Appendix IV

The first abstract in this appendix is that of a pesticide-industry funded research project. It has been quoted by the pesticide industry in public forums while the papers presented in Appendix II and III are almost always ignored. It should also be pointed out that d-phenothrin is only one of many chemical isomers that make up the commercial Sumithrin formulation and that Sumithrin itself was not tested. Finally, the Hershberger assay used by these investigators has failed to yield positive results with well characterized estrogenic compounds like bisphenol-A. The definitive characterization of estrogenic compounds is dependent on the use of more than one assay and from more than one laboratory.

The last two articles in the appendix should not be ignored by any institution, agency, or organization in the field of public health when dealing with the issue of ever increasing chemical pollution and ever increasing cancer incidences (especially in tissues most affected by xenobiotics). In appendix I it is evident from the SEER database that the incidence of childhood cancer has increased significantaly since 1973. This is an especially strong indicator of the ever increasing levels of mutagen in the environment.

1: Toxicology. 2003 Apr 22;186(3):227-39. Related Articles, Links

Lack of estrogenic or (anti-)androgenic effects of d-phenothrin in the uterotrophic and Hershberger assays.

Yamada T, Ueda S, Yoshioka K, Kawamura S, Seki T, Okuno Y, Mikami N.

Environmental Health Science Laboratory, Sumitomo Chemical Company Ltd, 3-1-98 Kasugade-naka, Konohana-ku, Osaka 554-8558, Japan.
yamadat8@sc.sumitomo-chem.co.jp

Synthetic pyrethroids are among the most common insecticides and pesticides currently in use worldwide. Recently, d-phenothrin, a synthetic pyrethroid, is suspected to have endocrine activities through the estrogen and androgen receptors. However, no study has been conducted to evaluate its potential for hormonal activity using an in vivo test specifically focused on estrogenic and androgenic activities. In this study, we evaluated the interaction of d-phenothrin (0, 100, 300 or 1000 mg/kg per day, p.o.) with estrogen- or androgen-mediated mechanisms using in vivo short-term assays. While internationally standardized protocols for the uterotrophic and Hershberger assays have not yet been fully developed, both are widely used and are being considered by the OECD as short-term screening assays for hormonal activity. The highest dose level tested for d-phenothrin was a limit dose (1000 mg/kg per day) designated in the current draft protocol by the OECD, and in fact there was no excessive systemic toxicity in both assays; slightly increased liver weight but no change of serum androgen levels in accessing anti-androgenicity. Potential estrogenic effect of d-phenothrin was evaluated by means of 3-day uterotrophic assay using immature Crj:CD(SD)IGS rats (20 days of age). No increase in uterine weight (wet or blotted) was observed following oral exposure to d-phenothrin. Reference control ethynyl estradiol (0.001 mg/kg per day) showed a significant effect in this assay protocol. A 10-day Hershberger assay using castrated peripubertal male rats measures the androgenic or anti-androgenic effects of the test chemicals on several accessory glands/tissues (the ventral prostate, dorso-lateral prostate, seminal vesicles with coagulating glands, levator ani plus bulbocavernosus muscles, glans penis and Cowper's glands). d-Phenothrin was administered by oral gavage for 10 days to castrated male Crj:CD(SD)IGS rats (7 weeks of age, rats were castrated at 6 weeks of age) with or without

d-phenothrin is one of many isomers in the Sumithrin formula

co-administration of 0.2 mg/kg per day testosterone propionate (subcutaneous injection on the dorsal surface). Reference controls of methyltestosterone and p,p'-DDE (100 mg/kg per day) provided significant effects in this assay protocol, whereas d-phenothrin did not show any androgenic or anti-androgenic effects. It is concluded that, based on the results of these two reliable in vivo assays, d-phenothrin exhibits no potential to cause adverse estrogenic or (anti-)androgenic effects even at dose of 1000 mg/kg per day, the limit dose designated in the current draft protocol by the OECD.

PMID: 12628315 [PubMed - indexed for MEDLINE]

EPA Says Children May Be Vulnerable than Adults to Carcinogens

March 30, 2005 — By John Heilprin, Associated Press

WASHINGTON — Children may be more vulnerable than adults to cancer risks from certain gene-damaging chemicals, the Environmental Protection Agency said Tuesday.

The agency has updated the way it decides which pollutants pose cancer risks, which is intended to lead to better and more accurate reviews of carcinogens that might be regulated.

Under the previous EPA guidelines, last revised in 1986, cancer risks to children were assumed to be no greater than to similarly exposed adults.

In the first such update in nearly 20 years, the EPA said children 2 years old and younger might be 10 times more vulnerable than adults to certain chemicals. Children between the ages of 2 and 16 might be three times more vulnerable to certain chemicals.

The EPA also said it is seeking new ways to gather scientific data on possible carcinogens. It said "the consideration of new, peer-reviewed scientific understanding and data in an assessment can always be consistent with the purposes of these cancer guidelines."

The guidelines were made final after several reviews by the EPA's science advisory board during the past nine years, as the science of assessing cancer risks has evolved.

"The agency's new cancer guidelines represent an opportunity to bring our best understanding of how chemicals might lead to cancer, and provide our best information for regulatory decision-making," said William Farland, the EPA's chief scientist on the issue.

Environmentalists praised some aspects of the guidelines, but criticized others.

Jennifer Sass, a senior scientist for the Natural Resources Defense Council, an environmental group, praised the EPA for seeking new ways of getting scientific data and methods and acknowledging that exposures to pollutants early in life can be especially damaging.

But she said that the Bush administration added language that "basically provides a lot of opportunity for the chemical industry to hold up or stymie chemical reviews." She said the EPA would be asking more "expert elicitation" and "data quality" to justify letting outside parties "push EPA" by insisting on outside opinions.

Farland said, however, that EPA would maintain the integrity of its process and the agency "has a long history of using peer review as an important part of our process."

Source: Associated Press

swissinfo
switzerland's news and information platform

Malaria problem worse than thought

swissinfo March 10, 2005 2:30 PM

Malaria problem worse than thought

By Patricia Reaney

LONDON (Reuters) - More than half a billion people, nearly double previous estimates, were affected by the deadliest form of malaria in 2002, scientists say.

Most were in sub-Saharan Africa but nearly 25 percent occurred in southeast Asia and the Western Pacific.

"The disease burden is 515 million clinical attacks a year on the planet. That is quite substantial," said Professor Bob Snow of the Kenyan Medical Research Institute in Nairobi, Kenya.

"We have taken a conservative approach to estimating how many attacks occur globally each year but even so the problem is far bigger than we previously thought," he told Reuters on Wednesday.

The figures, which are reported in the science journal Nature, are almost twice those of the World Health Organisation (WHO) which estimated the global incidence of malaria at 273 million cases in 1998 with 90 percent of cases in Africa.

"It is quite substantially higher than the WHO estimate," said Snow who calculated there were 365 million cases of malaria in Africa alone in 2002.

Malaria is transmitted by the bite of an infected mosquito. It occurs in more than 100 countries and kills more than a million people each year -- mostly young children in sub-Saharan Africa. Most deaths are caused by the Plasmodium falciparum parasite.

Snow and his colleagues used epidemiological data, studies, demographic information and data from satellites to pinpoint areas where the disease is most prevalent.

"For the first time we have provided a framework for estimating how many clinical attacks there are each year due to Plasmodium falciparum -- the most lethal of the malaria parasites that affect man," said Snow.

The research suggests that 2.2 billion people are at risk of malaria. Although the scientists did not estimate deaths from the disease, the risk of severe life-threatening complications is about 10 times higher in Africa than in southeast Asia and the western Pacific.

"Getting the numbers right is important," said Snow. "Not knowing the size of the problem limits our ability to articulate how much money we need to tackle the problem -- not knowing where the