

# IARC and JECFA Pronounce Aspartame Sweetener as a Possible Carcinogen

*Learn why the UN IARC/JECFA committee classified aspartame as possibly carcinogenic to humans and what it means.*

AUSTIN, TEXAS, UNITED STATES, October 2, 2023 /EINPresswire.com/ -- [IARC/JECFA CLASSIFY ASPARTAME AS A POSSIBLE CARCINOGEN ASSOCIATED WITH HEPATOCELLULAR CARCINOMA, A TYPE OF LIVER CANCER](#)



On July 15, the United Nations agencies IARC (International Agency for Research on Cancer) and JECFA (Joint

FAO/WHO Expert Committee on Food Additives) reached a revised assessment of the health safety of the commonly used artificial sweetener aspartame.

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*Formaspace*

The joint IARC/JECFA press release stated, “The working group classified aspartame as possibly carcinogenic to humans (Group 2B) based on limited evidence for cancer in humans (for hepatocellular carcinoma, a type of liver cancer).”

In this Formaspace laboratory report, we will look at how they came to this conclusion and what it means, as well as some important other new warnings the IARC/JECFA issued for other commonly used food additives.

But first, a little context about artificial sweeteners.

Common Natural Sweeteners: Sucrose (Table Sugar), Fructose (Fruit Sugar), And High-Fructose Corn Syrup (HFCS)

Let's start with the sugar compounds that artificial sweeteners seek to replace. These are simple carbohydrates comprised of either one or two types of sugar (e.g. monosaccharides or disaccharides, respectively).

The first is sucrose (commonly known as table sugar), which is typically refined from plants such as sugar cane or sugar beets. As a disaccharide, sucrose contains one glucose and one fructose molecule.

The second is fructose, often called "fruit sugar," which is a monosaccharide (e.g. single type of sugar) found in many fruits, honey, agave, and most root vegetables.

The third commonly available sweetener is high-fructose corn syrup or HFCS. It is a disaccharide, typically comprised of about 55% fructose and 45% glucose.

Finally, our fourth sugar is glucose, which is a monosaccharide (e.g. single type of sugar); this is the body's preferred source of energy (along with fat and protein).

As we digest, sucrose and high-fructose corn syrup are first broken down into their individual components and then metabolized separately. The resulting glucose components can be used by the body right away, but any fructose molecules need to be metabolized first, typically in the liver, where it can also create fat through lipogenesis to store energy.



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Formaspace manufactured and installed this 24-foot-long seamless stainless steel casework installation at a blood lab in a medical device innovation center outside Boston.

The body regulates the amount of glucose (commonly referred to as blood sugar) that circulates through the bloodstream through a complex process involving insulin produced in the pancreas. But things can go awry. For example, diabetic patients typically suffer from insulin resistance, preventing them from effectively controlling their blood sugar levels.

In response, people with diabetes typically seek to control their blood sugar levels by consuming foods and beverages with low sugar content and a high-glycemic index (indicative of foods that require more time to digest) and, if needed, supplement this with insulin injections to overcome insulin resistance.

For people with diabetes, commonly used artificial sweeteners are like a “Get Out of Jail Free” card in that they don’t contain sucrose or fructose compounds, thus allowing them to enjoy “sweetened” food and drink products without significantly impacting their blood sugar levels.

Now that we’re caught up on natural simple sugars, let’s look at the surprising history of sugar substitutes.

#### Saccharine – Discovered By Constantin Fahlberg In 1878

While [researching](#) benzoic sulfimide at Johns Hopkins University, Fahlberg licked his finger after work and discovered it had a very sweet taste – about 500 times sweeter than sucrose (table sugar). Fahlberg patented the production methods for this new artificial sweetener under the trade name Saccharine and began production in Germany, introducing the product at the 1893 World’s Fair. According to commodities historian Carolyn de la Pena, writing in the book *Empty Pleasures*, Saccharine was initially rejected by the public as an “adulterant” used by large manufacturers seeking a cheaper ingredient than sucrose table sugar. However, by the late 1970s, saccharine had become wildly popular as a “diet” sweetener, and when the FDA threatened to ban saccharine (contemporary studies indicated it could cause malignant bladder tumors in laboratory animals), over a million Americans wrote protest letters to Congress and the FDA demanding the ban be overturned, which it was.

Today, Saccharine is marketed under the name Sweet’N Low in the US.

#### Cyclamate – Discovered By Michael Sveda In 1937

Graduate student Michael Sveda discovered cyclamate when he was researching the synthesis of an antipyretic drug at the University of Illinois. After putting his cigarette down on the lab bench, he picked it up again and discovered it had a sweet taste – Sveda had discovered what became known as cyclamate. When used as an artificial sweetener, cyclamate comes in two related forms, calcium cyclamate and sodium cyclamate, both of which are salts of cyclohexyl sulfamic acid. DuPont bought the patent for cyclamate production in 1940 and later sold it to Abbott Laboratories, who brought it to market in 1950. Cyclamate became an increasingly popular ingredient in diet food and drink products (such as Coca-Cola’s TAB diet drink) as well as the

table-top sweetener marketed under the brand name Sucaryl.

However, by the late 1960s, contemporary studies pointed to safety concerns related to its potential carcinogenicity, including the potential of cyclamate to break down into cyclohexylamine (a suspected toxin) in the digestive tract, and a lab study found that the then common 10 parts cyclamate to 1 part saccharine mixture used in diet drinks was associated with an increase in cancerous bladder tumors when fed to lab rats.

The FDA banned the widespread use of cyclamates in 1969, with a total ban coming into force in 1970. However, critics pointed out that the dose administered to lab rats in the study was equivalent to humans drinking over 500 cans of diet soda per day.

Today, only the US and South Korea continue to ban cyclamates. In the US, the product Sweet'N Low switched to saccharine as its main ingredient after the FDA banned cyclamates, while Sweet'N Low sold in Canada continues to use cyclamates.

Aspartame – Discovered By James M. Schlatter In 1965

G.D. Searle & Company chemist James M. Schlatter was in the middle of a multi-step process to create a tetrapeptide of the hormone gastrin to evaluate it as an anti-ulcer drug when he licked his finger to pick up a leaf of paper. At this moment, Schlatter discovered that the intermediate synthesis product, today known as aspartame, was intensely sweet – up to 200 times sweeter than sucrose table sugar.

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