

# biochemistry notes

Gathered at the meeting of the American Chemical Society in San Francisco

## PHARMACOLOGY

### Antihypertensives from guanidine

A new group of drugs to combat high blood pressure has been derived from guanidine, which itself may be derived from urea, a team from Abbott Laboratories reports.

Dr. James A. Short says the guanidines act by blocking the sympathetic nervous system. These are the self-governing nerves that control blood vessel tension and heart activity.

Some guanidines have been tested on humans with promising results. Other tests in animals, however, indicate that what works in one species does not necessarily work in another, or in man. It appears that straight-chain guanidines have little or no antihypertensive activity. Branched chain compounds therefore are under the most intensive investigation.

## NUTRITION

### Food science papers called worthless

Many of the scientific papers on nutrition now being published in "otherwise acceptable literature" in the field are "quite worthless," it is charged.

Dr. George M. Briggs of the Department of Nutritional Sciences at the University of California at Berkeley says the greatest need in this field is for the development of much better standards for acceptance of papers submitted for publication.

"Unfortunately," he says, "many of the nutrition papers are quite worthless because of inadequate experimental design in regard to diet composition and control groups."

## HEMATOLOGY

### Fibrinolytic agent with low toxicity

A synthetic fibrinolytic agent called En1661 shows no adverse side effects when given in useful doses, two groups report.

Fibrinolysis is the destruction of blood clots by enzymes called plasmins. In cases where there is an abnormal tendency to form clots it is useful to stimulate the body's production of plasmins. Substances such as serotonin, nicotinic acid, and epiniphine stimulate fibrinolytic activity. One preparation on the market contains the bacterial enzyme streptokinase. The drawback of these and other materials in use is that some are costly and all produce fever, allergy, or some other serious adverse reaction.

A group headed by Dr. Joseph M. Schor of Endo Laboratories, Garden City, N.Y., and another headed by Dr. Julian L. Ambrus of Roswell Park Memorial Institute, Buffalo, N.Y., report that En1661 is free of these disadvantages.

Dr. Schor says the compound causes a prolonged increase in fibrinolytic activity without incurring undesirable pharmacological effects.

Dr. Ambrus says En1661 is the most effective of the new synthetic agents studied and appears to be active in doses which produce no side effects. He notes, however, that tests on humans so far have been too limited to be conclusive.

## DIELECTROPHORESIS

### Living, dead cells differentiated

A method for separating living and dead cells in a mixture is reported by Dr. Herbert A. Pohl of Oklahoma State University. The process may have applications in such areas as the study of the effect of bactericides and fungicides. It may also prove a companion to the widely used process of electrophoresis.

The technique is called dielectrophoresis. The cells are suspended in a solution through which an electric field passes. The field induces a dipole in the cell. The field lines converge from a plate electrode upon a pin electrode; thus the field is stronger closer to the pin and at one end of the cell compared to the other. The differential creates a net force toward the electrode.

Due to a mechanism not yet clearly defined, dead cells are more reluctant to form dipoles than living cells and therefore respond less rapidly to the field. The live cells tend to move toward the pin while the dead cells hang back around the plate. Dr. Pohl reports living cells survived the treatment.

Dielectrophoresis is valuable because it can be used on uncharged particles. Its older brother electrophoresis depends on the motion of charged particles in a field. It is widely used to separate proteins, but the materials must be charged before they will respond.

## NUTRITION

### Protein films protective, nourishing

Proteins now discarded as waste could help meet the world's protein shortage as food coatings, Dr. Paul F. Hopper of Johnson & Johnson Co. suggests.

Dr. Hopper notes that the world presently produces 50 percent more protein than is needed by its populace. One cause of the shortage in some places, of course, is poor distribution. But, he says, many potentially nourishing proteins are thrown away during the processing of animal and vegetable foods because no usable form has been found for them.

Examples are collagen, which makes up about a third of all animal protein, zein from corn, and gliadin and gluten from wheat.

Collagen is finding use in films for the casings around frankfurters and other sausages. But much collagen in the form of skin and other connective tissue goes into the garbage.

Little work has been done with vegetable films. Dr. Hopper suggests that the wasted protein could be made into films for coating low-protein food.

One promising application for water-soluble forms of protein film is in packaging of dehydrated products, particularly soup and instant coffee. The whole package, film and all, would be tossed into hot water to dissolve.