TO
European Food Safety Authority
Via Carlo Magno 1A
43126 Parma
ITALY
complaints@efsa.europa.eu

Prague, 27th September 2018

RE: Health claim ID 558 relating to fructose

Dear Sirs,

We refer to the above health claim approved by EFSA under ID 558
https://www.efsa.europa.eu/en/efsajournal/pub/2223
https://efsa.onlinelibrary.wiley.com/doi/pdf/10.2903/j.efsa.2011.2223
which currently reads as follows:

> **Claim:** „ consistent significant reduction in post-prandial glycaemic responses, without disproportionally increasing post-prandial insulinaemic responses, following fructose consumption in foods or beverages compared with sucrose and glucose"
>
> **Conditions:** "In order to bear the claim, glucose and/or sucrose should be replaced by fructose in sugar-sweetened foods or drinks so that the reduction in content of glucose and/or sucrose, in these foods or drinks, is at least 30%."
>
> **Health relationship:** "Reduction of post-prandial glycaemic responses"

as published in the EU Register on nutrition and health claims and is based on EFSA (2011).

EFSA (2011) states that "fructose should replace sucrose or glucose in foods or beverages in order to obtain the claimed effect", which is based on its sweetener power and low glycemic index. However, while a low glycemic index is indeed desirable for general population seeking these attributes in whole unprocessed (non-ultraprocessed) food items, such health claim should not be immediately extended to any isolated chemical substance – such as fructose – based solely on its low glycemic index. Such claim does not constitute a benefit for any population group. In fact, EFSA (2011) recognizes that besides the low glycemc index, fructose shows important biochemical/toxicological risks features, in particular its dyslipidemic property by de novo lipogenesis (DNL) and elevation of the cardiovascular risk factor triglycerides.

Individuals with high glycemic load might be under the risk of prejudice due to high post-prandial glycaemia. However, a high fructose load does present a risk in particular by the well-documented biochemical property of increasing triglycerides and uric acid, and resulting in liver insulin resistance and hypertension (Lim 2010, DiNicolantonio 2014), potentially also leading to

kidney damage (Johnson 2010), and substituting glucose by fructose does not provide immediate benefit due to its low glycemic index. Instead, it has been shown that reducing fructose (substituting with glucose) in humans results in the reversal of metabolic syndrome.

Several organizations have recognized the risks of use of fructose as a substitute for glucose, such as the Brazilian Diabetes Society (SBD 2009) and World Health Organization (WHO 2015, see Appendix 1 for recommendation, and Appendix 2 for conflicts of interest).

We respectfully suggest that since 2011, a large amount of scientific data in relation to fructose has led to a shift from advising fructose based on its blood glucose lowering effects to advising to lower/limit fructose consumption, both for healthy subjects and diabetics (Goff 2015).

We believe that fructose as an isolated substance to be used should not carry any health claim as that is likely to result in worse health outcomes in general population as well as in diabetics or "the target population (which) is individuals who wish to reduce their post-prandial glycaemic responses.", and therefore request that EFSA revokes health claim ID 558 with immediate effect.

Please find below a list of peer-reviewed papers in support of our request.

We look forward to hearing from you in due course, and hope EFSA removes the health claim to the benefit of public health.

Kind regards,

Jan Vyjídák
Hana Krejčí
Frédéric Leroy
Mauricio Trambaioli
Nicolai Worm

signed on behalf of Globopol, Prague, CZ

David Unwin, fellow of the Royal College of General Practitioners (UK)

Copy addressed to:

Sabine Julicher
Ladislav Mika

References:

EU Register on nutrition and health claims,
http://ec.europa.eu/food/safety/labelling_nutrition/claims/register/public/?event=search

EFSA (2011) Scientific Opinion on the substantiation of health claims related to fructose and reduction of post-prandial glycaemic responses (ID 558) pursuant to Article 13(1) of Regulation (EC) No 1924/2006
https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/j.efsa.2011.2223
https://doi.org/10.2903/j.efsa.2011.2223

EC (2013) Commission Regulation (EU) No 432/2012 of 16 May 2012 establishing a list of permitted health claims made on foods, other than those referring to the reduction of disease risk and to children's development and health http://data.europa.eu/eli/reg/2012/432/oj

Brazilian Diabetes Society (2009) Nutrition Manual.
http://www.diabetes.org.br/publico/pdf/manual-nutricao.pdf

Sheldon Reiser (1987) Metabolic Effects of Dietary Fructose. Taylor & Francis.

DiNicolantonio (2014) The wrong white crystals: not salt but sugar as aetiological in hypertension and cardiometabolic disease. Open Heart 2014;1:e000167.
doi:10.1136/openhrt-2014-000167

DiNicolantonio (2017) Added fructose as a principal driver of non-alcoholic fatty liver disease: a public health crisis, Open Heart 2017;4:e000631. doi:10.1136/ openhrt-2017-000631

Feig (2003) Feig D and R Johnson, Hyperuricemia in childhood primary hypertension, Hypertension 2003; 42:247-252, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1800942/pdf/nihms-9696.pdf

Goff (2015) Advanced Nutrition and Dietetics, http://amzn.eu/d/e9baksv

Hannou (2018) Fructose metabolism and metabolic disease, https://doi.org/10.1172/JCI96702

Horst (2017) Fructose Consumption, Lipogenesis, and Non-Alcoholic Fatty Liver Disease, *Nutrients* 2017, *9*, 981; doi:10.3390/nu9090981

Jensen (2017) Fructose and sugar: A major mediator of non-alcoholic fatty liver disease, J Hepatol (2018), https://doi.org/10.1016/j.jhep.2018.01.019

Johnson (2010) Johnson RJ, Sanchez-Lozada LG, Nakagawa T. The effect of fructose on renal biology and disease. *Journal of the American Society of Nephrology* 2010, 21, 2036-9. doi: 10.1681/ASN.2010050506.

Lambertz (2017) Fructose: A Dietary Sugar in Crosstalk with Microbiota Contributing to the Development and Progression of Non-Alcoholic Liver Disease, *Front. Immunol. 8:1159. doi: 10.3389/ mmu.2017.01159*

Lim (2010) Lim JS, Mietus-Snyder M, Valente A, Schwarz J-M, Lustig RH. The role of fructose in the pathogenesis of NAFLD and the metabolic syndrome. *Nature Reviews Gastroenterology & Hepatology* 2010, *7*, 251–264.

Lustig (2015) Lustig RH, Mulligan K, Noworolski SM, Tai VW, Wen MJ, Erkin-Cakmak A, Gugliucci A, Schwarz JM. Isocaloric fructose restriction and metabolic improvement in children with obesity and metabolic syndrome. Obesity (Silver Spring). 2016 Feb;24(2):453-60. doi: 10.1002/oby.21371. Epub 2015 Oct 26.

Mock (2017) High-fructose corn syrup-55 consumption alters hepatic lipid metabolism and promotes triglyceride accumulation, Journal of Nutritional Biochemistry 39 (2017) 32–39

Rossett (2016) Pathogenesis of Cardiovascular and Metabolic Diseases: Are Fructose-Containing Sugars More Involved Than Other Dietary Calories?

Schwarz (2015) Schwarz JM, Noworolski SM, Wen MJ, Dyachenko A, Prior JL, Weinberg ME, Herraiz LA, Tai VW, Bergeron N, Bersot TP, Rao MN, Schambelan M, Mulligan K. Effect of a High-Fructose Weight-Maintaining Diet on Lipogenesis and Liver Fat. J Clin Endocrinol Metab. 2015 Jun;100(6):2434-42. doi: 10.1210/jc.2014-3678. Epub 2015 Mar 31.

Schwarz (2017) Schwarz JM, Noworolski SM, Erkin-Cakmak A, Korn NJ, Wen MJ, Tai VW, Jones GM, Palii SP, Velasco-Alin M, Pan K, Patterson BW, Gugliucci A, Lustig RH, Mulligan K. Effects of Dietary Fructose Restriction on Liver Fat, De Novo Lipogenesis, and Insulin Kinetics in Children With Obesity. Gastroenterology. 2017 Sep;153(3):743-752. doi: 10.1053/j.gastro.2017.05.043. Epub 2017 Jun 1.

Softic (2016) Role of Dietary Fructose and Hepatic De Novo Lipogenesis in Fatty Liver Disease, DOI 10.1007/s10620-016-4054-0

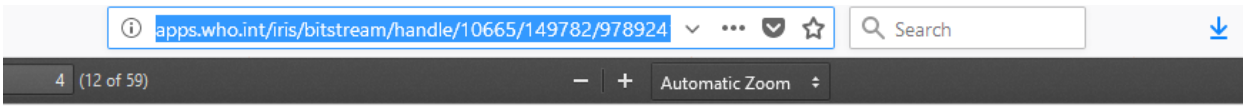
WHO (2015) WHO calls on countries to reduce sugars intake among adults and children
http://www.who.int/mediacentre/news/releases/2015/sugar-guideline/en/

WHO (2015) Sugars intake for adults and children
http://www.who.int/nutrition/publications/guidelines/sugars_intake/en/
http://apps.who.int/iris/bitstream/handle/10665/149782/9789241549028_eng.pdf;jsessionid=EC39BAC543E9231D68330AAA33FD4CA4?sequence=1

Appendix 1 – WHO 2015 recommendations

„A new WHO guideline recommends adults and children reduce their daily intake of free sugars to less than 10% of their total energy intake. A further reduction to below 5% or roughly 25 grams (6 teaspoons) per day would provide additional health benefits."

„Free sugars refer to monosaccharides (such as glucose, fructose) and disaccharides (such as sucrose or table sugar) added to foods and drinks by the manufacturer, cook or consumer, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates."



Recommendations

- WHO recommends a reduced intake of free sugars throughout the lifecourse (*strong recommendation*[1]).
- In both adults and children, WHO recommends reducing the intake of free sugars to less than 10% of total energy intake[2] (*strong recommendation*).
- WHO suggests a further reduction of the intake of free sugars to below 5% of total energy intake (*conditional recommendation*[3]).

Remarks

- Free sugars include monosaccharides and disaccharides added to foods and beverages by the manufacturer, cook or consumer, and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates.
- For countries with a low intake of free sugars, levels should not be increased. Higher intakes of free sugars threaten the nutrient quality of diets by providing significant energy without specific nutrients *(3)*.
- These recommendations were based on the totality of evidence reviewed regarding the relationship between free sugars intake and body weight (low and moderate quality evidence) and dental caries (very low and moderate quality evidence).

Appendix 2 – WHO 2015 recommendations (conflicts of interest)

Professor Russell de Souza declared that he was a co-applicant on an investigator-initiated, unrestricted research grant provided by Coca-Cola to Dr David Jenkins (his co-supervisor at St. Michael's Hospital in Toronto, Canada), to conduct systematic reviews of fructose and CVD risk. Some funds from this research grant were used to reimburse Professor de Souza's travel to a scientific meeting in Canada that was unrelated to trans-fatty acids.

Professor Paul Elliott declared that he is a member of WASH. He also declared that his university is currently receiving research funds for the INTERMAP study from the US National Institutes of Health, and that he received research support for a sodium intake study from the US Centers for Disease Control and Prevention (CDC) in 2010. He declared that he provided an expert opinion related to:

- population sodium intake to the US National Heart, Lung, and Blood Institute National Health and Nutrition Examination Survey Sodium Working Group, Bethesda, USA in January 2011; and
- sodium intake measurement methods and efficacy for the Epidemiology and Surveillance Branch of CDC, USA during 2010–2011.

CMAJ. 2017 May 23; 189(20): E711–E720.
doi: 10.1503/cmaj.160706
PMCID: PMC5436961
PMID: 28536126

Relation of total sugars, fructose and sucrose with incident type 2 diabetes: a systematic review and meta-analysis of prospective cohort studies

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