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A Short Story: Negative Effects of Pesticides on Human Health

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Abstract

Pesticides are commonly used to improve crop productivity but significantly and negatively affect the environment and human health. It leads to many chronic and acute disorders and disturbs multiple organs.

Keywords: Pesticides; Human health; Environment

Abbreviations

DDT: Dichloro Diphenyl Trichloroethanol; OPs: Organophosphates.

Introduction

Naturally occurring or chemically synthesised compounds intended to kill pests, insects, fungi, rodents and disease vectors to enhance crop yield are called pesticides. In ancient times, a wide range of salty and chemical compounds were used to target specific pests until dichloro diphenyl trichloroethanol (DDT) was introduced, which is useful in pest management and crop quality [1]. However, it was replaced by Organophosphates (OPs) and carbamates in the United States in 1975.2 Pesticides are mostly used in the agriculture sector, urban housing society for tree health, in houses to kill mosquitoes (prevention of dengue and malaria) and to maintain building infrastructure (to avoid termites and rodents) [1]. According to FAO, the utilization of pesticides has reached 4.1 million tonnes in 2019. WHO grouped pesticides with their respective toxicity level concerning harmful effects on public health [2]. Pesticides can enter soil, air and water, then into the ecosystem, harming human health and the environment.1 Infants and children are highly vulnerable to the negative effects on their health due to their developing bodies [2].

The human body has direct or indirect contact with pesticides. It can penetrate into the eyes, skin mouth and respiratory tract. The severity of pesticides depends on toxicity level and exposure time The immediate effects of consumption of fruits, vegetables and food products treated with pesticides cause headaches, nausea, sneezing, coughing, diarrhea, rashes and even blindness [1,3]. Long-term exposure can cause severe immune system damage leading to allergies, asthma, and hypersensitivity [4]. This also leads to neurological disorders and affects brain development. Studies have found pesticide residues in the blood of cancer patients, which means that these chemicals are also responsible for breast, brain, and blood cancers, including leukaemia [5]. Prolonged exposure also influences the signalling of hormones and this hormonal disruption causes oxidative stress, badly affecting the male and female reproductive system, thus reducing fertility and causing birth defects [1,3,6,7] Organophosphates (OPs) are well known for their high toxicity and positive association with damaging the nervous system. Whereas carbamates are less hazardous, they are directly responsible for respiratory disorders. Based on global farming community data, nearly 40% of farmers are poisoned by pesticides [2].

Conclusion

The misuse of pesticides has extensively increased in recent years resulting in environmental and human health problems. In light of these, there is a dire need to promote organic and nontoxic pesticide production, awareness and application to reduce all forms of pollution [1]. Furthermore, biological pests should be introduced into crops for sustainable agriculture and to create a healthy environment. Achieving this goal requires effort and collective contribution from scientists, researchers, policymakers and farmers [2].

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