A REVIEW ON RECYCLING AND UPCYCLING OF PLASTIC WASTE TO VALUE-ADDED PRODUCTS

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ABSTRACT

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Plastic is a common material that has been used widely, consequently has caused adverse effect human health and environment. Global plastic production was estimated to be 311 million tonnes in 2014 and has been predicted to be double in 20 years and getting to increase towards 2050. The presence of plastic waste can give detrimental impact to human health such as disruption of the endocrine system, reproductive problems, and respiratory issues. Other than that, plastic waste will also have a negative impact on the ecological environment. The existence of plastic waste in the environment may degrade soil quality in terms of soil structure and fertility. The negative effects of plastic waste have sparked interest in developing focused research and development into recycling and upcycling as ways to bring about a more circular economy for plastics. The objective of this study is to overview the recent technologies for recycling and upcycling methods for plastic waste. This study provides an assessment of the plastic waste problem, inquiring about the occurrence and popularity of plastic pollution, the unfavourable effects on human health and ecological environments, as well as evaluating recent recycling methods and approaching upcycling technologies that transform discarded plastics into value-added products. The findings of this study provide astute information to guide the future direction of plastic waste management and technological advancements to address the accelerating environmental and public health challenges posed by global plastic pollution.

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