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## **Novel Superhydrophobic Cellulose Coating and Its Multifunctional Applications**

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Recently, an increasing trend has been noticed towards synthesizing superhydrophobic surface with a water contact angle (WCA) higher than  $150^\circ$  due to its many potential applications including water repellency, oil spill recovery, self-cleaning, antifouling, anti-icing-deicing and so on. Unfortunately, most of the cases the superhydrophobic surface was achieved utilizing either fluorinated materials or organic-inorganic nanoparticles as the water-solid contact angle varies with the surface chemistry and roughness of the solid surface. Herein, we presented a novel approach for preparation of superhydrophobic coating without involving any such hazardous chemicals with the oath to create sustainable world. The superhydrophobic coating was prepared using cellulose nanofibers (CNFs) via a new surface modification chemistry. The as-synthesized cellulose surface shows water contact angle (WCA) value of  $161^\circ(\pm 2^\circ)$ . When used this material to coat other substrates such as paper, sponge, fabrics, aluminium, etc., to test the water repellent capacity, the WCA values were found to be between  $136\text{--}147^\circ(\pm 3^\circ)$  for the above surfaces. Moreover, the excellent durability of the coating made it very promising for efficient oil/water separation process to self-cleaning textile.

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