Macro- and microplastics accumulation in natural and reforested mangrove stands and its impact on the associated macrobenthos at Matang, Malaysia

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Over the last few years, plastic pollution has been considered a rising global threat due to the negative ecological and socioeconomic consequences as well as the health risks that it imposes on the public. To date, studies related to plastic accumulation in coastal ecosystems like mangroves remain minimal. Moreover, the prevalence and impacts of microplastics (< 5mm) on macrobenthic organisms and other associated fauna are still examined considerably to a lesser extent. The study focuses on one of the world's longest-managed mangrove forests (for timber and charcoal), the Matang Mangrove Forest Reserve (MMFR), located on the northwest coast of Peninsular Malaysia. Different-aged mangrove forest stands were assessed to determine the distribution and composition of macroplastic pollution and thereby the ingestion of microplastics in selected brachyuran crab species as indicators. By observing both physical and chemical characteristics of the microplastics (using micro-Fourier transform infrared spectroscopy (micro-FTIR), scanning electron microscope (SEM) images, etc.), a possible relationship between the abundance of macro- and microplastics and their variation with respect to different feeding guilds of the brachyuran crabs will be assessed.

Keywords
Brachyuran Crabs; Plastic Pollution; Matang Mangrove Forest Reserve; Malaysia