

ADVISORY COMMITTEE FOR NOVEL FOODS AND PROCESSES

UV-TREATED MUSHROOMS (*AGARICUS BISPORUS*) WITH INCREASED VITAMIN D CONTENT – DOSSIER 205

ISSUE

1. The Swedish competent authority has prepared comments on an application under the Novel Foods Regulation (EC) No 258/97, for the authorisation of mushrooms treated with UV light to increase vitamin D levels. Under the Novel Food Regulations, whilst the process for producing UV treated mushrooms has been authorised, as it is a novel process, UV treated mushrooms produced by other producers cannot be assessed as substantially equivalent to those currently on the market.
2. The Committee is asked whether it agrees with the initial opinion and whether it would like to make any further comments on this application. The Committee's advice will form the basis for the UK's formal response to the Commission.

Background

3. On 2 March 2017 the European Commission forwarded the Swedish Competent Authority's (CA) positive Initial Opinion on an application made by Ekoidé under Article 4 of the Regulation, for UV-treated mushrooms (*Agaricus bisporus*). Member States have until 5 May 2017 to submit any comments and/or reasoned objections to the Swedish assessment.
4. The application dossier is attached as **Annex A**, the Swedish Initial Assessment Report is attached as **Annex B**. Annex A and B contain protected information.

This application

5. Mushrooms are the edible fleshy fruiting bodies of certain fungi. The most commonly cultivated species is *Agaricus bisporus*, which has a long history of cultivation and consumption. Mushrooms contain high levels of ergosterol (provitamin D₂), the principle sterol in fungi, and on exposure to wavelengths <315nm from sunlight or artificial ultraviolet light, ergosterol is converted to Vitamin D₂. Mushrooms cultivated indoors in general contain lower levels of Vitamin D₂ compared to those grown outdoors.
6. In northern Europe adequate intakes of Vitamin D in the diet may be difficult to achieve. This application is to increase the level of vitamin D in *Agaricus*

bisporus grown under controlled indoor conditions by using UVB irradiation to convert ergosterol to vitamin D₂.

7. The applicant states the consumption of mushrooms in Sweden is approximately 2kg per person per year. Consumption in the UK is higher at approximately 3kg per person per year. The data on recommended intakes of vitamin D relates to Nordic countries only, you may therefore wish to consider intake data which is to be discussed for a different agenda item. I have therefore attached data at
8. The toxicant associated with *Agaricus bisporus* is the phenylhydrazine derivative agaritine. The applicant refers to HPLC studies which concluded that UV exposure of *Agaricus bisporus* mushrooms does not significantly affect the level of agaritine. Agaritine remains within the range reported in the OECD (OECD 2007) consensus document. They show UV light has no impact on agaritine content which is naturally highly variable. The agaritine content remained within normal ranges and was significantly degraded during studies due to the processing of the mushrooms and agaritine's own instability.
9. The applicant states allergenicity or other food hypersensitivities associated with *Agaricus bisporus* are rare and there is no information that additional UVB treatments will affect that risk.
10. Tests demonstrate that microbiological safety is not significantly affected by UVB treatment,

COMMITTEE ACTION REQUIRED

11. Members are asked whether they agree with the initial opinion from the Swedish Authority and whether they wish to make any comments on the application.
12. The Committee's advice will form the basis for the UK's formal response to the opinion of the Swedish Competent Authority.

**Secretariat
April 2017**

Annexes attached:

Annex A Application for the approval of UV-treated mushrooms (*Agaricus bisporus*) with increased vitamin D content.

Annex B Initial Opinion of the Swedish Competent Authority.