Abstract

environmental benefts, and current applications. Bioplastics encompass a diverse range of materials, including

Ke ords: Degradability; Ecological e ects; Marine compartment; Petrochemical products; Sustainability

Introd ction

ese materials can be sourced from agricultural crops, industrial by-products, or even waste streams, making them a more sustainable option compared to petroleum-based plastics. U(o)-9 TJ0.97 Tw -1.575 -1.2Td[(acr)18(os)5(s va)9(r)-6(io)11(u)3(s in)4(d)12(u)3(s)5(t)-5(r)-5.6(ies, in)
implications, and the burgeoning applications that mark them as a viable solution to the challenges posed by conventional plastics. e

In this context, the introduction explores the current state of bioplastics applications across diverse industries, ranging from packaging to agriculture and healthcare. e versatility of bioplastics is increasingly evident in their ability to match or exceed the performance characteristics of traditional plastics while o ering environmental advantages. As innovation accelerates, bioplastics are poised to play a pivotal role in reshaping material science and driving sustainable practices in manufacturing and consumption. As global awareness of environmental issues continues to grow, bioplastics stand as a beacon of hope in the quest for sustainable alternatives to traditional plastics.

is introduction sets the stage for a comprehensive exploration of bioplastics, emphasizing their potential to revolutionize the plastics industry and contribute to a more environmentally responsible future. Bioplastics have emerged as a compelling and innovative solution to the environmental challenges posed by traditional plastics. e discussion surrounding bioplastics encompasses a range of topics, including their environmental bene ts, challenges, current applications, and the