

Pesticide use and health risk assessment in drought prone area of Maharashtra

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SUMMARY: The organochlorine compounds are manufactured since 1940 for use as pesticides. It is known that organochlorine insecticides easily accumulate and persist in living system. They are prepared commercially for use in the different fields in the form of dust, spray, liquids and wettable powder, which are generally used as individuals and also in combination with other pesticides. Their extensive use during 1940-1970s revolutionized modern agriculture, which interns increased the output of crops. However, they are not safe for house hold applications as they persist in the environment for large duration after their initial use. The organochlorine, organophosphorus, pyrethroids etc. pesticides are widely used in agriculture. Their applications and usage have increased tremendously in the few last decade. Drought prone area of Maharashtra state (India) is famous for pomegranate and horticultural activities. To control crop pest and to improve crop yield, various kinds of pesticides and fertilizers were applied on large scale. Especially the use of organochlorine pesticide is banned by many country because of their bioaccumulative properties in aquatic organisms and human health hazards, still they were used in drought prone area. By considering these aspects present study was conducted to study health risk assessment, pesticides use and practices in drought prone area of Maharashtra (India).

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The production of pesticides started in India in 1952 with the estimate 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 (Mathur, 1999). The term pesticides covers a wide range of chemical compounds including insecticides, fungicides, herbicides, rodenticides, molluscicides, plant growth regulators etc. Among these, organochlorine insecticides used for controlling a numbers of were banned or restricted after 1960s in most of the advanced countries because of harm to wild life and their bio-accumulative properties.

In India agriculture is the backbone of the economy and contributes 18 per cent of GDP and nearly 65 per cent of the workforce derives livelihood from agriculture. A vast majority of the population in India (56.6%) are engaged in agricultural and are therefore, exposed to the

pesticides used in the agricultural fields. (Anonymous, 2002). During Green Revolution high yielding variety of various crops were introduced in to farming system to increase productivity. These varieties were found to be more susceptible to plant pests and diseases which ultimately reflected to intense use of pesticides. Indiscriminate use of pesticides have recently become a matter of public concern in India. Pesticide hazard to producer, agricultural labour and farm workers in a highly unsafe environment who are directly or indirectly exposed to pesticides. The pesticides infest humans through various routes of exposure such as inhalation, ingestion and skin contact. Exposure to pesticide results in acute and chronic health problem. like eye irritation, excessive salivation, headache and chronic disease like cancer, reproductive and developmental disorders, etc. (Yassi *et al.*, 2001).

Pesticides are largely applied by landowner,

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