

Facile Synthesis of Hydrogel Hollow Microcapsules on a Superhydrophobic Surface

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We have developed a one-step, template-free synthetic method for preparing hydrogel hollow microcapsules on a superhydrophobic surface. Aqueous microdroplets of hydrogel monomers and cross-linker solution are deposited on the superhydrophobic surface, which is situated under the hydrocarbon oil layer containing photoinitiators. During exposure to UV light, the aqueous microdroplets converted to hollow microcapsules with a polymerized hydrogel shell by diffusing the initiators into the oil/water interface. The hydrogel microcapsules are produced continuously with multiple aqueous droplets rolling on the tilted superhydrophobic surface under UV irradiation. The method for the preparation of hydrogel hollow microcapsules on the superhydrophobic surface is simple and efficient, rendering to easy encapsulation of colloidal nanoparticles, drugs, or biological cells.