

PESTICIDES ARE TOXINS; SO ARE MEDICINES & FOOD

Muskan

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toxic if you ingest enough. It's the right dose that differentiates a poison from remedy”. He demonstrated the toxic effects of substances through dose- response relationship.

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WHERE INDIA FIGURES (\$ BILLION)

Toxicity of some pesticides, as could be seen from the table, ranks far below common medicines, chocolates, salt and water!



What would shock many people is the water toxicity! Acute water intoxication is medically termed “hyponatraemia”. Hypo means below and natrium in Latin means sodium (salt). Hyponatraemia refers to a condition of abnormally low concentration of sodium (salt) in blood plasma. Over-hydration from excessive water intake provokes disturbance in electrolyte imbalance leading to rapid decrease in serum sodium concentration and eventual death.

As Paracelsus, the father of toxicology said it's the right dose that differentiates a poison from remedy. Warfarin is a medicine, used as a blood thinner and an oral anticoagulant to treat blood clots in humans. At high doses, it is used as rat poison!

The term “drug overdose” describes ingestion of a drug/medicine in quantities greater than recommended. Across the USA, more Americans die every year from drug overdose than from motor vehicle crashes. In 2014, drug overdose killed 47055 people according to US Centers for Diseases Control and Prevention. Between 2001 and 2014, the number of deaths from prescription drugs soared from less than 10,000 to over 25,000 in the USA.

Paracetamol, the popular human drug used for managing fever can be lethal if sufficient quantities are ingested. A recent experiment conducted in India by SavitaMarmat et al of School of Studies in Zoology & Biotechnology, Vikram University, Ujjaini, Madhya Pradesh showed that paracetamol injection @2mg/kg was lethal to broiler chicks resulting in 100%

mortality within 24 hrs.

Metronidazole, a drug of choice for treatment of amoebiasis and anaerobic bacterial infection has been classified as a “possible carcinogen” (at par with Potassium bromate, the bread additive maligned in the media) by the International Agency for Cancer Research (IARC).

All these factual information should trigger objective thinking and in the process help shedding irrational fears about pesticides. Of course, it is going to be a long process.

In early 1960s when Ms. Rachel Carson published her sensational fable “Silent Spring”, Edwin Diamond, professor at MIT and science writer of News week magazine countered it with a master piece “The Myths of the Pesticide Menace”. Fifty years later, the myths about pesticides do persist. We need to work towards developing scientific literacy for creating a well-informed society

PRODUCTION AND USAGE OF PESTICIDES IN INDIA

The production of pesticides started in India in 1952 with the establishment of a plant for the production of BHC near Calcutta, and India is now the second largest manufacturer of pesticides in Asia after China and ranks twelfth globally. There has been a steady growth in the production of technical grade pesticides in India. The pattern of pesticide usage in India is different from that for the world in general.



BENEFITS OF PESTICIDES

The primary benefits are the consequences of the pesticides’ effects – the direct gains expected from their use. For example the effect of killing caterpillars feeding on the crop brings the primary benefit of higher yields and better quality of cabbage. The three main effects result in 26 primary benefits ranging from protection of recreational turf to saved human lives. The secondary benefits are the less immediate or less obvious benefits that result from the primary benefits.

HAZARDS OF PESTICIDES

DIRECT IMPACT ON HUMANS

If the credits of pesticides include enhanced economic potential in terms of increased production of food and fiber, and amelioration of vector-borne diseases, then their debits have resulted in serious health implications to man and his environment. There is now overwhelming evidence that some of these chemicals do pose a potential risk to humans and other life forms and unwanted side effects to the environment.

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