Bleaching and necrosis of staghorn coral (Acropora formosa) in laboratory assays: Immediate impact of LDPE microplastics

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Title	Bleaching and necrosis of staghorn coral (Acropora formosa) in laboratory assays: Immediate impact of LDPE microplastics
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Abstract	The impact of low-density polyethylene (LDPE) microplastics (<100 mu m; P100-A P100-B, P100-C, 100 -200 mu m; P200, 200-500 mu m; P500) on Acropora formosa was investigated. This study investigated the bleaching and necrosis extent of A. formosa caused by LDPE contamination via laboratory assay. The staghorn coral ingested the microplastics, resulting in bleaching and necrosis that concomitantly occurred with the release of zooxanthellae. P100-A experimentation was the worst case, showing bleaching by day 2 (10.8 +/- 2.2%) and continued bleaching to 93.6% +/- 2.0 by day 14 followed by 5.9 +/- 2.5% necrosis. The overall results confirmed that the LDPE concentration impacts coral health. We highlighted that microplastics have been ingested and partially egested. Their presence showed either a direct or indirect impact on coral polyps via direct interaction or through photosynthesis perturbation due to microplastics that cover the coral surface. (C) 2019 Elsevier Ltd. All rights reserved.
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