Life Sciences Notes

DRUG ACTION

Antibiotics Disintegrate Amoeba

Intestinal diseases can be wiped out quickly with a relatively new antibiotic that disintegrates human parasites prevalent in tropical countries. Although it is presently manufactured only on a small scale in Israel, where it was developed, American drug companies have expressed some interest in the antibiotic, called Colisan.

Unlike broad-spectrum antibiotics such as tetracycline, which kills all intestinal bacteria as it wipes out disease-causing organisms, Colisan fights only troublesome amoebas. Israeli scientist Dr. Shalom Leon of Indiana University reports that Colisan attacks the amoeba's cell wall, causing cell components to leak out, with disintegration of the entire amoeba. Destruction takes place within a few seconds.

Another advantage of this antibiotic is that it is immune to intestinal enzymes and other factors that break antibiotics down into inactive compounds. Therefore, Colisan is effective in very small doses.

Israelis anticipate an increase in intestinal disease caused by the Entameba histolytica amoeba now that Arabs and Jews are mingling. There is a higher incidence of the disease among Arabs, Dr. Leon says.

BIOCHEMISTRY

New Amino Acid Found

From work with common sewage bacteria, University of Tennessee scientists discovered a new amino acid and, therefore, a new chemical pathway for protein synthesis. Proteins are made up of amino acids strung together in a long chain.

The amino acid, called p-hydroxymethyl-L-phenylalanine, or HP, is an intermediary between two ubiquitous, essential amino acids, phenylalanine and tyrosine. The former is necessary for normal mental development; the latter is a base for building new proteins and tissues.

Drs. Nathan Sloane and Sherrell S. Smith proved HP exists—scientists have theorized about it for some 16 years—when they forced ribosomes, cell protein factories to manufacture it in test tubes.

Scientists generally say there are 20 amino acids, but this is a matter of convenience. Actually about 26 major and some 70 intermediary amino acids are known. HP falls into the latter category.

DERMATOLOGY

Plants Show Allergic Response

Scientists who want to find out if tissues are allergic to experimental chemicals generally try them on laboratory animals. A Washington dermatologist suggests that plants may tell as much, with half the cost and trouble.

In a preliminary report in the JOURNAL OF INVESTIGATIVE DERMATOLOGY, Dr. Naomi M. Kanof says that plant tissue can be sensitized or made allergic to chemicals in a way similar to that used for animal and human tissues.

She used bean plants as subjects and copper sulfate, a known plant irritant, as a test substance. Within 48 hours of first application, one part copper sulfate to 500 parts dilution burned the bean leaf. In a one to 1,000 dilution, practically no burn was noted on first application. Nine days later, a challenge dose of this copper sulfate solution applied to the previously damaged plant produced significant, visible damage, showing the plant had been made allergic. Other test compounds failed to produce increased reactions, indicating that the original copper sulfate dose altered the bean plants' degree of response.

MAMMOLOGY

One Ton Armadillo Caught

Argentinean naturalists clashed with 2,200 pounds of armadillo and won. A male giant armadillo, three feet tall and six and a half feet long, is the first of his species captured in 25 years. Until he was sighted recently, scientists thought the breed was extinct.

PHARMACOLOGY

NAS Questions Drug Effectiveness

Of the first 100 of some 2,800 drugs it is evaluating for efficacy, the National Academy of Sciences says it has found on the market only a few totally ineffective drugs. By the same token, only a few were found to be as good as the claims made for them.

The Academy says many manufacturers' claims of what their products do will have to be modified in light of review findings. The Academy, which released no specific details about its investigation of any specific drug, hopes to complete its study in 1968.

At the request of the Food and Drug Administration, the Academy agreed to review all drugs marketed between 1938 and 1962 when the Kefauver-Harris Drug Amendments demanded FDA get proof that drugs work, as well as proof that they're safe, before it approves them for sale.

INFLAMMATION

Brain Activity and Inflammation

Experimental drugs that reduce inflammation by acting on the central nervous system may prove valuable in treating rheumatism and arthritis as well as other inflammatory diseases.

In studies with rats, scientists at Mead Johnson, Evansville, Ill., found that if nerve transmission to the brain is blocked in the spinal cord, inflammation at localized sites in the body is drastically reduced. Drs. John H. Brown, John Kissel and Paul Lish believe their work is the first to demonstrate a direct relationship between brain activity and inflammation.

They suggest that potent analgesics and antidepressants, which act in the brain, combined with currently available anti-arthritic drugs will inhibit inflammation as surgical cutting of the spinal cord does. Such an experimental compound, called MJ 1983, appears to be four or five times more potent than standard anti-inflammatory drugs—at least in animals.