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Impact of heavy metals and pesticides residues on animal health

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Abstract

Rapid industrial development and injudicious use of heavy metals, pesticides and other agrochemicals has resulted into widespread contamination of the environment. Animals are often exposed to high levels of these toxicants, which are hazardous to their health. Toxic effects may vary from subtle or chronic intoxication to overt acute toxicities. Subtle or chronic effects appear more important and include immunotoxicity, cognitive and behavioral changes, teratogenicity, endocrine disruption, infertility etc. Toxicity of different pesticides and heavy metals are widely studied and well documented in experimental animals, though studies reporting toxic effects in livestock and wild animals under natural conditions are sporadic. However, poor reproduction and production potential, increased susceptibility to various infectious diseases and poor response to treatment are some general effects that can be linked with environmental pollution. Alarmingly high level of various pesticides has been detected in blood of human and domestic animals in various states of India including Punjab. Presence of heavy metals in groundwater is reported in more than 40 districts from 13 states of India. Concurrent exposure of heavy metals and pesticides, common phenomenon under natural conditions, often potentiates toxic effects of each other. Of late, interaction between fluoride, uranium, arsenic and pesticides has been reported to be responsible for very high prevalence of cancer in human being living in south-western districts of Punjab, India. Unfortunately, incidence of cancer in domestic animals has not been investigated so far, though low production and reproduction potential of animals in the area is well known.

Biography

Sarnarinder Randhawa has completed his Ph.D at the age of 38 years from C.S.A. University of Agriculture and Technology, Kanpur, India. He is the Director of Research cum Dean, Postgraduate Studies of Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, a premier veterinary university of India. He has published more than 212 original research papers in referred international and national journals; visited U.S.A., Canada, Brazil, Italy and France for presentation of research papers in the past and to learn animal health programmes. He is fellow of five National Academies and Scientific Societies and has a professional experience of more than 30 years in veterinary sciences.