

Sweet Talk and Cutting Through the Hype III

Editor's Note: In several of my previous SJ columns, we have looked at sugar and especially at artificial sweeteners. Beginning in June's column, I highlighted some of the information published in Dr. Joseph Mercola's 2006 book "Sweet Deception." Dr. Mercola is an osteopathic physician and surgeon who is board-certified by the American College Osteopathic General Practitioners in family medicine. In last month's column, we began to look more closely at the individual artificial sweeteners and examined some of their characteristics. We looked at Aspartame or its' more easily recognized names NutraSweet and Equal. In this month's column, we will look at Splenda, currently the nation's number one selling artificial sweetener.

Splenda is the brand name for sucralose, a chlorinated artificial sugar derivative up to six hundred times sweeter than sugar, with no calories and no carbohydrates. Sucralose is a chlorinated sugar synthesized by substituting three chlorine ions for three hydroxyl groups on a sugar molecule. Its chemical name is 1,6-dichloro-1,6-dideoxy-beta-D-fructofuranosyl-4-chloro-4-deoxy-alpha-D-galactopyranoside. This is not exactly a household word, but "Sucralose" has worked well in marketing strategies.

Sucralose was first approved for use by Canada in 1991. It was not until April 1, 1998 (April fool's day that the FDA approved its use in the U.S. Diet R.C. cola was the first U.S. product containing sucralose introduced May 1998. Sixteen months after the initial approval of sucralose, the FDA approved sucralose for use as a general-purpose sweetener on August 12, 1999.

Is Sucralose Natural and is it Safe?

Marketers have gone to great lengths to suggest that Splenda is natural and safe by using the slogan, "Made from sugar, so it tastes like sugar." The patented process may seem a bit technical because sucralose is a chemical and not a food. It was discovered in the course of research on insecticides, not foodstuffs. Sucrose, (table sugar) is a disaccharide, composed of glucose and fructose, two simple sugars. In the manufacturing process, along with the addition of chlorine, sucralose is transformed from a sucrose (fructo-glucose) molecule into a fructo-galactose molecule. This is a major manipulation of the original sugar molecule and it changes to a different type of molecule altogether. According to Dr. Mercola, it is important to understand that in nature, all disaccharides contain two sugar units, one of which is always a glucose unit. Since sucralose has no glucose unit, it's a brand new

creature, never seen in nature. This is one of the reasons that your body doesn't have the enzymes to digest it. There has never been a need for your body to develop the metabolic machinery to digest this type of artificial molecule, because it never existed before. Nowhere in nature is there any form of sugar that remotely resembles the resulting chlorinated hydrocarbon known as sucralose.

At this time it may not be possible to give a definitive answer to the safety of sucralose. There are however, legitimate questions which should be considered before any decision is reached. The marketing hype states that we should not worry about the chlorine in sucralose, as it is a safe and natural part of our food supply. As Mercola has pointed out in his book, there appears to be some confusion between chloride and chlorine. Chlorine does not exist by itself in nature but only in combination with other elements (usually sodium or potassium). When chlorine reacts with sodium, for example, the sodium transfers an electron to the chlorine atom resulting in a positively charged sodium ion and a negatively charged chloride ion. These opposite charged ions attract which forms a stable ionic bond. Chloride exists mainly in the form of salt. It is the main negative ion found in the ocean; present in the body fluids of animals; it is essential for life and is completely non-toxic, and this is why salt is safe to eat.

Splenda is completely different from salt because salt has a stable ionic bond between sodium and chloride in salt, and there are no carbon atoms in salt. As has been elucidated, the manufacturing of Splenda involves the artificial replacement of hydrogen atoms in sugar with chlorine atoms and forces the chlorine atoms to form a covalent bond with carbon. Molecules which contain bonds between chlorine and carbons are called chlorocarbons or organochlorines. As Dr. James Bowen, a physician and biochemist, writes, the covalent bond between chlorine and carbon is what makes chlorocarbons harmful to life. He maintains that unlike chloride, "chlorocarbons are never nutritionally compatible with our metabolic processes and are wholly incompatible with normal human metabolic functioning".

The simple fact is that sucralose is indeed a organochlorine, because it is a carbon and hydrogen molecule with attached chlorine atoms. Any chlorocarbon not directly excreted from the body intact has the potential to damage the processes of human metabolism or even internal organs.

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