

國立臺灣海洋大學
海洋環境與生態研究所 專題討論

題目：人口密集的巨型城市沿海水域、沉積物及沿海動物中的微型塑膠 - 人為排放對蛤蜊的影響

英文題目：Microplastics in the foreshore coastal waters, sediment, and coastal fauna of a highly populated megacity - A study on the effect of anthropogenic discharge on clams

作者：Bejawada Chanikya Naidu, K.A. Martin Xavier, Satya Prakash Shukla, Ashok Kumar Jaiswar, Binaya Bhusan Nayak

出處：Marine Pollution Bulletin 185 (2022) 114262

報告人：邱韋豪 環態所預研生

指導教授：許瑞峯 助理教授

報告日期：2023/05/17

Abstract

In this study, the microplastics (MPs) abundance, characteristics and their variations across three popular beaches of highly populated and largest megacity of India were documented using clams as an indicator species. The abundance of MPs in clams was 77.39 MPs items/g in soft tissue parts and 198.82 items/individual, while in coastal waters and sediments the abundance was 537.5 ± 95 items/L and $10,568.3 \pm 3053.3$ items/kg respectively. The observed higher microplastic diversity integrated (MDII) indicates numerous sources contributing to microplastics pollution and higher microplastic index (MPI) indicates greater bioavailability of MPs to clams. The bulk of the microplastics recovered from clams (55.78 %), coastal sediments (52.27 %) and coastal sea waters (54 %) belong to the $<100 \mu\text{m}$ size range, and were identified as LDPE and polypropylene, polyamide and polystyrene. This investigation tried to validate the potential trophic transfer concerns associated with clam intake to both human health and marine ecology.

國立臺灣海洋大學
海洋環境與生態研究所 專題討論

題目：人口密集的巨型城市沿海水域、沉積物及沿海動物中的微型塑膠 - 人為排放對蛤蜊的影響

英文題目：Microplastics in the foreshore coastal waters, sediment, and coastal fauna of a highly populated megacity - A study on the effect of anthropogenic discharge on clams

作者：Bejawada Chanikya Naidu, K.A. Martin Xavier, Satya Prakash Shukla, Ashok Kumar Jaiswar, Binaya Bhusan Nayak

出處：Marine Pollution Bulletin 185 (2022) 114262

報告人：邱韋豪 環態所預研生

指導教授：許瑞峯 助理教授

報告日期：2023/05/17

中文摘要

該研究中，使用蛤蜊作為指示物種已紀錄印度人口密集的巨型城市及三個熱門海灘的微塑膠(MPs)豐度、特徵及其變化。蛤蜊中 MPs 的豐度在軟組織部分為 77.39 items/g 及 198.82 items/individual，而在沿海水域及沉積物中之豐度分別為 537.5 ± 95 items/L 及 $10,568.3 \pm 3053.3$ items/kg。觀察到較高的 microplastic diversity integrated index(MDII)表示有許多來源導致微塑膠污染，較高的 microplastic index(MPI)則表示 MPs 對蛤蜊的生物利用率更高。從蛤蜊(55.78%)、沿海沉積物(52.27%)及沿海海水(54%)中回收的大部分微塑膠尺寸範圍小於 $100\mu\text{m}$ ，並確定種類為低密度聚乙烯(LDPE)、聚丙烯(PP)、聚醯胺(PA)及聚苯乙烯(PS)。該調查試圖驗證蛤蜊的攝入對人類健康及海洋生態相關的潛在營養轉移問題。