Pain-killers in commercial quantities

Two National Research Council (NRC) biologists have succeeded in growing poppy cells containing commercial amounts of pain-killing substances.

For years, biologists have been examining the poppy plant and attempting to remove cells from the plant and culture them in fermenters for the production of opiates. The mix of substances that make up opium is, after all, of great medical and pharmaceutical importance.

Morphine, one of opium's active ingredients, is medicine's drug of choice for killing pain, while codeine, another component of the opiate mix, is widely used as an analgesic (pain-killer) and antitussive agent (cough suppressant). Recently, workers at the National Research Council's Prairie Regional Laboratory (PRL) in Saskatoon, Saskatchewan were successful in obtaining cultures of poppy cells that yield one of these valuable compounds.

"The most important compound of the opiates, specifically the morphinane alkaloids, is codeine," says PRL's Dr. Wolf Kurz. "It has a much wider commercial application than the other, stronger analgesics in the alkaloid family."

Specially-designed equipment

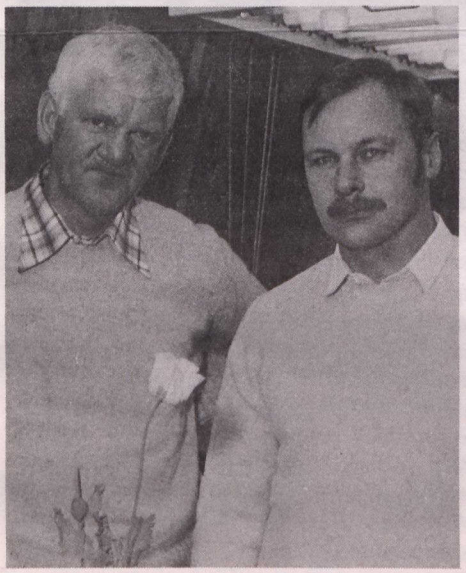
Dr. Kurz, who grows cells with his own specially-designed fermentation equipment, works with Dr. Fred Constabel, whose expertise lies in isolating the cell lines that act as Kurz's raw material.

Cell biologists, particularly those in Germany, the U.S. and Japan, have tried for years to grow poppy cells containing commercial amounts of these analgesic alkaloids without avail.

The advantages of such a breakthrough: it may remove Western medicine's reliance on imported plant materials and could tighten up the security system surrounding the transport and processing of these important pain-killing drugs. Drs. Kurz and Constabel have come up with laboratory conditions that favour the growth of the so-called "giant" cells which resemble the latex vessels of the poppy that contain the milk from which opium is derived.

While other scientists have been aware of the giant cells, coaxing the plant to grow and produce opiate alkaloids in culture has been the big problem. Says Dr. Kurz: "It not only depends upon the plant cultivar (or variety) you use, but on the growth medium as well, in other words what nutrients and hormones you provide the cell with to grow." The two scientists recently published their findings in the scientific journal *Phytochemistry*, and patents on the process are now pending in a number of countries including Canada, the United States, Germany and Japan.

(Article by Wayne Campbell in Science Dimension *1980/20.)*



Prairie Regional Laboratory

Drs. Fred Constabel and Wolf Kurz. Teamwork is the key to success.

Fund speeds aid to Third World

The Canadian government and a church-based organization are working together to finance development projects in the Third World.

The Canadian Catholic Organization for Development and Peace (CCODP) with assistance from the Canadian International Development Agency (CIDA) will carry out a wide range of development projects.

The government agency has announced the payment of $1,417,802 as the first installment of its 1980-81 contribution to the CCODP's Agency Project Fund (APF). The fund is used to finance hundreds of small-scale projects each year in such fields as rural development, mother and child care, clean water supply, co-operatives and vocational training.

The APF system helps non-governmental organizations (NGOs) and CIDA to simplify procedures and prevent delay. Under this arrangement, both CIDA and the Canadian NGO concerned put their money into a special fund that can be used immediately to support small projects meeting specific criteria agreed to in advance. This reduces the time normally taken for administrative processing and so speeds up the start of actual project work in the field.

The CCODP is one of several Canadian NGOs that will receive APF contribution from CIDA this year because they are so extensively involved in small-scale projects.

It is expected that CIDA's total contribution this year to the CCODP's Agency Project Fund will be about $3.7 million, making it the largest contribution of this type provided by the aid agency.

B.C. company develops world's most powerful light bulb

A British Columbia company has produced what is believed to be the world's most powerful light bulb.

The bulb is the first commercial product of Vortek Industries Limited. The bulb stood in for the sun during solar simulation tests at *Solwest '80*, a conference on solar energy held in Vancouver in August. The effect of intense sunlight on materials that must be exposed to the sun for long periods was tested at the conference.

The 100,000-watt lamp, a spinoff from research at the University of British Columbia, illuminated an eight foot by eight foot square with the equivalent of the brightest desert sunlight. Caught in the beam, carpets fade and paints peel at an accelerated rate.

The $250,000 cost of the simulator was paid by the National Research Council, which has designated the system as the Canadian standard.

Vortek is developing other lamps suitable for outdoor floodlighting (two or three could light a football stadium to colour-television standards). Other applications for the lamps could be nighttime air-sea rescue work and lighting for indoor farms.

The secret of the lamp is a swirling vortex of gas with an electric arc coursing down the centre of the whirlwind. Previous attempts to build high-powered lamps failed because the arc quickly destroyed the glass envelope of the lamp. But the vortex confines the arc and protects the glass.