Life Sciences Notes

MYCOLOGY

FIS: A Substitute for Sex

A mysterious agent called "fruiting inducing substance" causes mushroom-forming fungi to reproduce without acting out their usual mating ritual.

In the normal course of events these fungi form cottony growths called mycelia from single cell spores. Then, the mycelia, which at this stage have cells with single nuclei, mate and their nuclei migrate from one to another. From these second-stage mycelia come fruiting bodies which make spores and start the reproductive cycle all over again.

However, scientists at Indiana University, Bloomington, have discovered that in the presence of what they call fruiting inducing substance, fruiting bodies seem to come directly from mycelia before they mate. FIS action may be related to the production of new enzymes that change the fungi's metabolic processes, according to Dr. Stanley Dick and Thomas Leonard.

Studies of how new cells develop in fungi may throw light on the major question of cell differentiation in higher plants and animals, Dr. Dick says.

ENDOCRINOLOGY

Fertility Drug Requires Care

An experimental fertility drug called Perganol often helps barren women conceive, but its effect is so potent, these women often have dangerous multiple births of triplets, or even septuplets.

So far, the U.S. Food and Drug Administration has refused to give the fertility agent its general approval—and rightly so, according to Harvard gynecologist Dr. Melvin L. Taymor. But, Dr. Taymor believes Perganol and similar drugs can be effectively used to help a woman bear one child, or perhaps twins, if it is administered under the strictest supervision in medical centers.

Dr. Taymor says the probable cause of many multiple births has been the failure of physicians to individualize treatment. The gauge is the female's estrogen level. Perganol is thought to act directly on the ovaries to stimulate the release of a ripe egg. If too much hormone-containing Perganol is administered, the estrogen level rises and these female hormones then trigger the release of several eggs.

Dr. Taymor suggests that careful studies of the woman's hormonal activity before administration of a fertility agent, followed by thorough examinations after the fourth day on the drug, should enable physicians to accurately determine the dose that will neither overact nor underact.

For these evaluations, modern facilities at supervised centers or hospitals are necessary, he says.

POPULATION

Infanticide: A Growing Problem

The high child death rate in many developing countries can be explained in part by the fact that some mothers are simply letting their children die, a Columbian doctor told the World Health Organization.

According to Dr. A. Ordonez Plaja, Minister of Public Health, infanticide is a growing problem to African, Asian and Latin American physicians. However, statistics on infanticide are even more difficult to come by than estimates of the number of abortions in a year.

In Africa about 40 percent of the children are sick, and about 50 percent die before they reach their fifth birthday. Not all of these deaths are unavoidable, Dr. Plaja says.

"We have been studying unsuspected infanticides," he reports. "Many women just don't give their children enough food. They let them get sick, throw them outside, and take them to the doctor knowing it is too late." This is the way some families seek their own answers to the population explosion, he suggests.

BIOCHEMISTRY

Biological Rhythms

Protein rich foods may have more nutritional value at some times of day than others, scientists report.

This is because a nutritionally important enzyme follows a rhythmical, 24-hour pattern of activity. During hours when it's at its peak, the enzyme, called tyrosine transaminase, consumes an amino acid caled tyrosine and turns it into fuel.

When enzyme activity is at an ebb, tyrosine—a basic component of all proteins—is used by the body as a building block for new proteins and new tissues.

Although no human studies have been conducted as yet, Dr. Richard J. Wurtman of the Massachusetts Institute of Technology and Dr. Julius Axelrod of the National Institutes of Health, found in experiments with rats, that tyrosine transaminase activity levels fluctuate cyclically 400 percent in each 24-hour period.

Because fats and sugars can be used as fuel as readily as proteins, it is wasteful to burn expensive protein foods, often in short supply, as fuel, Dr. Wurtman says.

Once scientists learn what times tyrosine transaminase is most active in humans—and therefore most able to turn precious protein into fuel—they will be able to predict when protein rich foods can be put to best use and when they are wasted, Dr. Wurtman suggests.

VIROLOGY

Guinea Pigs Linked to Man

In a strain of inbred guinea pigs, Dr. Stanley R. Opler of Columbia University has identified a new virus which closely resembles the human leukemia virus.

The leukemia found in the guinea pigs is indistinguishable from that seen in humans, according to Dr. Opler. Like human leukemias, the guinea pig virus attacks nearly every organ. Much-studied mouse leukemias, on the other hand, tend to be more specialized in their disease effects. Viewed under an electron microscope, human and guinea pig leukemic cells look almost exactly alike, Dr. Opler discovered.

Guinea pigs which share certain experimental diseases such as tuberculosis, polio and scurvy with man, may make ideal animal models for leukemia studies Dr.Opler points out.