

## Pesticides Safe Usage, Hazards, Antidotes and Treatment Methods

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### Abstract

Need of the study is that world health organization estimates that 300,000 people die from self-harm each year in the Asia-Pacific region alone. Most cases of intentional pesticide poisoning appear to be impulsive acts undertaken during stressful events, and the availability of pesticides strongly influences the incidence of self-poisoning. Pesticides are the agents most frequently used by farmers and students in India to commit suicide. Most recent gauge by a WHO task assemble shows that there might be 1 million genuine inadvertent poisonings every year and also 2 million individuals hospitalized for suicide endeavors with pesticides. This essentially reflects just a small amount of the genuine issue. Based on a study of self-announced minor harming did in the Asian district, it is assessed that there could be upwards of 25 million farming specialists in the creating scene enduring a scene of harming each year." In China, an expected half million individuals are harmed by pesticides every year, 500 of whom die. In long term side effect of pesticides are Cancer, neurological problem and other reproductive problems which are occurring frequently. The purpose of this study provided information about type of pesticides, Safety Measure that should have to be adopting before, during and after application of Pesticides, methods by which we can reduce chances of toxicity to humans and treatments to cure human toxicity due to all pesticides groups are described in detail.

**Keywords:** Pesticides; Safe; Usage; Hazards; Antidote; Treatments

### Introduction

Poisons which are used for protection of plants and other agricultural crops are divided into following groups, Insecticides The poisons which are used to kill insects For Example Sulfoxaflor, Abamectin, Trichlorfon, Profenofos, Spinetoram, Fenbutatin Oxide, Nitenpyram, Fipronil, Buprofezin, Emamectin Benzoate, Lufenuron etc. Nematicides These poisons are used to kill nematodes For Example Oxamyl, Thionazin, Methyl bromide, Fenamiphos, Aldoxycarb, Terbufos, Metam-sodium etc. Miticides Poisons which are used to kill spiders and mites For Example Shuttle O, Floramite SC, Pylon, TetraSan 5 WDG etc. Rodenticides Poisons which are used to kill rats For Example Zinc phosphide and Phosphine Gas. Fungicides Poisons which are used to cure diseases that are caused by some fungi attack For Example Copper Oxychloride, Chlorothalonil, Mancozeb, Fenbuconazole, Thiophanate Methyl, Tebuconazole etc. Weedicides Poisons which are used to kill or helpful in removal of weeds from Desire Agricultural land For Example Pendimethlin, Quizalofop-p-ethyl, Tribenuron-methyl, Acetochlor, Isoproturon, Metribuzin, Butachlor, Lactofen, Paraquat, Haloxyfop-R-Methyl etc. Seed dresser These Poisons are helpful to remove any kind of ger-

ms from seeds For Example 1% KCL Solution, 1% KH<sub>2</sub>PO<sub>4</sub>, MnSO<sub>4</sub>, ZnSO<sub>4</sub>, MgSO<sub>4</sub> etc.

### Safe usage of Pesticides

Safety measure are divided into following three steps for Pesticides

1. Safety measures Before usage
2. Safety measures During usage
3. Safety measures After usage

### Safety measures before usage

Nobody allowed going near to pesticides until he or she does not know about Harms of pesticides. Before Application of pesticides ensure the Donning of personal protection Equipment like goggles, Launderable coveralls, Hats, respirator etc. Do not use a washed pump because Due to usage of this pump previous pesticides residues can chemically react with current pesticide and desired result cannot be obtained. Pesticides bottles and container kept away from daily living and kitchens because poisonous vapors can contaminate food through air. Injure person are not allowed for

Application of pesticides because it can increase the chances of injury to living tissues.

### Safety measures during usage

For Application of high poisonous pesticides availability of two people in field is compulsory So that in case of any Accident first Aid can be provided. If the nozzle blocked during pesticide Application, do not whiff in nozzle to remove blockage instead of that iron wire can be used for this purpose. Do not eat, drink or smoking during pesticides application. Application of pesticides should be done at the time of Dawn or dusk. Do not apply pesticides at the time of hard sun shine, rain and high wind flow.

### Safety measures after usage

Wash spray machine After Application of pesticides at separate place and be care full about that waste water does not allow draining into other Agricultural fields. Empty bottles or container should be burnt or buried into depth of soil. Doffing the personal protection equipment's and Take a bath with good quality soap. Place a Sign board of relative pesticide Application in front of field.

### Hazards

Chances or risk of toxicity due to some kind of poisons are known as Hazards. Pesticides Hazards are depend upon two major factors Toxicity and exposure. Toxicity is ability of pesticide to cause injury higher toxicity cause greater hazards and lower toxicity cause lower Hazard. Exposure is risk of pesticide enter into body higher Exposure cause greater hazards and lower Exposure cause lower Hazard. High toxicity has alow exposure risk and low toxicity has high exposure risk. Chances of hazard increases when mixing and loading the concentrate, with a very high single exposure and after many exposures over time. Hazards can be minimizing by usage of low toxic pesticides and wearing personal protective equipments. Toxicity due to pesticides is of following Types.

### Contact poisoning

Most common form of pesticides poisoning is through Contact poisoning. Direct contact of poison to skin cause itching, redness, rashes small bubble on skin filled with Serum caused by friction. Contact of Pesticides with Eyes cause swelling, wounding and burning of eyes. In case of Nose, Mouth and throat Irritation is caused by typical herbicides and fungicides.

### Systematic poisoning

This type of poisoning is mostly caused by Insecticides and Rodenticides. Most of insecticides and Rodenticides attack on nervous system and Circulatory system respectively. Insecticides Symptoms are nausea, vomiting, Diarrhea, headache, dizziness, weakness, excessive sweating, tearing, chills, thirst, chest pain, breathing difficulty, body aches and sudden involuntary muscle contraction. Rodenticides Symptoms are presence of red blood cells in urine and passage of blood through anus.

### First aid

Help given to sick or injured person until full medical treatment is Available is known as First Aid. It consist on following in case of pesticide exposures Firstly Remove contaminated clothing, wash skin, gently dry and loosely cover. Secondly In case of eyes exposure, wash across eyes for 15 minutes. And in last If pesticide is inhaled then get victim to fresh Air and laid Down and If pesticide is ingested then give activated charcoal in water to induce vomiting.

### Antidote for insecticides

Insecticides are divided into further groups so that they can easily distinguish from each other. Insecticides are divided in to Organochlorines, Organophosphate Atropine, Carbamates, Pyrethroids, Cartap, Aluminium Phosphide, Naturalyte, Oxadiazine and Phenyl Parazole. Antidote for Organochlorines is taking place 10mg of diazepam into veins. Dose of Diazepam can be reciprocated suitable 30-40 mg. Antidote for Organophosphate Atropine is 5% solution of infusion at the rate of 0.5g per hour is very effective till patient can be cure. Antidote for Carbamates is used of Atropine at the rate of 2-4 mg within vein and physiological condition of being under the influence of atropine for 24-48 hours so, that patient comes out of danger. Antidote for Pyrethroids is used of pentobarbitone in any vein at the rate of 0.7 g per day until poisoning has been cured. In Case of Cartap Dimercaprol can be used as antidote at the rate of 3-4 mg per Kilogram of body weight in intra muscles after every four hours for a period of two days and after that 2 times a day for next ten days can be used. Insecticides belong to Naturalyte, Oxadiazine and Phenyl Parazole groups have not any specific remedy the poisonous that occur due to following groups of insecticides are cure accordingly to Emblematic.

### Antidote for Fungicides

Fungicides are further divided into Carbendazim, Streptocycline, Copper Oxychloride, Edifenphos, Iprobenphos, methoxy Ethyl, Mancozeb, Ridomil (64% mancozeb+ 8% metalaxyl), Triadimifon, Dinocap, Carboxin, Captan, Cholrothalonil, Propiconazole and Wetable Sulphur. Antidote for Carbendazim first gives test dose of Atropine at the rate of 2-4 mg. if no response has been notice against this dose, then repeat this dose after every 10 minutes. Antidote for Streptocycline is Injection of Cortisone, Adrenalin and antihistamine is given for intense degree of poisoning. Antidote for Copper Oxychloride is given of Dimercaprol dose of 3-4 mg per kilogram of body weight. At early stage 3ml is injected deep between muscles for two days and then double amount of dose for next ten days. Antidote for Edifenphos is 2 mg of Atropine is injected in veins if no desire result are obtained then twice dose can be given after every ten minutes. Antidote for Iprobenphos is 5% dextrose solution in veins is given within 5-6 minutes. Saline drip of 150ml is also effective after every half hour for muscles twitching. Antidote for Fungicides belong to Methoxy Ethyl groups is usage of 1-4 gram sodium citrate after every 4 hours for speedy

cure. For involuntary muscular contraction 10% calcium gluconate is injected in veins. Antidote for Mancozeb is usage of 0.2 gram of vitamin C in veins per minute. Ridomil contains 8% metalaxyl and 64% mancozeb, there is no specific Antidote for metalaxyl and for Mancozeb vitamin C can used as Antidote @0.2 gram. In case of Triadimifon no specific Antidote is available only empty stomach of toxic substances with the help of Sodium bicarbonate. Toxicity of Dinocap can easily covered, for this purpose no specific chemical is Available as Antidote firstly empty stomach from toxic substances then give 15 gram of sodium Sulphate in 0.5 liter water. No specific antidote for Carboxin, Cholrothalonil and Propiconazole treatment of patient is done According to Symptoms. if Captan is cannibalizes than vomiting should be done by given of a spoon of salt in Hot Water. Wetable sulphur can also kick up Irritation and swelling if it is gone into eyes, to cure patient in this case wash eyes for minutes with fresh water.

Antidote for herbicides

In Agricultural fields most of Hazards of Herbicides are caused by Anilophos Atropine, Glyphostae, Isoproturon and Paraquat. Anilophos Atropine toxicity cause dry mouth, blurred vision, nausea, dizziness and cause rashes on skin. To cure the patient first wash stomach with the help of 5% sodium bicarbonate then give 5% solution of dextrose in veins. Glyphostae toxicity cause skin allergies, eyes irritation, respiratory Problems and can even cause death. In case of Glyphostae ingestion immediately consume milk or some water by patient. in case of Isoproturon toxicity is cure by washing eyes and skin with soap and water. Paraquat toxicity cause lung hyper calcemia, respiratory problems and even death can occur to cure the patient vomiting is induce so that poison is removed for stomach with the help of 30% water suspension in sodium sulphate.

Antidote for rodenticides

Rodenticides are divided into Zinc phosphide, coumatetrayl, Bromadionione. In case of Rodenticides toxicity to Humans, try to maintain the pulse rate at the rate of 110 per minute and give vitamin K to the patient under supervision of medical experts [1-7].

Conclusion

In main aim of the study is to familiar all the persons Around the globe about Types of pesticides, Safety Measured during pesticides handling, hazard and its types, first Aid to cure toxicity and treatments which we can used to overcome the effects of toxicity due to pesticides various groups Such as insecticides, fungicides, herbicides and Rodenticides. Antidote and method of antidote treatment is described further by dividing these groups in to further sub groups.

Caution

All antidotes should be used in against toxicity of certain groups of pesticides in the presence of medical Physicians or some responsible Authority of National Poison control center.

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