Summary of the dossier: *Wolffia globosa* 'Mankai' powder

Applicant: Hinoman, 2 Nim Av. Rishon LeZion, 75141, Israel

This dossier concerns a Novel Food approval for *Wolffia globosa* 'Mankai' powder (Mankai™ D110).

Fresh Mankai™ is a cultivated strain of *Lemnaceae*-aquatic plants that float on the surface of slow-moving bodies of water, known commonly, in English, as Asian Watermeal and is part of the *Lemnaceae* family, commonly known as Duckweed.

Fresh Mankai™ is grown in cultivation basins and the growth is done under closed-controlled green-house conditions. Continuous growth and harvesting is carried out in a semi/fully automated process.

The production process of both fresh Mankai™ and Mankai™ D110 (a dried form), comply with the standards of Quality Management of FSSC 22000 and ISO 9001.

The specifications of Mankai™ D110 are detailed in this document and are in accordance with European standards and regulations. Mankai™ D110 contains a high level of protein (40-48%) and carbohydrates (24-40%, of which 75% is a dietary fibers), and low in fat (6-12%) and <10% minerals. Analysis of the amino acid composition reveals that the protein is of a rather similar amino acid profile to that of egg (and Protein digestibility-corrected amino acid score 0.89). Thus Mankai™ D110 appears to be a wholesome source as it provides complete protein, 'packed' into a single tiny leaf veggie with numerous vitamins (such as A, E, B6, B9 and B12), minerals (such as iron, magnesium, zinc) and dietary fibers to form a potent source for human nutrition.

The low-variability between several batches under the Hinoman production methodology and the stability of Mankai™ D110 - have been provided, demonstrating that Mankai™ D110 production is stable between batches and that the ingredient is stable over a period of a full year.

Microbiological and heavy metals analyses are in conformity with the standard safety levels. Levels of oxalic acid are comparable to, or less than, those that may be ingested from common vegetables, such as spinach, Broccoli, lettuce or asparagus.

Documentation on previous use of the NF source in the world has been provided, especially in Asia where the food is historically consumed.

The composition of Mankai™ D110 results in a safe and stable food ingredient.

The safety of Mankai™ D110 has been substantiated by *in vitro* genotoxicity studies and *in vivo* studies, in order to conclude that Mankai D110 does not present any potential hazard for human consumption. .

Genotoxicity (AMES, chromosome aberration *in vitro*) and micronucleus studies indicate lack of genotoxicity.

In conclusion, Mankai™ (*Wolffia globosa* 'Mankai') powder characterization is compliant with all the standards of European Regulation, especially in term of contaminants, variability

and stability. It is proven as safe and is already authorized and consumed outside the European Union.