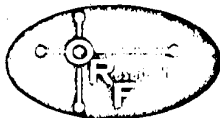


→ PGB



Ontario Research Foundation

SUPPORTING RESEARCH IN THE INTEREST OF THE PROVINCE OF ONTARIO

PESTICIDE RESIDUE AND TRACE CONTAMINANT ANALYSIS

LEAFLET T-14

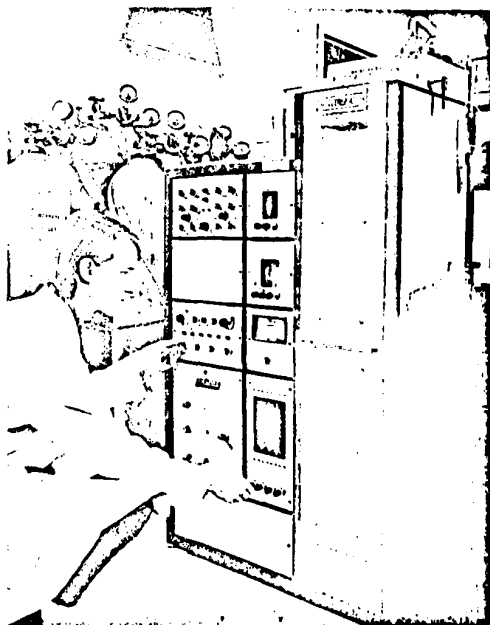
In 1964 the Foundation established a Pesticide Residue Analysis Laboratory for the measurement and monitoring of organochlorine pesticide residues in Canadian wild life. The scope of the laboratory has continually expanded since that time and now encompasses analysis of many other types of insecticides, herbicides, fungicides, and residues of other industrial chemicals found in air, water, foods, soils, packaging, and consumer products.

More recently, with the growing concern over the presence of heavy metals in the environment, facilities have been expanded to include analytical services for traces of mercury, lead, cadmium, and special forms of these, such as organometallics (methyl mercury and similar compounds).

This laboratory has provided a much needed service in Canada, and is also active internationally. It is the official Canadian representative for OECD programs dealing with unintentional residues in the environment.

To ensure the highest possible standards of accuracy, the laboratory participates regularly in international as well as national check sampling programs.

The following is a list of typical analytical services offered.



Microtek Chromatograph

Organochlorine Pesticides

Lindane, heptachlor, aldrin, heptachlor epoxide, p,p-DDE, dieldrin, p,p-TDE, o,p-DDT, p,p-DDT, methoxychlor, endrin, technical and gamma chlordane, kelthane, endosulfan, mirex, tedion, etc..

Organophosphate Pesticides

Diazinon, parathion, methyl parathion, malathion, ethion, fenitrothion (Sumithion), fensulfathion (Dasanit), Dursban, etc.

Herbicides

(2,4-D), (2,4,5-T), (2,4,5-TP), atrazine and other triazines, etc.

Polychlorinated Biphenyls (PCBs) and Polychlorinated Terphenyls (PCTs)

These are classes of industrial chemicals which, while not used as pesticides, possess many of the characteristics of the chlorinated pesticides - they are widely distributed, persistent, and physiologically active, and hence present a similar threat ecologically.

Trace Metals

Mercury, organomercury, lead, cadmium, etc.

General Methodology

The above lists are indicative of analyses frequently required by ORF clients. As new compounds or special problems are encountered, the scientific and technical staff of the Pesticide and Trace Contaminant Laboratory are well qualified to evaluate known analytical methods and develop new ones.

Special Instrumentation

Varian Gas Chromatographs (Models 1200 and 1400)

Varian Research Gas Chromatographs (Models 204 and 1522B)

Microtek Research Gas Chromatograph (Model MT 220) including:

Flame photometric detector (Phosphorus and Sulphur)

Ni⁶³ electron capture detector (Temp to 400°C)

Coulson detector (Halogen, Sulphur, Nitrogen)

Varian Autoprep

Chromatography - Thin layer, column

Atomic Absorption Spectrophotometers including:

Varian AA 120

Varian AA 5 with carbon rod atomizer for flameless atomization

Unicam SP90A

G.C.-Mass Spectrometer - AEI MS 30

NMR - JEOL JNM-4H-100

Spectrophotometers - Visible, UV, IR

A list of clients who have made use of these laboratory facilities includes numerous Federal and Provincial Government Agencies and Ministries, at least eighteen paper companies across Canada, and a variety of industrial and commercial companies, universities, and commercial laboratories.