NUTRASWEET

A look at America's most popular sugar substitute reveals a recipe that is far from sweet.

By D. Raymond Schmidt

Nearly 30 years ago, James Schlatter, a research chemist working for G.D. Searle and Company, was working on a cure for ulcers. On a hunch, he sought to combine two amino acids using methanol as a cement. As he mixed his new concoction, the mixture spilled out of the beaker and onto his hand. Without thinking, Schlatter licked his finger. What he tasted was sweet; what he brought to the world was a new chemical that would dominate hundreds of products on supermarket shelves.

NutraSweet, known also by its chemical name aspertame, is a synthetic compound of two amino acids, aspartate and phenylalanine. The bond is provided by methanol, known also as wood alcohol.

The two amino acids in aspertame are isolated from the common 20 amino acids which combine to form proteins. The body has no trouble metabolizing large proteins (fish, chicken, etc.) because it is done slowly. Aspertame is released into the blood stream quickly as it is a tiny molecule that the body cannot metabolize slowly. When aspertame enters the blood stream, it rapidly breaks down into its constituent elements: the two amino acids, methyl alcohol, and two known toxic substances, formaldehyde and formic acid.

In November 1977 the U.S. Environmental Protection Agency set the minimum acute toxic concentration for safe methanol consumption by humans to a

maximum daily consumption of 8 mg. There is approximately 55 mg in the average diet soda sweetened with Nutrasweet.

On its own, methyl alcohol is poisonous to humans. When it appears in natural foods such as fruit and vegetables, it is combined with ethyl alcohol, which neutralizes the poison.

If aspertame is heated above 85 degrees, the chemical changes can occur which separates the methyl to form free-standing methyl alcohol. This can happen in a warehouse, delivery truck, or at home.

The FDA first gave Aspertame approval for the public use in 1974, but then rescinded it before it could be put into production, due to reports of G.D. Searle's unsure safety record and unsuitable research practices.

The FDA continued to refuse approval for the next seven years, while continuing to investigate the safety of aspertame. In 1980, G.D. Searle again sought to have the chemical authorized.

An in-house FDA panel of scientists recommended that approval be withheld until further studies could be performed. G.D. Searle and Company performed numerous tests during the review, submitting 90 of 113 of them to the FDA.

One of the FDA scientists at the time, Dr. Adrian Gross, said that G.D. Searle had tumors removed from the laboratory animals used in his experiments. Gross also said that the chemical company waited until months after it performed the tests to submit the animals to the FDA, when the bodies were so decomposed they were virtually useless to obtain data from.

The FDA did no testing or research on its own during this time. They only served as a review board for the data that G.D. Searle submitted.

In 1976, the FDA initiated a grand jury investigation through the U.S. Department of Justice. The two senior Department of Justice investigators decided against any prosecution, and later joined the law firm that represented G.D. Searle in the case.

The acting FDA commissioner, Arthur Hull Hayes, newly appointed by the Reagan administration, overruled the recommendation of the FDA scientists to withhold approval of aspertame. Aspertame was subsequently licensed for use in April 1981. This approval was strictly for the dry formula only, and was never considered for use in carbonated beverages.

In 1983 Commissioner Hayes approved aspertame for use in carbonated beverages, resigning his post with the government two months later to work for a firm that represents Searle's Nutrasweet advertising account.

In 1984, the National Soft Drink Association prepared a 31-page protest against the use of aspertame in carbonated beverages, citing the controversy surrounding G.D. Searle's laboratory practices. Not long after the protest was organized, the NSDA did an about face and espoused the use of aspertame in their own products.

Since this time, there has been continued efforts against the spread of aspertame. Senator Howard Metzenbaum (D-Ohio) introduced a bill in 1985 that would have legislated identifying aspertame and its amount on all products, but it was voted down. He also introduced the Aspertame Safety Act of 1985 calling for a total ban of the product. This bill also never got off the ground. There is no organized opposition at this time.

G.D. Searle and Company was acquired in August 1985 by Monsanto Company, a St. Louis-based corporation that manufactures, among other things, herbicides, chemicals, pharmaceuticals and electronics. They now also produce NutraSweet.