

Lactational Exposure to Pesticides: A Review

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Directory of Open Access Journal and PubMed. Articles and texts were collected based on the following key words: organochlorine, organophosphorus, pyrethroids, carbamate pesticides, residue, and breast milk.

Results

Lactational exposure to pesticides

The purpose of using pesticides is to control insect and animal vectors of human diseases and to increase agricultural productivity. In

using pesticides, the benefits must be weighed against their effects on human health, biological interactions with non-target species, pesticide resistance, and alterations to and/or accumulation of pesticide in the environment. Many pesticides can be grouped into chemical families. Prominent pesticide families include chlorinated hydrocarbons, organophosphorus compounds, carbamates and synthetic pyrethroids. Table 1 summarizes the findings.

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district, Uttar Pradesh and separately screened for OPPs Srivastava et al. [34]. Frequency percentage (N%) of organophosphates analyzed was highest for ethion (23.1% or 6/26) in colostrum and chlorpyrifos (50% or 4/8) in mature milk samples. Frequency percentage in colostrum was 19.2% (5/26) for chlorpyrifos and 3.8% (1/26) for dimethoate, 25.0% (2/8) mature milk samples carried dimethoate and 12.5% (1/8) carried ethion. median concentrations of dimethoate, ethion and chlorpyrifos were 85.888, 48.000 and 4.003 ng/g milk lipid in colostrum, respectively. values were 26.752, 744.925 and 37.274 ng/g milk lipid in mature milk, respectively. None of the samples exceeded acceptable daily intake standards set by Joint Meeting on Pesticide Residues (JMPR). Chlorpyrifos present in milk has been reported time in India by Bedi and his associates Bedi et al. [6] An another study by Sharma et al. [35] determined that the concentrations of OPPs in human breast milk from the same region

Punjab, India. Profenophos, chlorpyrifos, monocrotophos, and phosalone were detected with the mean levels of 2.66, 1.91, 1.63 and 0.29 ng/g milk lipid, respectively. It was observed that the residue levels were decreasing with increase in parity and age of mother. In Sri Lanka, Samarawickrema et al. [36] detected dimethoate in sample collected from human breast milk in a rural farming community during spray season. median concentration of dimethoate in milk was >50 µg/l. In USA, human milk samples from women residing in the agricultural region of Salinas and the urban San Francisco Bay Area in California were collected from 2002-2007 for pesticide residue analysis Weldon et al. [25]. median concentrations of chlorpyrifos and chlorpyrifos-methyl were 24.5 and 4.02 pg/g milk lipid, respectively among urban women. However, the median level of chlorpyrifos in agricultural women was 28 pg/g milk lipid.

Compounds	Country	Amounts and Reference
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WŪŒ		FĒĒĒFĒG J } *ḏ* { ð\ ð]iâ W^ â[] ^c æĒ ĴGĪ }
ŌŌV	WS	ĒĒĒĒ Ī μ*ḏ* { ð\ ð]iâ Pæ!iâ• ^c æĒ ĴFI }
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	Ræ]æ}	HIF μ* ⁰ * {ə\ i]iâÉ Þæ*æ^æ {æ ^c æ É ŽFÎ]
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	WS	€É€Í€ μ* ⁰ * {ə\ i]iâÉ Pæ!iæ• ^c æ É ŽFÍ]
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	WS	€É€GÍ μ* ⁰ * {ə\ i]iâÉ Pæ!iæ• ^c æ É ŽFÍ]
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induced testicular and spermatotoxic in rats may be due to the transfer of carbofuran or its metabolites through mother's milk.

Synthetic pyrethroids

Pyrethroids are a group of man-made pesticides similar to the natural pesticide pyrethrum, which is produced by *Chrysanthemum*

Pyrethroids constitute the majority of commercial household insecticides. It is an assumption that pyrethroid pesticides are

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