SALTING THE PURE-FOOD MINE

The Food and Drug Administration's failure to back a monosodium glutamate report with research leaves a foul taste in some Congressional mouths

The Food and Drug Administration is conditioned to jump when a Congressional committee speaks. And so, when the Senate asked FDA for its opinion of monosodium glutamate last July, and FDA had none ready-made, the agency hastily prepared a position paper declaring MSG posed no significant threat.

The FDA's position paper was so hastily prepared, in fact, that it cited work it had never done. As a result, Congressmen are asking just how reliable the FDA is. And Senate hearings on the question are tentatively slated for middle or late October.

A salt used to enhance the flavor of foods, MSG has been used for ages by the Orientals who use MSG-carrying powdered seaweed as a seasoning. In fact, large quantities of MSG in Chinese food are now known to cause the Chinese Restaurant Syndrome, an allergic reaction in susceptible individuals (SN: 3/8, p. 239). A flavoring salt in the United States is pure MSG. Even babies eat MSG now that baby food producers add it to their products to appeal to the taste buds of mothers.

It is this latter use that concerns scientists. Prompted by a research paper published in 1957 showing that MSG causes retinal damage in newborn animals, Dr. John W. Olney of Washington University School of Medicine in St. Louis conducted experiments on the effects of MSG on the central nervous system. "When MSG is injected into infant mice, it causes brain damage," he says. "Nerve cells, particularly in the hypothalamus (at the base of the brain), swell dramatically and within several hours those cells die." Extreme obesity and sterility in females also characterize experimental animals subjected to MSG.

Dr. Olney reported these findings in SCIENCE last May and again in July in testimony before the Senate Select Committee on Nutrition and Human Needs, headed by Sen. George McGovern (D-S.D.). Since then, he duplicated his original work by giving MSG orally to 40 mice, finding even greater toxicity, and by an experiment involving one young rhesus monkey. "In the monkey," he says, "there was no clinical evidence of damage but histological (tissue) examination by light and electron microscopy revealed gross abnormalities."

Though there is no evidence at present that MSG is harmful to human infants, Dr. Olney points out that it has no nutritional value. That, coupled with the fact that there are serious questions about it, should be enough to force the FDA to ban its indiscriminate use in baby food at least until the issue is resolved, he contends.

There is little reason to expect FDA to do this, though it is currently negotiating with Dr. Olney for further research in monkeys. Now, his work is supported by an annual grant of $5,000 from the National Institute of Mental Health.

The food additive is a salt of glutamic acid, an amino acid present in most proteins. Glutamic acid exists in particularly high levels in the brain. After infancy dietary MSG is metabolized by enzymes in the liver, but these enzymes are not developed and functioning in an infant.

It is possible, says Dr. Olney, that MSG seeps into the hypothalamus through weak areas in the blood-brain barrier, thus creating a dangerous excess.

Following Dr. Olney's original testimony before the McGovern committee, FDA Commissioner Herbert L. Ley Jr., was called on to present the agency's view.

That was when FDA's troubles began. Thus pressured to tell what it knew about a chemical that has not been the object of much research, FDA hastily produced a position paper citing four studies indicating that monosodium glutamate is safe.

Ignoring the particular question of safety to newborns, the FDA cited Dr. Olney's preliminary evidence, a report regarding MSG and the Chinese Restaurant Syndrome, and two studies allegedly performed in its own laboratories, showing that MSG neither damages chick embryos when injected into incubating eggs nor breaks chromosomes in cell cultures.

FDA

Dr. Ley: An "inexcusable error."

Neither of the last two studies was ever performed, something Dr. Ley later conceded was an "inexcusable error" on FDA's part. Subsequently, Dr. Marvin Legator of FDA has conducted cytogenetic studies, exposing cells derived from marsupial kidneys to MSG. "It is our most sensitive test," Dr. Legator points out, "and revealed no chromosomal damage." While lack of chromosomal toxicity is an important determinant in gauging the safety of chemicals in foods, it does not speak to the question of brain damage.

Unquestionably, FDA's behavior over the MSG issue casts a shadow of doubt over its reliability in other matters. Says a spokesman for the McGovern committee, "We would like to know just how something like this can happen. It makes you wonder what the people at FDA are doing."

Dr. Legator explains that the MSG fiasco was simply a matter of human fallibility, compounded many times over. Some minor MSG tests had been done, were informally discussed, and somehow translated into so-called conclusive studies en route from conversation to formal presentation in the position paper. Nevertheless, FDA is going to have to explain itself and answer speculation that what happened in this case is not unique. ◇

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