



Showcasing research from Associate Professor Dr Mintu Porel's laboratory, Department of Chemistry, Indian Institute of Technology Palakkad, Kerala, India.

Fluorescent hyperbranched polymers with a tunable backbone: design, synthesis and application in coloring and anti-counterfeit

The work presents dansyl-tagged, functionally tunable fluorescent hyperbranched polymers (HBPs) containing 1,2,3-triazole linkages that serve as efficient dye-capturing systems by trapping and retaining water-soluble dyes from aqueous environments. Their cavity-rich architecture facilitates strong host-guest interactions, effectively preventing dye leaching and ensuring excellent long-term color stability. The encapsulation efficiency was precisely modulated by altering the functional substituents on the polymer backbone. This intrinsic ability highlights their potential for purifying dye-contaminated water and generating durable, water-resistant colored materials, while their fluorescence enables promising use in anti-counterfeit and multifunctional material applications.

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