

Plasticizing Agents May Pesticide Tests

Journal Madison Bureau
Madison, Wis. — PCB's — plasticizing agents called polychlorinated biphenyls — are making life tough for state researchers trying to measure pesticides in the Mississippi and other major rivers.

There are more PCB's in the Great Lakes than DDT, according to Paul E. Degurse, research chemist for the Natural Resources Department. And in the Mississippi, he said, chlorinated hydrocarbon pesticides such as DDT are insignificant in relation to PCB's.

Degurse and Prof. G. Fred Lee, University of Wisconsin water chemist, spelled out three key facts about PCB's:

Although they are highly similar to DDT, nothing is known about their effect on humans and not much about the effect on fish.

There is little doubt that they are widespread in waters of industrial areas, especially around power plants.

PCB's make it almost impossible to check for DDT type pesticides in these areas because PCB impulses mask out those of the pesticides in readings made with a gas chromatograph.

Lee points out that if the Food and Drug Administration decided to put a limit on PCB in fish just as it has on DDT,

many fish in the Milwaukee River would not pass.

Toxicity Varies

David L. Stalling of the federal fish pesticide laboratory at Columbia, Mo., reports that of 33 Lake Michigan cisco salmon examined, 30 contained PCB, along with 31 of 32 chubs and 28 of 39 lake trout.

According to Stalling, there were 200 variations of PCB, and their toxicity to fish appeared to vary with the amount of chlorine in the water.

Stalling said about 100,000 tons of PCB were manufactured a year. They do not oxidize easily, he said, and persist for a long time. And, Lee noted, they have been around since the 1920s, longer than DDT.

Principally, PCB's used are registered by Monsanto Chemical Co. as Arclors. The most used are Arclor 1248 and 1254 in capacitors of heat transfer systems in electrical transformers; 1254 and 1260 as plasticizing agents in some rubbers and caulking materials, and 1242 and 1248 in hydraulic fluids.

More Tests Planned

The Columbia laboratory has begun tests with lake trout, channel catfish and bluegills in relation to thyroid activity, liver enzyme induction and calcium metabolism.

DDT research indicates that it induces enzymes that disrupt the egg laying process of fish eating birds.

Tests Interrupted

Degurse said that 12 to 14 parts per million of materials like PCB have been found in Lake Michigan. He added, "We can't say if they are Arclors, but they are chlorinated and do have carbon rings on the order of DDT."

He said the state laboratory also planned to set up some tests "to see what the public health of fish is like" when ex-

posed to PCB, but this had been interrupted by an emergency investigation of mercury in state waters.

Lee said his studies made it reasonably clear that a significant part of DDT reported in Wisconsin fish actually is a PCB compound. He recently reported this to the Wisconsin Pesticide Advisory Council, of which he is a member.