

## Environmental Research, Technology Demonstration and Conference Project

<b>ECF Project:</b>	ECF 2022-123
<b>Project Title:</b>	Environment and Conservation Fund - End of life scenarios assessment of bioplastics and biomass-based disposable bags/tableware available in Hong Kong: biodegradability and environmental impact
<b>Principal Investigator:</b>	Dr Mathikere Krishnegowda Manu, Department of Biology and Institute of Bioresource and Agriculture, Hong Kong Baptist University
<b>Total Approved Grant:</b>	\$1,100,000
<b>Duration:</b>	15/5/2023 to 14/1/2025
<b>Project Status/Remarks:</b>	On-going
<b>Project Scope:</b>	<p>Global bioplastic and biomass-derived tableware production are increasing every year due to the increased awareness of the adverse impact of plastic pollution on the environment. Different types of biomaterials (bioplastics and biomass-based tableware) carry different types of labels indicating their degree of biodegradability. However, the end-of-life (EoL) analysis of these products under anaerobic digestion and composting shows their biodegradability is limited, especially under local Hong Kong conditions. There is also a lack of understanding of bio-disintegration, biodegradation and the potential for the formation of micro and/or nano plastics during anaerobic digestion and composting. Hence, the purpose of this work is to study the EoL analyses of biomaterials available in Hong Kong to determine their suitability for disposal in biological waste treatment facilities. Systematic laboratory experiments will be conducted with emphasis on biodegradation rate, formation of micro-and/or nano plastics and their effect on the process performance. Finally, lifecycle assessment (LCA) and material flow analysis will be conducted to evaluate the environmental impact. The outcome of the present study will provide evidence to guide the use of biomaterials in the waste collection process, and their suitability for use in the biological treatment and standardisation of the various labelling system.</p>
<b>Summary of the Findings/ Outcomes:</b>	To be available upon completion of the project