Summary of the dossier: *Lemna minor* (and *Lemna gibba*) whole plant material used as vegetable

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This application for authorisation of a novel food in accordance with Regulation (EU) 2015/2283 concerns *Lemna minor* plant material. As the closely related *Lemna gibba* is almost similar to *Lemna minor* the applicant also request authorisation for *Lemna gibba* plant material. *Lemna minor* and *Lemna gibba* are both from the family of plants commonly named as 'duckweed'. For human food application the use of the name 'water lentils' is preferred to distinguish it from plants grown in (natural) open ponds.

Both plants species will be used as either fresh vegetable, as frozen vegetable or as part of composed products like ready-to-eat dishes, smoothies or others. The plants are cultivated in closed settings like a greenhouse or indoor/vertical farming system for which cultivation, handling and processing will be performed according to HACCP principles. After harvesting, the plants are immediately processed to the water lentil (based/containing) products. The products will comply with the general food law principles, food contaminants and microbiological requirements laid in Regulation (EC) No 178/2002, Regulation (EC) No 1881/2006 and Regulation (EC) 2073/2005, respectively.

Water lentils, *Lemna minor* and *Lemna gibba*, are intended as vegetable for the general population and will be sold as a sustainable, easy-to-produce new vegetable crop with the application possibilities and intake levels of any other leafy vegetable crop such as spinach, endive, lettuce or kale. The product can also easily replace other vegetables in all kind of dishes like standard 'potato-meat-vegetable' dishes, mashed potato based dishes, sauce for pasta or curries, vegetable ingredient for quiches or lasagna, soups, ready-to-eat meals, smoothies, etc but also as potential ingredient of other products like infusions, fried dishes, dairy based products like yoghurts, cheese and ice or added to meat or meat replacers similar as spinach is currently used in many of these products. Like any vegetable crop the product contains the standard macro- and micro-nutrients within the range of other vegetables. Only the protein level based in % of the total energy value is relatively high compared to other leafy vegetable crops and even compared to a product like lentils (pulse). Like most leafy vegetable crops the product contains all essential amino acids, although digestion and uptake of proteins might not be very efficient as found by a human intake study, however this was based on a large single bolus and not on portions that normally would be used for intake of vegetables.

As regard to the safety of the novel food, water lentils have the capacity to accumulate some minerals and heavy metals from the cultivation solution. Therefore, when setting up a new cultivation, the water quality and added fertilisers should be balanced in such a way that harvested plants do not exceed upper limits as set for some of the nutrients and heavy metals. Analyses and scientific studies show no safety concerns for the consumption of these duckweed species as plant material. This was supported by a human trial in which subjects who consumed 170 g *Lemna minor* for 11 subsequent days did not report any serious adverse effects and had no significant changes in health-related biomarkers. The microbial data of fresh harvested product exceed the limits as set in Regulation (EC) No 2073/2005. A heat treatment with either hot water, steam or microwave must be used to reduce the levels within the CFU ranges allowed for the products marketed. Products treated with hot water, steam, or any other type of sterilisation and stored as frozen product at -20°C have shown to be stable and low in microbial

contaminants. Based on literature search, genomic and proteomics analysis, water lentils are not expected to have allergenic potential or a cross-reactivity with known food allergens for which food labelling is needed. This warrants no mandatory allergenicity labelling.

In conclusion, *Lemna minor* and *Lemna gibba* plant material is intrinsically a safe vegetable for human consumption, but like any other vegetable crop, regular quality control for microbial and other contaminants will be required.

The application has been prepared in accordance with the requirements of Commission Implementing Regulation (EU) 2017/2469 of 20 December 2017 laying down administrative and scientific requirements for applications referred to in Article 10 of Regulation (EU) 2015/2283 of the European Parliament and of the Council on novel foods, the European Food Safety Authority (EFSA) Guidance on the preparation and presentation of an application for authorisation of a novel food in the context of Regulation (EU) 2015/2283 and EFSA's Administrative guidance on the submission of applications for authorisation of a novel food pursuant to Article 10 of Regulation (EU) 2015/2283.