life sciences

PHARMACOLOGY

Chinese Restaurant syndrome varies

Twenty thousand tons of monosodium L-glutamate are manufactured annually in the United States and sold, as one label says, "to wake up all the flavor nature put in your food." Because glutamic acid is naturally present in large amounts in the body and in some foods, the Food and Drug Administration says it is "generally regarded as safe," and places no limits on the use of MSG as a food additive.

But, according to researchers at the Albert Einstein College of Medicine in the Bronx, "MSG is not a wholly innocuous substance."

Following a report published last July that suggested MSG is the cause of so-called Chinese Restaurant syndrome, Drs. Herbert Schaumburg, Robert Byck, Robert Gerstl and Jan Mashman studied the pharmacological action of the substance. It is commonly, and sometimes excessively, used to flavor Chinese foods. In the Feb. 21 SCIENCE, they report "evidence that it (MSG) causes headache, as well as symptoms of acute Chinese Restaurant disease-burning sensations, facial pressure and chest pain. However, they state, "The symptoms appear only if the meal is taken on an empty stomach by a susceptible individual." The dangerous dose varies from person to person. Their subjects ate wonton soup, useful in the experiments because of its simple composition.

PUBLIC POLICY

State aid for European biology

Since its founding in 1963, the European Molecular Biology Organization has operated largely with gifts from private sources. Now, after two years of intensive negotiations held under the auspices of the Swiss Federal Government, 12 nations have pledged support for at least the next five years.

While principal objectives include provisions for teaching and research scholarships, assistance to universities seeking visiting professors and establishment of courses and special meetings, EMBO members are also considering a proposal to set up a European Laboratory of Molecular Biology.

Member nations are Austria, Denmark, the Federal Republic of Germany, France, Greece, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland and the United Kingdom.

VIROLOGY

Foot-and-mouth virus explained

By interfering with the action of RNA, foot-and-mouth disease viruses block cellular metabolism and stop protein production. In pinpointing the mechanism of the disease, U.S. Department of Agriculture scientists suggest the discovery may lead to a new method of disease control—suppressing or eliminating the virus at the cellular level.

Drs. George F. Vande Woude and Richard Ascione find that the virus modifies cellular RNA; that is, it changes its shape or structure so that it cannot perform its normal role in protein manufacture. Having identified the point of viral interference, they are now trying to explain the mechanism by which it works, in hopes that it may be possible to reverse that mechanism and prevent viruses from taking hold.

ENTOMOLOGY

More ants, more honey

Ants are known for farming aphids and collecting honeydew from them, and bees suck nectar out of flowers and make honey out of that. But bees which live in the pine forest, away from flowers, are forced also to depend on aphid honeydew. Prof. G. Wallenstein of Freiburg University, Germany, reports that beehives placed in forests with large ant populations produce more honey than hives near few ants. Apparently surplus honeydew from the ants' aphid farms is used by bees.

PHYSIOLOGY

Vibrations, noise inhibit muscles

Lengthy exposure to vibrations and noise inhibits electrical activity in muscles, Soviet researchers find from experiments with albino rats.

Measurements were made during a state of rest before and after exposure to these stimuli, and an increase in electrical activity was observed following short exposure. Comparison of output intensities in the experimental animals and control groups after 10 minutes exposure to vibration and noise showed a marked increase in muscular activity.

Exposure for 15 minutes or longer reversed the effect and resulted in gradual inhibition of muscular currents, which increased progressively with exposure time. Normal values were restored only an hour after exposure ceased. The reaction was less marked with noise of average frequency.

The experiment is reported in the December 1968 OCCUPATIONAL SAFETY AND HEALTH ABSTRACTS published by the International Occupational Safety and Health Information Center in Gevena.

CONTRACEPTION

Morning-after drug synthesized

When administered between the first and seventh days after copulation, a synthetic compound known as 6605-VUFB can prevent rats from conceiving. In the Feb. 15 issue of NATURE, K. Rezabek, M. Semonsky and N. Kucharczyk of the Pharmaceutical and Biochemical Research Institute in Prague report experiments with the compound which is similar to two natural chemicals—ergolene and ergoline, also pregnancy-inhibiting agents.

In albino rats given either five small doses of 6605-VUFB or a single large dose on either the first, second, fourth, sixth or seventh days after mating, fertilized eggs failed to develop into a healthy embryo. For some unexplained reason, suppression of pregnancy was less efficient when the drug was administered on the third and fifth days.

Preliminary evidence, the Czech scientists say, indicates that the drug is nontoxic; in all but one of the cases in which it did not work it had no ill effect on the embryo which developed.