal, wood, electrical wires, grease, rust and paint residues. Contaminants that reach the food during the packaging and distribution process, such as insects, threads, hair, stones and metals. The presence of hair in food - for example - is described as a stigma in many societies. Where the danger arises from that - the hair - may cause shock or even nausea and vomiting, in addition to that it may be contaminated with toxic substances. Hence, opinions about hair in food differ according to the levels of risk that the presence of hair in food poses to the individual consumer. As a result, in many countries, workers in the food industry are required to cover their hair. Also, when people are served food either in a restaurant or a café and find a hair in their food, they are more likely to complain to the responsible[24-28] members. Despite this, it is not an irrefutable case in which the restaurant can be sued in the United States of America, for example, but in Britain it is a violation of the legislation of the British Food Safety Act of 1990, as this was known to cause food poisoning, and therefore individuals who find A hair in their food is to sue the place where this food is served. We note that there are a range of potential reasons for rejecting hair in food, ranging from cultural taboos to the simple fact that hairy food is hard to digest or becomes unpalatable to be eaten. It can also be interpreted as a sign of more worsening health-related problems. This is in addition to the fact that finding such tufts of hair has been proven to have resulted in such pollution incidents. However, at the same time and sometimes, the protein in human hair can be used as a food ingredient, for example in the manufacture of bread or similar products. However, such use of human hair is forbidden in Islamic law. In ancient times, finding poetry among the Jews was considered an indication of misfortune[29-31].

**The effect of chemical pollutants on cancer cells:** Studies have shown that air pollutants associated with traffic movements can cause autism in fetuses and children, and the chemicals in them may pave the way for endocrine malformation and the occurrence of neurological disorders, and other studies have shown that there is a link between exposure to these pollutants and the growth of fetuses, and the size of the head of fetuses in the late months of pregnancy. Low birth weight. We must not forget that poor air quality may cause a defect in the immune system that may cause serious complications such as: an abnormal increase in the serum level of immune globulin. As for the effects of air pollution on the eye, it causes irritation and sometimes may cause dry eye syndrome, and chronic exposure to these Pollutants can also lead to retinopathy[32-34] .

**The Positive effect of Prepared chemical Compounds on cancer cells:** Many of the organic compounds prepared in many researches and studies have shown that these compounds have a positive effect in reducing the spread of cancerous tumors and the glands surrounding the cancerous cell. Therefore, some of these chemical compounds are considered as a drug treatment for many types of cancer, such as breast and throat cancer[5-8].

**Chemical toxic substances:** They include inorganic substances such as lead, mercury, hydrofluoric acid, and chlorine gas, as well as organic compounds such as methanol, most medicines, and toxins from living organisms. While some radioactive substances are also chemical toxic substances, many of these The materials are chemically non-toxic as the results of radiation poisoning are due to exposure to ionizing radiation produced by the radioactive materials rather than chemical reactions with these materials themselves[5-8].

Biological toxicants: These include bacteria and viruses that can cause diseases in living organisms. It is

sometimes difficult to measure biological toxicity because, in theory, a single virus or bacterial cell - or perhaps a parasite or worm - can multiply to cause a very dangerous infection. Biological toxicity depends on the strength of the affected immune system and its ability to deal with the pathogen.

**Physical toxic substances:** are substances that interfere and interfere with biological processes due to their physical nature. Examples include coal dust, asbestos fibers and silicon dioxide granules, and all of these substances, for example, can eventually lead to death if inhaled, corrosive chemicals It has physical toxicity because it destroys tissues, but it is not directly toxic unless it directly interferes with the biological activity of the organism. Water can act as a physical toxin if taken in very high doses because the concentration of vital ions decreases dramatically if there is a lot of water in the body. Not a chemical poisonous gas.

Attention should be paid in particular to the possibility of food contamination with toxic compounds. It may be found in accidental foods and may come to it in different ways[34-36]. Examples of pollutants are:

- Pollutants from burning fossil fuels, radioactive nuclides from fallen or resulting from industrial processes (traces of toxic elements, radioactive nuclides, polycyclic aromatic hydrocarbons, dioxins).
- Components of packaging materials or of highly used products (monitors, stabilizers, polymers, plasticizers, polychlorinated biphenyls, cleaning and washing agents, and disinfectants).
- Toxic metabolites of microorganisms (enterotoxins, mycotoxins).
- Residues of plant protection agents (PPA).
- Remains from the care of farm animals and poultry (veterinary medicines and additives). Toxic food pollutants can be formed within the food itself or within the human digestive system through reactions of some raw materials in food and additives (such as nitrosoamines).

**The effect of Microbial Contamination:** The causes of the harmful activity of these bacteria in the digestive system are due to enterotoxins, which are divided into two groups, exotoxins (toxins secreted from microorganisms into the surrounding environment) and endotoxins (which remain inside the cells of microorganisms and are released when the cells are destroyed). Exotoxins are released mainly by Gram-positive bacteria during their growth. They are composed mostly of highly toxic and antigenic proteins that become active after a quiescent period. This group includes toxins released by Clostridium botulinum (botulin toxin, a neurotoxic globular protein), C. perfringens and Staphylococcus aureus. Poisoning with St. aureus is the most common food poisoning, and its symptoms include vomiting, diarrhea, stomach pain, and its main cause is food of animal origin, meat and its products, poultry, cheese, potato salad, and pastries). The basis of endotoxins from Gram-negative bacteria, which act as antigens and bind tightly to the cell wall of bacteria and are complex in nature, consisting of protein, polysaccharides, and lipids. Endotoxins are relatively stable thermally, and are generally active without requiring an incubation period. The toxins that cause typhoid and paratyphoid, salmonellosis and bacterial dysentery are of this group. Salmonellosis is very dangerous and is an infection with toxins numbering about 300 species: but they are closely related organisms. The infection is characterized by internal fever, gastroenteritis, and salmonellosis septicemia: the sources of infection are different, but they are closely related organisms. The infection is characterized by endogenous fever, gastroenteritis and salmonellosis septicemia: egg products, frozen poultry, ground beef, candy products and coca are sources of infection[37, 38]. The presence of E. coli bacteria first indicates the presence of fecal contamination[39, 40], and this gives special attention. This bacteria introduces an endotoxin strain, a particularly dangerous strain that was discovered in 1983.

## Conclusions

In terms of health risks, air toxic substances are defined as any unusual substance suspended in the air and causing difficulty in performing the normal functions of body organs, and according to the results of one of the many published studies of cancer and tumor research, the main effects on the human body are mainly on the respiratory system, heart, and eyes. It is worth noting that cytotoxicity may cause many cancers in the long run, and on the other hand, a small amount of toxic substances may significantly affect the elderly, children, and those who suffer from respiratory diseases. and the heart.

**Ethical Clearance:** Ethics committee refer that there is no plagiarism and there is no mistakes or wrong results or plagiarism in this work.

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