

Sugar Alternatives

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Some common alternatives

There's no doubt that the sweetness of sugar makes it so popular but its caloric value and associated medical conditions has given rise to popularity of commercially produced sweeteners as alternatives. These include aspartame, saccharin, cyclamate and glycyrrhizin to name a few.

Research into these alternatives has raised questions over various health concerns and caused rise to much scientific debate. For example, studies found that saccharin was carcinogenic in animals, cyclamate produced toxic metabolites and glycyrrhizin promoted hormone imbalance¹. Despite health concerns, use of these sweeteners is widespread. High Fructose Corn Syrup is also a commonly used sweetening agent found in many processed foods and more information is available separately.

Focus on Aspartame

Aspartame is one of the more researched sweeteners, again dividing opinion when it comes to safety. Some studies report that it is safe at current levels of consumption², however many others link aspartame to various health conditions including migraines³, impaired glucose regulation⁴, fibromyalgia⁵ and phenylketonuria¹.

In relation to cancer, aspartame has demonstrated an inflammatory and angiogenic effect⁶. This essentially means it promotes the creation of new blood vessels that can feed tumours. Long term consumption has also shown imbalanced antioxidant status in the brain⁷ and the liver⁸.

Upon ingestion, aspartame is broken down, converted and oxidized into formaldehyde³, a known human carcinogen⁹ and embalming fluid. Are we slowly embalming ourselves from within? With this knowledge and the compelling wealth of studies linked to various conditions, there is no doubt that that aspartame should be avoided.

What alternatives do we have?

One of nature's sweeteners that we can use as an alternative is Stevia. This is considered safe for consumption by the World Health Organisation¹⁰ and even better, a recognised therapeutic agent in diabetes, hypertension, myocardial and antimicrobial infections, dental troubles and tumours¹.



It is the Steviol Glycosides (SGs) that give the leaf its sweet taste and contributing to its medical importance, alongside other metabolites such as beta-carotene, riboflavin, thiamine, austroinullin, various terpenes, and flavonoids¹.

In addition to stevioside, the prebiotic inulin (derived from chicory), when used in combination have been shown to have strong antioxidant properties,¹¹ which increases our defenses and in turn promotes health.

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- ¹ Yadav SD, Guleria P (2012) Steviol glycosides from stevia: biosynthesis pathway review and their application in foods and medicine. *Food Science and Nutrition*. 52 pp. 988-998
- ² Magnuson BA et al (2007) Aspartame: a safety evaluation based on current use levels, regulations, and toxicological and epidemiological studies. *Critical Review of Toxicology*. 37 (8) pp. 629-727
- ³ Jacob SE, Stechschulte S (2008) Formaldehyde, aspartame, and migraines: a possible connection. *Dermatitis*. 19 (3) E10-1
- ⁴ Whitehouse CR et al (2008) The potential toxicity of artificial sweeteners. *American Association of Occupational Health Nurses Journal*. 56 (6) pp. 251-9
- ⁵ Ciappuccini R et al (2010) Aspartame-induced fibromyalgia, an unusual but curable cause of chronic pain. *Clinical and Experimental Rheumatology*. 28 (6 Suppl 63) S131-3
- ⁶ Alleva R et al (2011) In vitro effect of aspartame in angiogenesis induction. *Toxicology in vitro*. 25 (1) pp. 286-93
- ⁷ Abhilash M et al (2013) Long term consumption of aspartame and brain antioxidant defense status. *Drug and chemical toxicology*. 39 (2) pp. 135-40
- ⁸ Abilash M et al (2011) Effect of long term intake of aspartame on antioxidant defense status in liver. *Food and chemical*
- ⁹ Swenberg JA et al (2012) Formaldehyde carcinogenicity research: 30 years and counting for mode of action, epidemiology, and cancer risk assessment. *Toxicologic Pathology*. Epub ahead of print.
- ¹⁰ Rahul SP et al (2013) *Sweeteners from plants – with emphasis on Stevia rebaudiana and Siraitia grosvenorii*. Available at: <http://rd.springer.com/article/10.1007/s00216-012-6693-0>. (Accessed: 30 January 2013)
- ¹¹ Stoyanova S et al (2011) The food additives inulin and stevioside counteract oxidative stress. *International journal of food sciences and nutrition*. 62 (3) pp. 207-14