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POSTER COMMUNICATION · INFECTIOUS DISEASES

Detection of Diverse Microplastic Polymers in Human Breast Milk

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KEY MESSAGES

1. Des microplastiques divers sont présents dans le lait maternel humain.
2. Les polymères détectés incluent PE, PP, PET et PVDF, indiquant plusieurs voies de contamination.
3. Il est nécessaire de standardiser les méthodes de détection et d'évaluer les risques pour la santé des nourrissons.

ABSTRACT

Introduction. The detection of microplastics (MPs) in human breast milk (HBM) has raised urgent concerns about infant exposure to environmental contaminants during a critical developmental stage. Breastfeeding, considered the gold standard for infant nutrition, may inadvertently serve as a pathway for MPs to reach newborns.

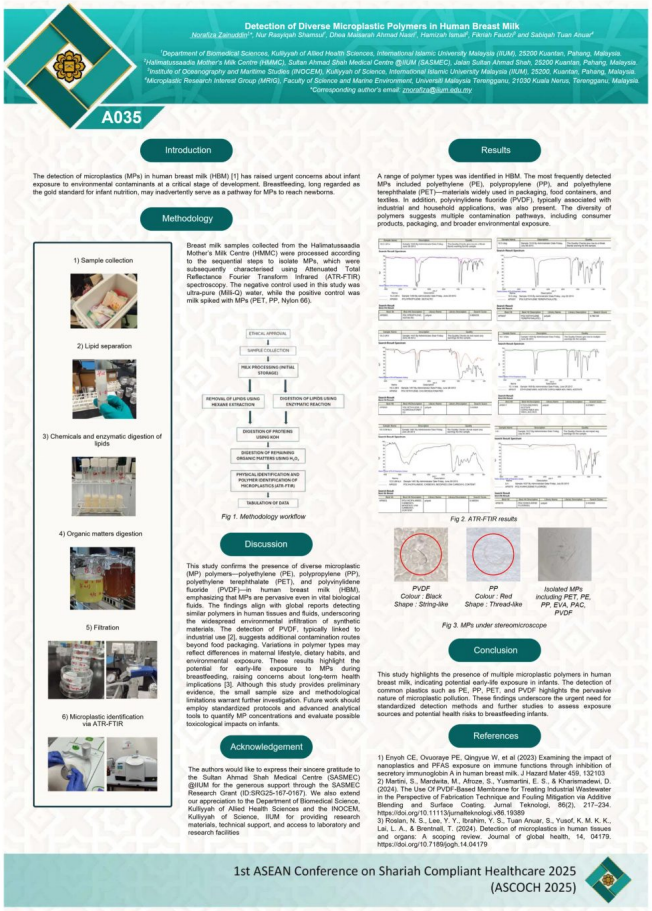
Materials and methods. Breast milk samples collected from the Halimatussaadia Mother's Milk Centre (HMMC) were processed through sequential steps to isolate MPs. These were characterized using Attenuated Total Reflectance Fourier Transform Infrared (ATR-FTIR) spectroscopy. Negative control was ultra-pure water, and positive control was milk spiked with MPs (PET, PP, Nylon 66).

Results. A range of polymer types was identified in HBM. The most frequently detected MPs included polyethylene (PE), polypropylene (PP), and polyethylene terephthalate (PET), widely used in packaging, food containers, and textiles. Polyvinylidene fluoride (PVDF), associated with industrial and household applications, was also present. The diversity of polymers suggests multiple contamination pathways including consumer products, packaging, and broader environmental exposure.

Conclusion. This study highlights the presence of multiple microplastic polymers in human breast milk, indicating potential early-life exposure in infants. The detection of common plastics such as PE, PP, PET, and PVDF underscores the pervasive nature of microplastic pollution. These findings emphasize the urgent need for standardized detection methods and further studies to assess exposure sources and potential health risks to breastfeeding infants.

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