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Study on the cancer by chemical pesticides exposure to pesticide applicators, farm workers and consumers: Urgent need for safer eco-friendly pesticides

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Abstract

To study the effect of chemical toxic pesticides used in agricultural for pest control the maximum risk involved to applicator and handling the chemical pesticides with excess cancer risk. In this study, the epidemiological, molecular biology and toxicological evidence emerging from recent literature which pesticides are responsible for several type of cancer in human beings and other health hazards in environment.

These problems force us to resort to use of refer pesticides. The IPM technology and plant origin as pesticides an environmentally sound alternative to chemical pesticides, diseases, even in climate extremes such as drought, heat waves, flood and storm to increase the particular crop pests.

The new bio-pesticide products that will result from this research will bring with than new regulatory and economic challenges that must be addressed through joint natural scientist, policy makers and industry.

Keywords: Pesticides; Concern; Toxicology; Farming; Epidemiology

1. Introduction

Indiscriminate use of chemical pesticides for public concern about the possible carcinogenicity of pesticides compounds has created a great demand for research in this field by these pesticide chemicals may boost uncontrolled somatic cell division including formation of malignant tumors in carcinogenesis. Study on cancer has been studies for decades to characterize risk, such as environmental factors, chemical agents including pesticides, smoking, alcohol consumption, unhealthy diet, obesity and certain unknown infection (WHO 2018), exposure of pesticides on farm workers for pesticide application on field and storage crops.

Residues of pesticides found variety of everyday foods and beverage, including, cooked meals, water, wine, fruit juices, animal feeds (even mother milk). The pesticides residues cannot completely remove by washing and peeling (14).

Human carcinogens to be identified, several European countries, Sweden, Denmark, the Netherlands and therefore they reduces the use of chemical pesticides (4). The active ingredients of pesticides are a very diverse array of chemical many pesticides structures are very complex and cannot be categorized simply. A convenient classification is based on the targeted pest (eg. herbicides, insecticides, fungicides, nematocides and rodenticides) based on chemical structure.

Chemical pesticides has been associated with health and environment (1,2,7-12) and the duration and type pesticides exposure and contact with the scum, ingestion, or inhalation. The numerous negative health effects dermatological, gastrointestinal, neurological, carcinogenic respiratory, reproductive and evidence effect (1, 2, 8, 10, 14-30).

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1.1. Organochlorin Pesticides

The most common organochlorive pesticide is dichlorodiphenylt richlorothane i.e. the DDT, the highly used of which raised many environmental and human health problems (2, 18, 19). Dieldrin, endosulpah, heptachlor, dicofol and methoxychlor are some other organ chlorines used as pesticides. It is believed that every living organism on Earth has DDT residue in their body mainly stored in the fat (18, 15). It is also carcinogenic action (18).

1.2. Organophosphorus Pesticides

Organophosphates, which are more ecological alternative to organochlorines (18) include other pesticides, glyphosate which is most widely used asheribicide, malathion, parathion and dimethoate. This pesticides has been associated with effects on the function of cholinesterase enzymes (18) decrease in insulin secretion, disruption of normal cellular metabolism of proteins, carbohydrates and fats (14) and effects on mitochondrial function causing cellular oxidative stress and problems to the nervous and endocrine system (19).

1.3. Carbamate pesticides

These pesticides as aldicarb, carpophores and ziram, these are effects on endocrine - disrupting activity (10, 13), reproductive disorders (13, 19) cellular metabolic mechanisms and mitochordial function, neurobehavioral effects (14, 10).

Other chemical pesticides Triazines such as atrazine, simazine and ametryn effects on endocrinedisruption and reproduction toxicity (10, 12, 13) which may also responsible for breast cancer incidence (10).

Recent study, synthetic parathyroid such as fenvalerate, pyrethrum and sumithrin related more than one pyrethorid metabolite to DNA damages in human sperm.

Brest, Lung, Colorectal and prostrat cancers Ntzani et al. (2013) Bojjetta and Desai (2013, 2018) study results for breast, colorectal and lung cancers. Urgent need towards work on safer eco-friendly pesticides for the control of Agriculture pests.

Indiscriminate use of synthetic insecticides is beset with number of problems such as irreversible damage to health, resistance towards insect pests and environmental pollution. These problems force us to resort to use of safer botanical pesticides, a possible way of success in the present context. The rich flora and fauna helps to investigate the Chemistry of natural products, whose pesticidal /insecticidal values could be exploited to control broad spectrum of insect pests. These biodegradable natural products of diversified structures necessitate the synthesis of similar analogues. Enrichment of active principles with a suitable formulation from the natural product offer viable alternative to synthetic pesticides and other biological control agents like nemotodes, parasites, predators, bacteria, fungi and virus will also be conducted.

Structural determination of natural products is of utmost important to study the insecticidal, repellent, antifeedant, disruptant and nematicidal properties of the insect pests besides structural - activity relationship.

Use of botanical pesticides has several advantages for the developing countries in increasing agricultural production.

- This work aims to disseminate IPM technology as an environmentally sound alternative to chemical control pests diseases, even in climate extremes such as drought heat wases, flood and storm to increase the participation crop pests.
- Development of biodegradable natural products will effectively combat target species without damaging the beneficial insects, wild life or man.
- They ensure safety to the environment and public health.
- The development and use of naturally occurring chemicals could become the ideal components of integrated pest management, leading to the reduction of quantum of toxic pesticides.
- They provide basis for developing useful synthetic prototypes, reagents / chemicals by structural modifications and they become agricultural leads in order to maximise the returns on research investment.
- The problems associated with the use of chemical insecticides, such as resistance, toxicity can be eliminated by exploiting easily biodegradable natural products.
- In developing countries, these technologies offer likelihood of success where farmers are resource poor, thus dependence on imported pesticides will be minimised.

The new bio-pesticides products that will result from this research will bring with then new regulatory and economic challenges that must be addressed through joint natural scientists, policy makers and industry.

2. Material and methods

A review of literature, search was focused upon reviews of epidemiologic studies of globally prevalent cancers of Lung, prostate, colorectal, breast and NHL and occupational exposure to pesticides. The search strategy was: (cancer or neoplasm or tumor) and human and (pesticide, herbicide, insecticide fungicide or farm) and meta-analysis, allowing for truncation of words and MESH term. Literature contuses of Natural plant products as pesticides also studies.

3. Discussion

The need for protection against pests in a given and has its roots in antiquity, when both organic and chemical substances were applied as pesticides (146). Since then, numerous chemical pesticides have been produced, and now multinational agrochemical companies, which mostly control global food production, apply new chemical substances with pesticide properties and implement biotechnological advances, thus diverging from traditional agricultural methods. Furthermore, current agricultural practices are based on the wide use of chemical pesticides that have been associated with negative impacts on human health, wildlife, and natural environment (9, 11, 12, 14, 18).

Current agriculture has to deal with important factors, such as population growth, food security, health risks from chemical pesticides, pesticide resistance, degradation of the natural environment, and climate change (14 -15).

4. Conclusion

The new biopesticides that will emerge from this research will create additional regulatory and economic challenges that must be addressed.

Compliance with ethical standards

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