

Organochlorines lace Inuit breast milk

The Inuit of northern Quebec dine on seal and beluga whale blubber — food loaded with organochlorine compounds such as the pesticide DDT and PCBs (polychlorinated biphenyls).

Probably as a result of this diet, Inuit mothers exhibit some of the world's highest recorded concentrations of PCBs in breast milk, report Pierre Ayotte and his colleagues at Laval University Hospital in Ste-Foy, Quebec. But omega-3 fatty acids in the blubber may help protect against some of the organochlorines' toxic effects, Ayotte adds.

The milk of the 107 Inuit studied had organochlorine pesticide and PCB concentrations four to seven times higher than the breast milk of Quebec women who don't eat blubber, Ayotte and his team write in the December ENVIRONMENTAL HEALTH PERSPECTIVES.

Though studies have shown that such high concentrations of PCBs in breast milk can impair brain development, Ayotte says his preliminary studies of Inuit children indicate that they are developing normally. He speculates that the mothers' consumption of a diet rich in omega-3 fatty acids may protect against the damage to the central nervous system caused by organochlorines.

Still, the Inuit may pay a price for eating organochlorine-rich food. High rates of infectious disease among their infants may stem from PCB-related immune-system damage, the researchers write.

DDT, certain PCBs, and other organochlorines also possess estrogenic properties. In the Feb. 2 JOURNAL OF THE NATIONAL CANCER INSTITUTE, another Laval University group reports on a small study showing that breasts of Quebec-area women with estrogen-responsive cancer tend to be more heavily contami-

nated with DDE, a breakdown product of DDT, than breasts of women with tumors unresponsive to estrogen. The findings of this team, led by Eric Dewailly, support the idea that estrogenic organochlorines may foster hormone-responsive breast cancers (SN: 7/3/93, p.10).

EPA wants close scrutiny of chlorine

In its proposal for revamping the Clean Water Act, the Environmental Protection Agency has recommended examining chlorine's impact on health and the environment (SN: 1/22/94, p.59) — with the possible goal of banning or restricting its use, EPA officials said last week.

Congress must pass an amendment this year to reauthorize the law, which otherwise would expire. Sen. Robert Graham (D-Fla.) has said he intends to introduce on Feb. 23 an amendment that closely resembles EPA's plan.

The agency's proposed \$2 million, one-year chlorine study would look at the effects of the use of chlorine and chlorine compounds in the manufacture of paper, solvents, and plastics and in disinfecting waste water and drinking water, says EPA's James F. Pendergast. It would also assess the availability, effectiveness, and safety of chlorine substitutes.

Another study EPA calls for would test the environmental and economic results of pollution trading. For example, the plan says EPA might consider allowing an electric utility whose nitrogen dioxide emissions pollute a watershed to meet its emission standards by paying farmers to reduce their use of nitrogen-rich fertilizers.

The agency also proposes to study how to control the ill effects of runoff from agricultural irrigation and to analyze the costs and benefits of the Clean Water Act, Pendergast says.

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the USDA Animal and Plant Health Inspection Service, their program can thus far identify 67 fruit fly species. Eventually, the system will include data on the 200 most troublesome fruit flies USDA inspectors are likely to come across.

First, the group collected the necessary taxonomic information and reference data for these 200 insects. The researchers initially thought they could scan photographs or specimens with a video camera and load those images into the computer's memory. But when the project got off the ground four years ago, available technology did not provide enough resolution. So Thompson and his colleagues turned to artists' renderings. The finished program will include hundreds of drawings, of both whole insects and key features used in the identification process. Menus on the computer screen enable even a neophyte to work through the program.

With dichotomous keys, one can arrive at the insect's name through only one route, says Thompson. Thus a single mistake can lead to an erroneous identification. But the computer works backward, forward, or circuitously, narrowing the choices based on traits considered in any order.

In addition, the computer program will

allow the mismatch of one or two characters in the decision-making process and then help the user "correct" the mistake without having to start all over again. Finally, the fruit fly expert system gives detailed information about the insect once it is identified and provides ways to verify the identification, Thompson adds.

With this program, Thompson hopes to reduce greatly the number of "unknowns" he receives. And that pleases plant pathologist Rebecca A. Bech. As a coordinator of USDA inspectors who patrol the nation's borders, she can't wait until this system is up and running. "We're the first-line barrier to keeping these plant pests out," Bech says.

At each location, inspectors must be able to pick out exotic mollusks, insects, even seeds that cross U.S. borders. At ports, the inspectors board ships to take a close look at the cargo and packing material. When that cargo consists of produce, "quite often they will find flies flying around," says Thompson. In 1992, of 37,467 pests intercepted, 4,625 were fruit flies. Missing these pests can be devastating: For the 1993 to 1994 budget, California allocated \$8.1 million to eradicate

just one, the Mediterranean fruit fly, Bech notes.

If the inspectors do not recognize the insects, they impound the cargo and send specimens to Bech's group — or ultimately to Thompson's lab — for identification. This causes costly delays in unloading, especially for highly perishable cargo. "If it's a Mediterranean fruit fly, they are going to destroy everything," says Thompson. Inspectors also must set up sampling traps near the ship's dock to monitor whether an infestation has begun.

Not too long ago, for example, a USDA inspector found fruit flies in ornamental pepper plants in a cargo of fresh-cut flowers. Because produce rarely passed through that port and because the ship came from a place that was not supposed to have these insects, the inspector impounded the cargo and sent specimens across the country for identification. It did, indeed, turn out to be a pest that required destroying the plants.

Says Bech: "If we had the fruit fly expert system, we would have been able to get on this immediately." □

