

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2021-09
Project Title:	Investigation on removal of the microplastics in food waste digestate for safer organic fertilisers
Principal Investigator:	Dr Zhao Jun, Department of Biology, Hong Kong Baptist University
Total Approved Grant:	\$499,200
Duration:	1/10/2022 to 30/9/2024
Project Status/Remarks:	On-going
Project Scope:	<p>Microplastics have become a global environmental problem, and the health risks they may bring have also received more and more attention. Microplastics in the soil will influence the soil ecological environment and enter plants such as vegetables, and finally enter the human body through the food chain, causing health risks. Organic fertilisers from food waste digestate are one of the main sources of microplastic particles in soil. This potential risk has not received enough attention for a long time, and there is a lack of research on the microplastics in the local solid digestate. This project will measure and analyse the microplastics in the solid digestate, and develop an optimal hydrothermal carbonisation method to remove the microplastics in the digestate to produce microplastic-free organic fertilisers. This project aims to –</p> <ul style="list-style-type: none"> (a). Investigate the microplastics in solid digestate and study the carbonisation mechanism of microplastics under hydrothermal conditions; (b). Develop the most efficient and energy-saving hydrothermal carbonisation technology for the complete removal of microplastics in solid digestate; (c). Verify the effect of hydrothermal biochar and hydrothermal liquid on plant growth as organic fertilisers; and (d). Conduct technical and economic analysis of the hydrothermal carbonisation technology.
Summary of the Findings/Outcomes:	To be available upon completion of the project