Too sweet to be true

Heal

By Meera Murugesan

Many people are trying to reduce their sugar consumption. PICTURE BY JCOMP — FREEPIK.COM

ARTIFICIAL sweeteners, or sugar substitutes, are popular as more people aim to maintain a healthy weight or reduce sugar consumption without compromising the flavour of food and drinks.

One of the oldest and most commonly used artificial sweeteners is aspartame, an artificial non-saccharide sweetener that comes in the form of a white, odourless powder. It is about 200 times sweeter than sugar, so just a very small amount is needed for flavour.

Products containing aspartame or other artificial sweeteners often come with labels such as "diet" or "sugar-free" to appeal to the so-called health-conscious consumer.

Used since the 1980s, aspartame is approved for use in more than 100 countries. It is found in more than 6,000 products, but concerns remain about its health impact.

A 2013 study published in *the journal Food and Chemical Toxicology* notes no links between aspartame and cancer and heart conditions. However, it has been linked to behavioural and cognitive problems, including learning problems, headaches, seizures, migraines, irritable moods, anxiety, depression and insomnia, according to a 2017 study published in the journal *Nutritional Neuroscience*.

Even certain medicines or vitamins may contain aspartame. PICTURE BY 8PHOTO — FREEPIK.COM

The Health Ministry's Food Safety and Quality Division senior director Norrani Eksan says aspartame is a food additive that has been approved for use in Malaysia as a sweetener or flavour enhancer since the Food Regulations 1985 came into force.

Norrani says on top of products with labels like "low calorie" or "sugar free", aspartame can also be added to other products, including cocoa and cocoa products, soft drinks and candy.

KEEP IT BELOW ADI

She says aspartame and its metabolites are safe for human consumption at the acceptable daily intake (ADI) of 40 mg per kg of body weight per day. However, consumption of aspartame above the ADI may pose a risk.

The risk associated with ingesting aspartame is in the toxicity of its metabolites (aspartic acid, phenylalanine, and methanol).

"One of its metabolites, phenylalanine, is not recommended for people with phenylketonuria because their ability to metabolise phenylalanine is impaired and may cause mental retardation, mood disorders and behavioural problems," says Norrani.

Most artificial sweeteners, such as acesulfame potassium, cyclamate and sucralose, are allowed to be added to food intended to be sold in Malaysia with a permitted maximum amount, she adds.

Malaysian Medical Association president Dr Muruga Raj Rajathurai says according to the United States Food and Drug Administration (FDA), there are more than 100 studies showing aspartame to be safe for most people.

"We are aware that over the years, there have been a number of studies suggesting its consumption may have some negative effects on health. However, more research and human studies are needed to support these findings."

Nevertheless, people with phenylketonuria and tardive dyskinesia should avoid consuming aspartame, he says.

Dr Muruga Raj says phenylketonuria is a genetic metabolic disorder that increases levels of the essential amino acid phenylalanine in the blood, while tardive dyskinesia is a neurological disorder that causes sudden, uncontrollable jerking movements of the face and body.

TURN TO PAGE 14

Not for weight loss

FROM PAGE 12

Consultant dietitian Indra Balaratnam says the truth is that we don't know enough about aspartame to say that as a food additive, it won't be harmful if consumed regularly over a long period of time.

"There is documented research that aspartame may be linked to numerous health disorders. However, researchers find it hard to make a direct correlation," she says.

As aspartame is used in many popular non-sugar beverages and foods, people can potentially consume much more aspartame than is safe, she says.

Bottom line, aspartame is not the answer to reducing sugar in our diet, says Indra.

"I often advise my clients to use fruits — either fresh fruits or dried fruits, like raisins, dates or prunes — to add natural sweetness to their diet."

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Desserts like ice cream may also contain aspartame. PICTURE BY FREEPIK

Consultant dietitian Indra Balaratnam

Senior lecturer Dr Harvinder Kaur

Clinical dietitian Rozanna M. Rosly

ASSESSING IMPACT

Clinical dietitian Rozanna M. Rosly says knowledge of aspartame is crucial to assess the risk of its harmful impact on health.

Artificial sweeteners can induce glucose intolerance by altering gut microbiota, according to a 2014 study published in *Nature*, while artificially sweetened beverage consumption during pregnancy is linked to higher body mass index for babies, according to a 2016 paper in *JAMA Pediatrics*.

"Taking into account that aspartame is a widely used artificial sweetener, it seems appropriate to continue studies on its safety," says Rozanna.

IMU School of Health Sciences Nutrition and Dietetics Division senior lecturer Dr Harvinder Kaur says there is evidence showing the detrimental effects of aspartame, such as its link to the exacerbation of diabetes, headaches, seizures, depression, arthritis and other medical conditions.

Aspartame has also been associated with increased risk of cancers in some studies, while other studies found no association, she adds.

"The health effects of aspartame or any other artificial sweetener are inconclusive, with research showing mixed findings."

THE HISTORY OF ASPARTAME

- **1965:** Accidentally discovered by chemist James Schlatter
- **1981:** FDA approves its use in certain foods
- **1983:** FDA expands approval to include carbonated soft drinks
- **1996:** FDA allows aspartame as a general-purpose sweetener for foods and beverages

Source: aspartame.org

EVERYDAY PRODUCTS WITH ASPARTAME

- Diet soda/low-sugar fruit juice/zero-calorie drinks
- Toothpaste
- Breakfast cereals
- Light yoghurt/low-fat flavoured milk
- Vitamins/medicines/ sugar-free cough drops
- Desserts mixtures/ puddings
- Breath mints/sweets
- Biscuits/confectionery
- Reduced sugar sauces/ syrups/ketchups
- Sugar-free ice cream/ popsicles

INFOGRAPHIC **NST**

WHAT IS ASPARTAME

- The main ingredients are aspartic acid and phenylalanine
- Aspartic acid is produced naturally by our body, while phenylalanine is an amino acid found in foods
- It has been the subject of extensive research for more than 30 years
- Studies have not found any clear link between aspartame and cancer or other adverse health effects
- Approved for consumption by regulatory bodies in many countries, including the US FDA and the European Food Safety Authority

OTHER COMMON ARTIFICIAL SWEETENERS

- Saccharin
- Acesulfame potassium (Ace-K)
- Sucralose
- Neotame
- Newtame
- Advantame
- Erythritol
- Stevia

Sources: FDA (fda.gov.my) healthline.com, EFSA (https://www.efsa.europa.eu), American Cancer Society (www.cancer.org) medicalnewstoday.org, Aspartame.org, livestrong.com

NATURAL SWEETENERS

- Dates/ figs/ raisins
- Honey
- Fresh sweet fruits (apple/ banana/watermelon/ mango)
- Vegetables (carrots/sweet potatoes/ tapioca)
- Maple syrup
- Fresh sugar cane/sugar beet root/molasses
- Coconut palm sugar/gula melaka
- Chicory root fibre
- Agave nectar

Aspartame is a white odourless powder and is 200 times sweeter than sugar. PICTURE FROM HTTPS://NUTRITIONFACTS.ORG/ CREDIT: SHARON MCCUTCHEON/ UNSPLASH