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Microrobots are emerging as revolutionary tools in combating environmental pollution and biofilm-related health issues, focusing on removing nanoplastics from water bodies and eradicating biofilms that hinder medical treatments and device functionality. These tiny engineered devices are designed to navigate challenges in healthcare and environmental preservation by directly targeting and disrupting the structure of biofilms to enhance treatment efficacy and adsorbing micro and nanoplastics to reduce aquatic pollution, respectively.

Highlighting the innovative designs and mechanisms of nano and microrobots, this discourse delves into their recent advancements and potential in addressing stubborn problems in biomedical and environmental fields. It explores the capabilities of these robots in delivering targeted therapies, improving antibiotic effectiveness, and collecting harmful plastic particles, offering insights into their future development and the challenges that lie ahead in fully harnessing their potential for sustainable solutions.

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