Aspartame appraisal: "No immediate action required" but reformulation likely as consumer concern continues

20 Jul 2023 --- Although aspartame's safety and daily intake have been reaffirmed, discussions about how this may affect the F&B industry and consumers are ongoing. **Food Ingredients First** discusses the impact of the recent WHO evaluations on companies, the public scrutiny of aspartame and a possible IARC reassessment with scientists and industry experts.

The International Agency for Research on Cancer (IACR) classified aspartame as "<u>possibly carcinogenic to</u> <u>humans</u>." At the same time, a risk assessment by the WHO and FAO Joint Expert Committee on Food Additives (JECFA) reaffirmed the current maximum daily intake of 40 mg/kg of body weight for aspartame.

The leak of the IARC classification has been hailed as confusing to consumers and likely stoked up public concern, Kevin McConway, emeritus professor of Applied Statistics at the Open University, tells us. Now that JECFA's risk assessment has been made public, he expects the IARC's classification should have minimal effects on companies using aspartame.

"Nearly all the media coverage I saw, after the official release, did get across what the IARC assessment means and that there's no real evidence of carcinogenicity at normal consumption levels."

Industry implications

Since the current daily intake value continues to be considered safe, the industry need not take any action immediately, adds Pradeep Bhide, Ph.D., professor at Florida State University College of Medicine, who studies mental health effects of aspartame.



Experts note that industry may not need to take immediate action on aspartame.

"However, I would not be surprised if a gradual shift away from aspartame begins in the near future."

Bhide expects reformulation is a likely outcome of the IARC classification, though he does not expect companies to take action immediately due to JECFA's conclusion.

Moreover, the FDA has released a statement saying it "disagrees with IARC's conclusion that these studies support classifying aspartame as a possible carcinogen to humans."

The organization adds that FDA scientists identified significant shortcomings in the studies on which IARC relied after reviewing the information IARC used in 2021 when it was first made available.

Informing consumers

Jamie Cartwright, partner at international law firm Charles Russell Speechlys, discusses potential labeling requirements, emphasizing that aspartame's health implications must be <u>communicated well to consumers</u>.

He explains that in the EU, products using aspartame already need to include the phrase `contains a source of phenylalanine.' At the same time, legislation in California imposes obligations to provide risk warnings in consumer products, especially regarding cancer or congenital disabilities.

"The EU approach has typically focused on requiring the provision of ingredient and content information to allow consumers to make informed purchase decisions rather than qualified messages that may confuse or simply lack clarity."

"Particularly where there remains an unsettled collective view as to the links and ultimate risk, it is difficult to foresee the immediate prospect of a legal requirement for further warnings or additions to labels around aspartame."

"While some consumers may still wish to consume aspartame, many will be reluctant to ingest a sweetener classified as 'possibly carcinogenic," David Tsivion, CTO and deputy CEO of DouxMatok, tells us.

He expects the latest <u>WHO learnings on non-sugar sweeteners</u> and the IARC classification may cause food companies to find alternatives to aspartame that are clean label and natural. "We expect that most food companies will not be able to ignore such declarations on one of their ingredients."

Potential IARC reassessment

McConway explains that if substantive new evidence exists, IARC can reassess an evaluated compound or product. Currently, about two-thirds of agents evaluated have had more than one assessment.

As it takes time for more evidence to accumulate, he notes that a reassessment generally takes place many years after an original evaluation.

"Coffee drinking was first assessed in 1990 and put in Group 2B, 'possibly carcinogenic to humans,' and was not reassessed until 2016 after a substantial amount of new evidence had been done," continues McConway.

"That reassessment put it in Group 3, 'unclassifiable as to its carcinogenicity to humans,' which is where IARC puts things if there is very little evidence, if the evidence goes in both directions or if there is some evidence against the agent being carcinogenic."

McConway adds that IARC made it clear there is a lack of sufficiently clear evidence on whether there is a link between aspartame and cancer in humans.

"Even the JECFA summary report, while clearly saying that there's no convincing evidence of carcinogenicity of aspartame consumption below their previously recommended high maximum limit, points to weaknesses in the evidence base. It's unclear when or even if further research will happen."



Recent WHO reports and the IARC classification may dissuade consumers from products with aspartame.

Public scrutiny continues

Aspartame is one of the most rigorously researched ingredients in the food supply, with more than 100 studies and 90 credible global scientific and regulatory food agencies, Robert Ranking, president of the Calorie Control Council, previously told us.

At the same time, the ingredient's safety continues to be under public scrutiny. Cartwright notes a long-running debate on aspartame's risks and usage.

"The divergence of view of the scientific experts continues and is unlikely to disappear. For those companies using aspartame, public opinion and confidence will remain likely points of interest in the light of the recent high profile reporting."

Bhide suggests that the product's safety concerns stem from literature reports that people complained of migraine and behavioral symptoms following consumption. "It is one of the few artificial sweeteners metabolized in the body into constituent compounds. In the case of aspartame, the degradation products are biologically active."



Though aspartame is widely researched, the ingredient has been under public scrutiny since the 1970s.

McConway suggests that aspartame and other sweeteners were already under public scrutiny for a possible link to cancer in the 1970s. "Once ideas have spread that a substance is harmful to health, in whatever way, that public concern does tend to stick, whatever new evidence might emerge."

As another explanation of the public scrutiny, he adds recent studies that were quite widely publicized did appear to show evidence of carcinogenicity in humans and laboratory animals. "The IARC and JECFA experts did point to important flaws in those studies, but media and other reports about them would have moved some public opinion in the direction of carcinogenicity."

Mental health effects of aspartame

Bhide studies the mental health effects of aspartame, as he notes the breakdown products of aspartame in the body – aspartic acid, phenylalanine and methanol/formaldehyde – can affect the central nervous system.

"We have found, using preclinical models (mouse models), that aspartame consumption in drinking water at doses

equivalent to only about 7-15% of the FDA recommended maximum daily intake value for humans (which is 50 mg/kg/day) produces anxiety as well as learning and memory deficits."

"More significantly, the anxiety and learning or memory deficits are transmitted from male mice consuming this low dose of aspartame to their male and female offspring in two generations (children and grandchildren)."

He explains that the anxiety deficit is associated with changes in gene expression in the amygdala – a brain region related to regulating fear and anxiety. Anxiety is alleviated by valium, which he adds suggests the GABA neurotransmitter system is involved.

Bhide recommends further research on aspartame, such as preclinical studies in animal models where aspartame exposure occurs at levels that represent human consumption and for durations that represent long-term use (5-10 years in humans).

In addition, he would welcome well-controlled studies in humans on metabolic effects, cancer and mental health effects, adding that the results of aspartame on germ cells and transmitting these to descendants should be studied further and evaluated by regulatory agencies.

By Jolanda van Hal

To contact our editorial team please email us at editorial@cnsmedia.com

