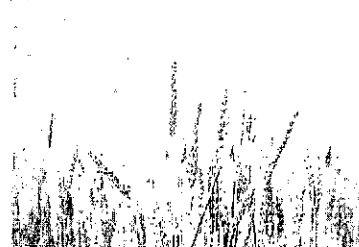
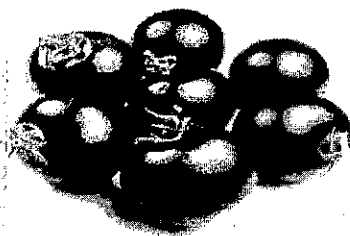


(Ugc Approved, Refereed & Peer Reviewed Research Journal)

Impact Factor 4.62  
(GRFI)

### NATIONAL SEMINAR



EDITOR IN CHIEF  
Dr. Babasaheb M. Gore



Sr. No	Title for Research Paper	Page No
57	A Geographical Survey of Livestock Distribution in Osmanabad District <b>Dr. R. V. Tatipamul</b>	222
58	Status of Ground water Quality in Lohara City, District Osmanabad <b>Dr. V. V. Khadke</b>	226
59	Media in Support of Sustainable Development <b>Dr. Sunil Khandebharad</b>	229
60	Bio-Pesticides: An Alternative to Chemical Pesticides <b>Dr. D. S. Gajhans, Vilas L. Lihinar, Aarti M. Patil</b>	232
61	Management of Soil Biological Quality <b>Dr. Vijayprakash Thombre, Dr. Sangram Kale</b>	237
62	Use of Zinc Solubilizing Bacteria and Zinc Fertilization in Soybean ( <i>Glycine max L.</i> ) <b>S. R. Shelke, Prashanth Madi B., A. G. Durgude</b>	241
63	Problem of Pollution and the Solutions <b>Rajesh Kachru Gaikwad</b>	242
64	Spatio Temporal Changes in Use of Chemical Fertilizers in Maharashtra State <b>Dr. A. T. Doke, V. V. Jadhav, Dr. D. U. Narsale</b>	247
65	Food Security in India - Issues and Implications <b>Dr. Balaji G. Kamble</b>	252
66	Rural Development - A Case Study of Dairy Farmers in Shevgaon Tahsil <b>K. A. Lande, B. G. Rashinkar, Dr. P. H. Maske</b>	256
67	Effects of Chemical Fertilizers and Pesticide to Pollute Ganga River <b>Rekha Daulatrao Alzende</b>	260
68	The Impact of Human Rights on Poverty, Food and Nutrition <b>Dr. Santosh Haribhau Kanse</b>	264

IMPACT FACTOR  
4.62

ISSN 2347-6834

Indo Global Researchers (IGR)

Issue : XI, Vol. I

Nov, 2018 To April 2019

www.irasg.com

Research Paper

60

Bio-Pesticides: An Alternative to Chemical Pesticides

Dr. D. S. Gajhans

Head, Dept. of Geography,  
Ankushrao Tope College,  
Jalna, Dist. Jalna

Vilas L. Lihinar

Research Scholar

Aarti M. Patil

Research Scholar

ABSTRACT

Agriculture is the primary occupation of India, hence, a marketable surplus of agriculture is the most important factor that influences economic development of a country. To enhance agricultural yield to population, Green Revolution came into existence that allowed developing country like India to overcome continual food & scarcity by employing modified farming techniques, modified varieties of seeds and increasing use of chemical fertilizer which was demanded in that period such farming techniques gave optimum production but at the same time, had major impacts on the human health and reviews on use of chemical pesticides and their all over effects. Besides, The aim of the present study is to aware the people, especially farmers for using biopesticides.

Keywords : Chemical pesticides, agriculture biopesticides.

Introduction :

Agriculture is the backbone of Indian economy. Almost 70% of the country's population depends on agriculture as their source of income and livelihood. A goal of agriculture is to meet the present food need of the society with the swells amount of availability for exporting and

future purposes (Narayana Sharma et al. 2017) for increasing agricultural yield and production. The use of pesticides (Mainly chemical Pesticides) has increased. A pesticide is a toxic chemical substance or a mixture of substance of killing agents that are intentionally released into the environment in order to avoid, control, and

and destroy population of pathogenic pests and insects. In the present study, mainly chemical pesticides are discussed as they lay several adverse effects on the environment also describe the quality of food crops.

#### Objective of The Study:-

- 1) To Study the need of using Pesticides
- 2) To Study the literature regarding chemical
- 3) To The Impacts of Chemical Pesticides on Environment and other living Creatures.
- 4) To Study different types of biopesticides in brief.

Using chemical pesticides is a very common practice allowed to for mitigating pathogenic agricultural pests or plant pathogens. The use of pesticides dates back to the times of Ancient Romans where people used to burn sulphur for killing pests and used salts, ashes and bitters for controlling weeds. A Roman naturalist wedged the use of arsenic as an insecticide (History of pesticide use, 1998). In late 1800s] farmers in the USA started using certain chemical such as nicotine sulphate, Calcium arsenate and sulphur for field related pests (Delaphave 2000.) In 1867, an improved form of copper, arsenic was used to control the outbreak of Colorado potato beetle in the USA (History of pesticide use 1998.) The major outbreak in pesticide development occurred in the period around and after world war-II, When several effective and inexpensive pesticides were synthesized. This period is marked by the discovery Aldine, Dichloro diphenyl

trichloro ethane (DDT) in 1939, Dieldrin, Benzene Hexachloride (BHC), 2-4-D. (2,4-Dichlorophenoxy acetic acid, chlordane and Endrin (Jabbar & Mallick, 1994,) Dieldrine, 2000)

The use of pesticides has increased many folds over the past few decades. According to an estimate, about 5.2 billion pounds of pesticides are used worldwide per year. Pesticides are used for wide varied purpose but the present study lies in the frontiers of use of pesticides in agriculture.

#### Benefits of chemical pesticide use :

##### 1. Protection of the Crops :

Worldwide, 40% of the agricultural produce is lost due to plant disease, weeds and collectively. Due to application of chemical pesticides loosed to the field is avoid. If there would have been no pesticides, crop losses would have been many folds greater.

##### 2. Increase In the Yield :

As crops are protected, obviously, there is an increase in agricultural yield considerably

##### 3. Keeping the food prices under control :

If crops are not protected by the disastrous effect of pests, decline in food production would create food shortage that in turn would ultimately results in increased prices of food commodities.

##### 4. Protection against insect Mediated Aflatoxin Contamination :

Aflatoxins are toxic compounds produced by insects. When insects attack on the crops, aflatoxins contaminate agricultural commodities. Aflatoxins are carcinogens that cause, cancer of

liver and other body parts besides, it also lowers the body's immune response and can impair growth and development in children.

#### 5. Contribute to Improved human health :

Through control of rodent and insects vectors, chemical pesticides prevent outbreak of disease in human.

#### 6. Protection to Biodiversity :

Improved agricultural yields help the farmers to produce more food without expanding their agricultural land which consequently protects biodiversity.

#### Risk Associated with chemical pesticide use

##### 1. Effects on non-target species :

About 80.90% of the applied chemical pesticides yet volatilize within a few days of application (Majewski & Capel 1995). It is common and likely to happen while using sprayers. The volatilized particles of pesticides evaporate into the air and subsequently cause harm to non-target organisms such as other plants and animals.

##### 2. Environmental Pollution :

Air, Water and soil bodies get contaminated with these chemicals to toxic levels. In such conditions, when any of the living creatures (e.g. other plants, aquatic, terrestrial), animals, birds, human come in contact, they get severely affected.

##### 3. Bioamplification :

Fat soluble chemical pesticides enter the bodies of animals and get absorbed in their fatty tissues and results in the persistence of pesticide in food chains for extended periods of time. When

pesticides enter into a body of an animal it is in low concentration but as it enters the food chain and transfers to a higher level, the pesticide concentration increases many folds in its body. This is known as bioamplification and it disrupts the whole ecosystem (pesticide reduce biodiversity 2010)

#### 4. Threat to Biodiversity :

Pesticide contaminated water lowers the dissolved oxygen levels in water that leads to suffocation and death of fishes that causes reduction in fish productivity (Helfrich et al., 2009). Bioaccumulation of pesticides is of great concern as it directly affects the predators and raptors. Indirectly pesticides can also reduce the quality of wetlands, shrubs and insects on which higher orders feed. Spraying of insecticides, herbicides and fungicides have also been linked to declines in the population of rare species of animals and birds (Pesticide reduce biodiversity 2010)

#### Impact of Human Health :

Long term and indiscriminate use of chemical pesticides has resulted in serious health problems. About 2.2 Million people, mainly belonging to developing countries are at high risk of exposure to pesticides (Hicks 2013). Besides, some people are more susceptible to the toxic effect of pesticides than others such as infants, young children, farm workers and pesticide applicators. Pesticides enter the human body through ingestion, inhalation or penetration via skin (Sper, 1991) & after crossing several barriers they ultimately reach human tissues or storage compartments (Hayo & Werf 1996). In some cases, it remains through absorption in the

circulatory system (Jabbar and Mallic 1994) Toxic effects are produced when the pesticide concentration in the body increases for more than its initial concentration in the environment (Hayo and Werf 1996)

Acute or immediate effect of pesticide exposure include headache, of eyes and skin, irritation of nose, throat, skin-reshes, blisters, dizziness, diarrhoea, abdominal pain, nausea and vomiting etc. Rarely leads to death. Chronic or long term effect of chemical pesticides are often lethal and leads to death. Long term effect cause damage to multiple body organs which includes neurological damage such as loss of coordination and memory, reduced vision & motor signaling (Lah 2011). It is also reported to damage the immune system (culcineyetal 1992) and can cause hypersensitivity, asthma and allergies.

Pesticides have also been associated with various cancers, such as leukemia, brain cancer, cancer of breast, ovaries, prostate, testes, etc chemical pesticides also reported to cause damages to liver, lungs, kidneys and may cause blood diseases.

Chemical pesticides promise the effective mitigation of harmful pests but unfortunately the risk associated with their use have surpassed their beneficial effects. Nonselective pesticides kill non target plants and animals along with the targeted ones. Moreover, most of the pests also develop genetic resistance to chemical pesticides due to the continuous and long term use of pesticides and even their price/costs. are also higher so, using synthetic pesticides creates a big question. people

are in a dilemma to either sacrifice a significant share of their crops to pests or use, highly toxic pesticides that can harm human health and the environment. To avoid this problem, it is necessary to switch toward other alternatives that are ecofriendly, as well as biotically safe and effective. such approaches led to the researches toward biopesticides.

#### **Biopesticides :-**

Biopesticides are the chemicals extracted from natural materials such as plants, animals, bacteria or certain minerals and these chemicals can be used for controlling pests. Development of new and useful biopesticides has continued to increase rapidly since the mid - 1990s more than 100 biopesticide. active ingredients have been registered in the U.S since 1995 and they are highly demanded. Biopesticides are of Different types depending on the living organism involved :-

#### **1. Microbial pesticide -**

It involves microbes such as bacterium, fungus, virus, protozoan. Various Trichoderma species and others are used as microbial fungicides. There type of fungi and bacteria show antagonism and reported to inhibit/cob at pathogenic fungi and bacteria.

#### **2. Plant extracts :-**

Are also used as biopesticides. Many of the plant extracts are reported to show antimicrobial activity. It may be due to various novel, bioactive Phytochemicals present in the plant. Plants are widely used as antimicrobials in agricultural practices at commercial level all over the world.

3. (PIP)

plants pr  
added to  
into th  
Recoml  
plant in  
desired  
Conch

biopest  
target :  
and m  
decorr  
pests c  
concl  
biope:  
it mu  
biope

Refi

1.

2.