Meeting

Madhuca Longifolia Discussion Paper

Committee Paper for Discussion - ACNFP/157/03

Advisory Committee for Novel Foods and Processes

Traditional Food Notification for Madhuca Longifolia.

Application number RP1804

Issue

A notification for Madhuca Longifolia commonly referred to as mahua, a traditional food from a third country, has been received under Regulation (2015/2283) (EU retained law).

The Committee is asked whether there are safety concerns with the proposed use of this traditional food in the UK market. The information from the Committee will provide the basis for risk management decisions made by the UK.

Background

1. On the 8th of November 2022, the FSA received a notification from O Forest Ltd for authorisation of Madhuca Longifolia. The applicant intends to market the product as a source of food in the form of dried nibs, powder and a herbal tea infusion.

2. The FSA and FSS has four months to provide reasoned safety objections to the Traditional Foods sale in the UK. If authorised, the authorisation will be open to any company subject to the specification and conditions of use detailed in the dossier. Advice on the safety of this traditional food is requested to inform this process.

3. The notification dossier is attached as Annex A. Requests for further information and responses can be found in Annex B with all other supporting documents in Annex C. These annexes contain confidential information.

This Application

Identification

4. This novel food is found across forests in India, Sri Lanka, Myanmar and Nepal. The applicant states that the traditional food under this application will be sourced solely from India. The applicant states that Madhuca Longifolia, of the botanical family Sapotaceae and also referred to as mahua is a flower producing tree that has traditionally been used as a source of medicine and food for many years. These flowers are the novel food seeking authorisation. They are sugar rich, small in size with corollas that are fleshy pale white in colour. When sundried, they turn dark reddish brown and shrink in size resembling raisins.

Production Process

5. The applicant states that the tree occurs naturally i.e. not propagated nor planted and that the indigenous people do not interfere with the tree, they simply collect the flowers. They also highlight that the traditional ‘harvesting’ part of the production process is deemed to be unacceptable as per ‘food grade’ standards, hence with the assistance of local government officials, they have devised a way that is more acceptable to western countries in collecting the flowers.

6. The trees take approximately 5-7 years to reach maturity and produce the flowers. No pesticides, antimicrobial or antiparasitic agents are used. Nets are placed around the trees to collect the flowers and emptied regularly to avoid damaging them. They are then spread on trays under solar polytunnels to dry for 5-6 days. The flowers are dried to 10-20% moisture by weight, manually inspected prior to packaging to ensure non-food materials are removed. They are packaged into food grade moisture proof bags, into labelled cartons, stored in controlled temperature and shipped by sea to the UK in a container that is compliant with ISO standards.

7. A request to give a detailed production process was sent to the applicant (Annex B: response 1) to supplement data in Annex A. Cartons received are inspected with the remaining production process carried out in the UK. The flowers are roasted in a bed air roaster at 150°C for 5 minutes then air cooled.

The roasted flowers are cracked into nibs by a roller cracking machine, then sorted according to size. Fine nibs are further ground into a powder using a mill with the addition of Diatomaceous Earth as an anti-caking agent. The medium nibs are used for the tea blends and the coarse nibs to be marketed as nibs.

8. Following a request to provide control/operational limits in place to demonstrate hazard identification and mitigation, the applicant has highlighted potential hazards within various stages in the production process and how this will be controlled (Annex B: response 1) as well as providing a flow chart (Annex B: response 2). The applicant has also explained that they are undergoing several certifications at present to further verify the quality of their management processes.

Composition

9. The applicant has provided analysis undertaken by an independent UK laboratory, further supported by scientific review (Annex B: response 1) with Certificates of Analysis (CoA's) attached within the application (Annex A: p13-33 and p75-121). Additionally, responses to further requests to have the data systematically presented for ease of assessment can be found in Annex B: response 2 and respective CoA’s in Annex B: response 1. They also explain that 5 batch testing has not been performed overall on all parameters with justification given in Annex B: response 1.

10. Analysis of the flower has been undertaken on both processed and unprocessed flowers, with the unprocessed samples forming the baseline for which safety conclusions are to be drawn. The applicant also states consideration is also given to the common groundwater and the land use where Mahua is sourced. 2 samples have been analysed for heavy metals (unprocessed and processed) as shown in Table 1 (Annex B). The applicant concludes that levels are below prescribed maximum permissive levels and also note that heavy metal pollution of the source of Mahua is rare.

11. The applicant carried out mycotoxin analysis on 2 samples (unprocessed and roasted) with consideration of relevant mycotoxins and concluded that levels were acceptable as shown in Table 2 (Annex B).

12. Two unprocessed samples from 2 different regions in the same season (2020) were extensively analysed for pesticides as attached in Annex B: response 1, with the applicant finding no positive results. They also consider land use survey for their product emphasising on the natural habitat and lack of pesticide use in the

area.

13. The applicant has carried out microbiological analysis on 5 unprocessed batches, as well as 3 (sample 2,3,4) roasted samples with the results in Table 3 (Annex B). They conclude microbial activity to be within limits for all microbes tested.

14. Nutritional analysis has been undertaken on 5 samples; sample 1 unprocessed and 4 roasted including one on the stamen only (sample 7) as shown in Table 4 (Annex B). The applicant states Mahua is not nutritionally disadvantageous. They also state that the removal of the stamen results in the decrease of fibre content of the roasted flower hence reducing consumption benefits slightly and this will be done for the nibs only. They also evaluate the sugar content, which they state to be high in Mahua but propose 15g daily intake of the traditional food seeking authorisation.

15. 5 roasted samples have been analysed for minerals that are standard to most foods as shown in Table 5 (Annex B). To note, sample 6 is roasted via the intended method for the traditional food ingredient seeking authorisation i.e. a fluid bed air roaster, and, sample 7 is the stamen. They state that the stamen might have the majority of minerals and that removing this compromises on nutrition but due to its bitter taste, this is necessary to enhance palatability. From the overall results, the applicant concludes that whilst the removal of the stamen affects the mineral levels, the contents in the roasted flower are not nutritionally disadvantageous.

16. Following evaluation form scientific literature, the applicant carried out a vitamins analysis with the results displayed in Table 6 (Annex B). They concluded that Mahua is not nutritionally disadvantageous, and a source of vitamins to those on diets that are lacking in vitamins. Analysis was done on 4 samples of the roasted flower with a fifth on the stamen (sample 12).

17. The applicant has provided amino acids analysis on one roasted sample as shown in Table 7 (Annex B: response 1 p79-82). They conclude that Mahua might be of benefit to those lacking an amino acid intake such as vegans and that Mahua had similar levels of leucine and threonine to quinoa.

18. An allergen analysis was conducted with the results provided in Table 8 (Annex B: response 1 p82-86), with the applicant stating that a literature review revealed allergenicity highly unlikely for Mahua. Also, the careful handling in the production would ensure the product is free of the 14 major allergens required to

be labelled in the UK.

Stability

19. The applicant based the stability tests on 5 batches of unprocessed mahua with microbial activity as the key parameters. Results are provided in Table 9 (Annex B). They note the results depict a worst-case scenario and that with improvements to the production process, these levels would decrease further. It is also noted that sample 11 is the improved sample i.e. one that has been collected with better methods implemented using nets, and that despite sample 11 being stored in open conditions, microbial activity is the lowest of all samples.

Specification

20. The Applicant states that due to the nature of the food and the tribe where it originates from, there is little historical data published which makes it difficult for them to produce an exhaustive specification list. Due to the food being a ready to eat, roasted product that has undergone a heat cycle, they form the basis of their specification on microbial properties associated with ready to eat food with table provided (Table 10, Annex A p35-37).

Experience of Continued Use

21. The applicant states that the traditional food has been used for thousands of years but that it’s difficult to establish when it was first consumed. However, they report on literature to show use of all parts of the tree as a regular part of the diet of Indians (Annex A: references 25-32). They state that the use of the traditional food is widespread across India traditionally and through ‘value added’. A chart has been provided to show a breakdown of all known uses (Annex A: p38).

22. A brief extent of use has been provided with use of maps. Traditionally, Mahua was consumed and sold by the indigenous people with a shift in consumption in recent years with various companies selling raw and refined Mahua to the general population. Role in the diet is not defined with Mahua stated to be used as an ingredient in a variety of foods both as an essential constituent and as a form of health food but particularly as a substitute for staple grains.

23. The applicant states the Food Standards and Authority of India (FSSAI) make no recommendations on the preparation or restriction of use and that the maximum daily consumption has been set at 15g for the flowers. They also note

that EFSA have reviewed Saponins in Madhuca Longifolia as undesirable substances in animal feed and that that concern is for seed cakes only (Annex A: p42-43 and references 35-40).

Proposed Conditions of Use

24. The target population is the general population. They state there is no rationale to restrict the food to any demographic due to there being no recorded health issues reported by the indigenous tribes. They anticipate it will be appealing to young health conscious professionals.

25. They state proportions and quantities of use will be as per RDA of each macronutrient as specified by member states. They do not foresee specific restrictions, however they advise no more than 15g per day due to the natural sugar content limiting the RDA to 10.3% of an average person's sugar consumption. They propose the use of the flower in 3 forms; as roasted nibs, as a powder and nibs of 2g in herbal teabag infusions.

26. Mahua is not intended to replace or substitute any existing food. It is recommended to be stored in a dark place and consumed within 28 days, reasoning for which is provided in Annex B: response 1. They also highlight caution for children under 36 months due to size of nibs as a potential choking hazard.

Committee Action Required

- Members are asked whether there are safety concerns that need to be managed with this traditional food from third countries.
- The Committee's advice will form the basis for the UK's formal response to the Commission and whether reasoned safety objections are submitted.

Secretariat February 2023

Annexes (Confidential)

Annex A – Madhuca Longifolia Dossier

Annex B – Requests and Responses for Further Information

Annex C – Supporting Documents