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Water Pollution with Special Reference to Pesticide Contamination in India

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ABSTRACT

The pesticides belong to a category of chemicals used worldwide as herbicides, insecticides, fungicides, rodenticides, molluscicides, nematicides, and plant growth regulators in order to control weeds, pests and diseases in crops as well as for health care of humans and animals. The positive aspect of application of pesticides renders enhanced crop/food productivity and drastic reduction of vector-borne diseases. However, their unregulated and indiscriminate applications have raised serious concerns about the entire environment in general and the health of humans, birds and animals in particular. Despite ban on application of some of the environmentally persistent and least biodegradable pesticides (like organochlorines) in many countries, their use is ever on rise. Pesticides cause serious health hazards to living systems because of their rapid fat solu-bility and bioaccumulation in non-target organisms. Even at low concentration, pesticides may exert several adverse effects, which could be monitored at biochemical, molecular or behavioral levels. The factors af-fecting water pollution with pesticides and their residues include drainage, rainfall, microbial activity, soil temperature, treatment surface, application rate as well as the solubility, mobility and half life of pesticides. In India organochlorine insecticides such as DDT and HCH constitute more than 70% of the pesticides used at present. Reports from Delhi, Bhopal and other cities and some rural areas have indicated presence of sig-nificant level of pesticides in fresh water systems as well as bottled drinking mineral water samples. The ef-fects of pesticides pollution in riverine systems and drinking water in India has been discussed in this review.

KEYWORDS

Pesticides, Pollution, Water, Riverine Systems, Toxicity, Management

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