Summary of the dossier: Application to Expand the Specification of Arachidonic Acid (ARA)-Rich Oil in the European Union to Include a New Non-GM Strain of *Mortierella Alpina*

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The application is for the expansion of the current specification for arachidonic acid (ARA)-rich oil in the European Union for use in infant formula, follow-on formula, and foods for special medical purpose for infants to Include a novel non-GM strain of *Mortierella alpina (M. alpina).* The novel *M. alpina* (CNCM I-4642) strain was first isolated in 2003 under normal and natural conditions from fruit tree farm soil in the Jilin region of China. The fungal identification was confirmed through morphological characteristics as well as by performing 28s rRNA gene sequencing and by Blast analysis of 28s rRNA gene sequences to other strains of *M. alpina.* The strain CNCM I-4642 has subsequently been deposited at the collection of INSTITUT PASTEUR of PARIS under the reference CNCM I-4642 in 2012 and additionally in China at the Center for Type Culture Collection under the reference CCTCC M 209116 in 2009. ARA-rich oil falls under "Foods consisting of, isolated from or produced from microorganisms, fungi or algae" as per Article 3(2)(a)(ii) of Regulation (EU) 2015/2283.

The ARA-rich oil from strain CNCM I-4642 will substitute for those non-genetically modified strains of *M. alpina* including 1S-4, I49-N18, FJRK-MA01 and CBS 210.32 that are permitted under Regulation (EU) 2015/2283 for use in those infant formula categories. The ARA-rich oil is manufactured by a controlled standard heterotrophic fermentation process, introduces no microbial or chemical hazards, and meets the current EU purity specification. Furthermore, the ARA-rich oil produced from *M. alpina* CNCM I-4642 has been determined to have a similar nutritional profile as that of those currently approved sources of oil manufactured from *M. alpina* strains 1S-4, I49-N18, FJRK-MA01 and CBS 210.32 and overall is substantially equivalent to those products currently sold in the EU marketplace. The production process takes place in a controlled environment in accordance with Food Safety System Certification FSSC22000. Analytical results for 5 production batches of ARA -rich oil from *M. alpina* CNCM I-4642 demonstrate that the manufacturing process produces a consistent product that conforms to the established EU product specifications, and is free of heavy metal, microbial, chemical, mycotoxin and environmental pollutants that, if present, would pose a safety concern. The ARA oil from *M. alpina* strain CNCM I-4642 also displayed no antimicrobial activity when tested against various reference strains known to be susceptible to a range of antibiotics. Stability studies were conducted on four batches of ARA-rich oil at temperatures below -5°C for 18 months, one batch at temperatures below -5°C for up to 36 months, one batch at 25°C for 12 months, and four batches at 62°C for 15 days. These studies further corroborate the known long-term stability of the product, with no significant increase in oxidation products. This is in line with the opinion of the Dutch Novel Foods Unit of the Ministry of Health, Welfare, and Sport (2011).

While ARA-rich oil has been considered safe and approved for use in infant formula, follow-on formula and foods for special medical purpose for infants in the European Union since 2008 with the current specification listing 4 non-genetically modified strains of *M. alpina* including 1S-4, I49-N18, FJRK-MA01 and CBS 210.32, additional toxicology studies *(*including *in-vitro* genotoxicity studies, an acute and a subchronic 90-day rat study as well as a rat developmental study) were conducted to corroborate the safety of ARA-rich oil. There was no evidence of genotoxicity in the *in vitro* tests, and the highest dose tested in the 90-day study was established as the no-observed-adverse-effect-level. Likewise, the developmental confirmed the NOAEL for embryotoxicity, fetotoxicity or teratogenicity to be 5000 mg/kg

bw/day. The results from the recent toxicological studies supporting the safety of ARA-rich oil derived from strain CNCM I-4642 are also corroborated by a host of both non-clinical and clinical infant formula studies of the identical ingredient from different strains of *M. alpina*, published within the peer reviewed literature. Together, the available evidence on ARA-rich oil supports the safe use of the ARA-rich oil derived from *M. alpina* CNCM I-4642 under the proposed conditions of use.

This dossier 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[1], supported by 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* (Revision 1) (EFSA NDA Panel, 2021) and the EFSA *Administrative guidance on the submission of applications for authorisation of a novel food pursuant to Article 10 of Regulation (EU) 2015/2283* (EFSA, 2021).

[1]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. C/2020/8169 OJ L 398, 327.11.202020, p13-18. Available online: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32020R1772