



TOMATIDINE—Drs. Erich Mosettig and Yoshio Sato of the National Institutes of Health and Dr. Thomas Fontaine of the Bureau of Agricultural Chemistry examining a bottle of tomatidine in front of tomato plants from which it was derived in a Department of Agriculture greenhouse, Beltsville, Md.

BIOCHEMISTRY

Hormones From Tomatoes

Tomatidine, the non-sugar portion of tomatin, an antibiotic found in the leaves and roots of tomato plants, is the starting point for new discoveries.

► THE LOVE apple has finally lived up to its name. This plant, more commonly known as the tomato, can be made to yield sex hormones through chemical processes discovered by scientists at the U. S. National Institutes of Health.

A cheap and plentiful source of cortisone, famous anti-arthritis remedy, may also result from this same discovery, though more research will be needed for this.

Tomatidine is the starting point for the discoveries reported. This chemical is the non-sugar portion of tomatin, an antibiotic, or mold chemical, found in the leaves and roots of common tomato plants. Tomatidine was discovered by Dr. Thomas Fontaine of the U. S. Department of Agriculture.

Process for converting tomatidine into another chemical, called allopregnenolone, was worked out by Drs. Yoshio Sato and Erich Mosettig of the National Institutes of Health and Dr. Alfred Katz, visiting re-

search fellow from the University of Basel, Switzerland.

The pregnenolone compound can be readily transformed into the female hormone, progesterone, and the male hormone, testosterone, by methods already known to pharmaceutical houses that produced these synthetic sex hormones. Converting this starting compound into cortisone has not yet been accomplished though many chemists are working on the problem.

The synthetic sex hormones, it was pointed out, are normally prepared from three compounds: cholesterol, from animal nerve tissue such as brain, stigmasterol from the soy bean plant, and diosgenin from Mexican yams. Stigmasterol and diosgenin, however, do not exist alone in the plants. They must be separated from other chemicals, whereas tomatidine is the only thing in the tomato leaf and therefore can be obtained more easily and simply.

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METALLURGY

Iron Oxide Coating Prevents Rust on Iron

► STABLE INSULATING iron oxide coatings for ferrous metals, which also protect against rusting, are made by a heat-treatment process on which a patent was issued last week among the 775 patents granted by the government. Highly resistant, stable insulating films are produced, it is claimed, and they protect the metal from rusting for long periods of time.

Inventors of the process are Paul L. Schmidt, Perrysville, and Lawrence R. Hill, Pittsburgh, Pa. Patent 2,543,710 was awarded to them. Rights are assigned to the Westinghouse Electric Corporation, East Pittsburgh. Their invention is claimed superior to earlier processes of producing insulating oxide surface films because of the stability of the oxide formed.

A heat treatment is the key to the improved process. It was found by these scientists that various ferrous materials may be heated in a selected oxidizing atmosphere within the temperature range of 400 degrees to 570 degrees Centigrade to provide a stable, highly insulative magnetic oxide of iron surface film. The atmosphere used is largely water vapor and carbon dioxide, and it is absolutely necessary that the free oxygen content be less than one-half of one percent.

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WILDLIFE

Wild Life Survives Hottest Forest Fires

► SOME of the hottest brush and forest fires do not destroy wild life as completely as you might think.

Rodents, ants and even some birds apparently go below ground or hide in rock outcrops, Dr. Walter E. Howard of the zoology division of the University of California's College of Agriculture, has found. Other birds fly out of the area—but return almost before the ashes cool. Some may survive in "islands" of brush missed by the fires.

Dr. Howard bases his conclusions on a zoological survey taken after a 1600-acre brush fire in Madera County, not far from Yosemite National Park, last summer.

On the morning after the fire, a three-hour count was taken of animals drinking from a spring almost at the center of the burn.

Dr. Howard reported: 321 valley quail of all ages; 31 cottontails (one singed by fire); 12 gray squirrels; 4 ground squirrels; more than 80 brown towhees; 27 California jays; and 18 California woodpeckers.

"In fact," he said, "it was impossible to make a record of all the kinds of birds present."

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