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IMPACT OF MICROPLASTICS ORIGINATING FROM FORMULA PREPARATION ON PROTEIN DIGESTION IN INFANT DIGESTION MODELS

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Microplastics (MPs) of various morphologies have been ubiquitously detected in the environment, food, drinking water, and biota and may pose a threat to food safety and human health. Interestingly, the highest reported concentration of MPs comes from the processing of foods in plastic packaging. MPs exposure to humans is more prevalent in infants than in any other age group due to the use of polypropylene (PP)-based products in formula preparation. Although the effect of MPs on human health is still controversial, multiple studies conducted using *in vivo* and *in vitro* animal models have suggested that MPs can lead to a variety of health problems for humans, including gastrointestinal disorders, obesity, inflammation, cardiovascular disease, disruption of the endocrine system, and damage to vital organs including the liver and spleen. In addition, MPs could disrupt the digestion and bioavailability of important nutrients such as proteins, affecting the proper functioning of the human body, or triggering chronic health diseases and allergic reactions. Meanwhile, cow's milk forms an essential part of the diet of infants as a source of protein and other nutrients and a primary component of infant formula. MPs have been found in milk products, including prepared infant formula. Despite the overwhelming evidence of the presence of MPs in infant foods, the literature remains deficient in information relating to the impact of MPs on the digestion and absorption of proteins in infants. This research gap gave birth to the European Union's Horizon Europe-funded Microprot project. The broad aim of the Microprot project is to investigate the impact of polypropylene-based MPs from plastic packaging material on the digestibility of proteins in adults and infants. Therefore, the occurrence of MPs in various foods and their potential effect on health will be presented, highlighting the approach and impact of the Microprot project.

Keywords: Microplastics, plastic packaging, health, infant formula, food, and beverages

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