Statement on the risk assessment of cow’s milk in children aged 1 to 5 years, in the context of plant-based drinks evaluations

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In this guide

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1. Plant-based drinks have become increasingly popular in the United Kingdom (UK) both for individuals with an allergy to cow’s milk or lactose intolerance and those who wish to avoid dairy products for ethical, cultural or other reasons. Currently, the most popular alternatives to dairy are soya, oat and almond-based drinks.

2. Current UK Government advice regarding the use of plant-based drinks for infants and young children is that unsweetened calcium-fortified plant-based

drinks, such as soya, oat and almond drinks, can be given to children from the age of 12 months as part of a healthy balanced diet; rice drinks should not be given due to the levels of arsenic in these products (NHS, 2018). The Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) has reviewed the potential for adverse effects arising from consumption of soya, oat and almond drinks by young children (aged 6 months- 5 years), at the request of the Department of Health and Social Care (DHSC), with a statement setting out the views and conclusions of the Committee published in January 2021 (COT, 2021a). Also, the Scientific Advisory Committee on Nutrition (SACN) have been considering the nutritional aspects of plant-based drinks and in order to bring together the nutritional and chemical risk assessments of these drinks, a joint working group of SACN and COT has been established.

3. DHSC is in the process of conducting an Equalities Analysis covering both the Nursery Milk Scheme and the Healthy Start Scheme, which considers equalities issues posed by the current legislation as it pertains both to plant-based drinks, and also to animal milks other than cow's milk. DHSC is keen to ensure that this Equalities Analysis reflects the most up-to-date advice on safety and toxicity issues from COT, and on nutritional issues from SACN. Hence, this process is currently on hold whilst the joint Working Group considers plant-based drinks.

4. The COT agreed during its meeting in July 2021 that the main comparator for plant-based drinks should be cow's milk and that a discussion paper should be produced looking at the potential chemical risks from the consumption of this in the population group of interest, children aged 6 months to 5 years.

5. Most of the fresh cow's milk available in the UK is UK derived, thus the risks and relevant chemical exposures for this paper are European Union (EU) or UK focused and it is assumed that EU farming practices are similar to those in the UK.

6. This statement follows two discussion papers presented over the course of 2021 (TOX/2021/53 and TOX/2021/58), which presented exposure assessments and subsequent risk characterisations for a range of chemical compounds that could potentially occur in milk. This included a majority of chemicals that are not known to have any potential direct beneficial impacts on the health of consumers within the age category 1 – 5 years of age, and iodine, an essential nutrient which can have both beneficial and detrimental effects depending on multiple factors including dose. The full list of compounds discussed is as follows:

Part 1 (TOX/2021/53):

I. Veterinary medicines

II. Pesticides

III. Nitrate and Nitrite

IV. Bisphenol A (BPA)

V. Phthalates

VI. Dioxins and Dioxin-Like Polychlorinated Biphenyls (DL-PCBs)

VII. Non-Dioxin-Like Polychlorinated Biphenyls (NDL-PCBs)

VIII. Polycyclic Aromatic Hydrocarbons (PAHs)

IX. Isoflavones: Genistein (GEN), Daidzein (DAI), Equol (EQU, metabolite of DAI), Formononetin (FOR) and Biochanin A (BIO)

Part 2 (TOX/2021/58):

X. Heavy metals: Lead (Pb), Arsenic (As), Mercury (Hg) and Cadmium (Cd)

XI. Iodine

XII. Perchlorate and Chlorate

XIII. Mycotoxins: Aflatoxins (AFB1 and AFM1) and others including Deoxynivalenol (DON)

XIV. Hormones – Oestrogens, Insulin-Like Growth Factor 1 (IGF-1)

XV. Per- and polyfluoroalkyl substances (PFAS)

XVI. Brominated Flame Retardants (BFRs)

XVII. Microplastics

7. The Committee considered compounds in cow’s milk to be of minimal risk where the evidence indicated that there was no exceedance of health-based guidance values from consumption of cow’s milk. In these cases, supplementary information, including the discussion of health-based guidance values (HBGVs), detailed exposure assessments and, where relevant, risk characterisation are

included in Annex A to this statement.

8. It is acknowledged from scrutiny of the historical EU RASFF (Rapid Alert System for Food and Feed) data and FSA's alert tools that occasional incidents of contamination of cow's milk with chemicals not included in the discussion papers have occurred; this has involved chemicals such as mineral oils (Montgomery, Haughey and Elliott, 2020), other plant toxins from feed contamination, other agricultural contaminants (e.g. urease inhibitors) (Byrne et al., 2020) and other contaminants (e.g. parabens). As 'one-off' incidents these are acknowledged but not discussed or evaluated in this statement as the overall risks to the population are deemed minimal.

9. Members discussed comparing the levels of particular contaminants within selected plant-based drinks and cow's milk. However, many compounds present in cow's milk may not be present at significant levels in plant-based drinks and vice versa.