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Development of a Plant-Based Dietary Supplement to Address Critical Micronutrient Needs of Women of Child-Bearing Age in Europe

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Abstract : Women's reproductive stages (pre-pregnancy, pregnancy, and lactation) represent a time of higher micronutrient needs. With a healthy food selection as the first path of choice to cover these increased needs, tandem micronutrient supplementation is often required. Because pregnancy and lactation should be treated with care, all supplements consumed should be of quality ingredients and manufactured through controlled processes. This work describes the process followed for the development of plant-based multiple micronutrient supplements aimed at addressing the growing demand for natural ingredients of non-animal origin. A list of key nutrients for inclusion was prioritized, followed by the identification and selection of qualified raw ingredient providers. Nutrient absorption into the food matrix was carried out through natural processes. The outcome is a new line of products meeting the set criteria of being gluten and lactose-free, suitable for vegans/vegetarians, and without artificial conservatives. In addition, each product provides the consumer with 10 vitamins, 6 inorganic nutrients, 1 source of essential fatty acids, and 1 source of phytonutrients each (maca, moringa, and chlorella). Each raw material, as well as the final product, was submitted to microbiological control three-fold (in-house and external). The final micronutrient mix was then tested for human factor contamination, pesticides, total aerobic microbial count, total yeast count, and total mold count. The product was created with the aim of meeting product standards for the European Union, as well as specific requirements for the German market in the food and pharma fields. The results presented here reach the point of introduction of the newly developed product to the market, with acceptability and effectiveness results to be published at a later date.

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