

Bio-inspired super-liquiphobic coatings for multifunctional applications

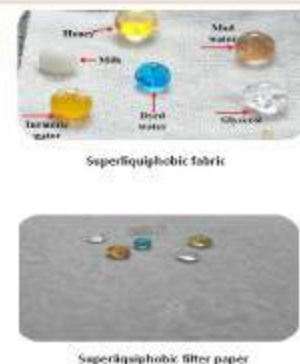
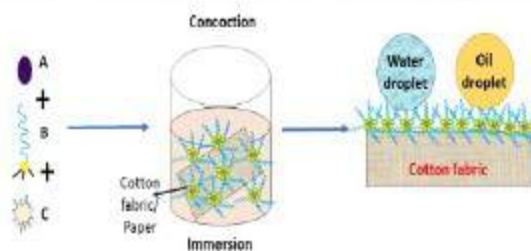


Intellectual Property: IN522081

Inventor: Dr. Sangeetha Sriram

Category: Hydrophobic Surface coating
Packaging
Waterproof clothing

Schematic illustration of the fabrication of superhydrophobic - superliquiphobic coating



Application:

Novel super-liquiphobic cellulosic products are fabricated using the biocompatible and biodegradable composite formulation for wider application in health care, textiles, goods, food-grade, pharmaceutical packaging, and paper industries.

Technology:

This is a novel multi-purpose super-liquiphobic composite coating that has been developed for cellulosic products. It includes a process of thin coating techniques to achieve high contact angles and low sliding angles in a single step, enabling economic and environmentally friendly solutions for various applications.

USP:

Ultra hydrophobic	Self-cleaning
Reusable	Anti-microbial

Market Forecast



Problem Addressed

- 1. Wetting and Staining:** Cellulosic materials face wetting and staining issues, reducing their longevity.
- 2. Limited Durability:** cellulosic materials lack durability for prolonged use.
- 3. Enhanced Properties Needed:** Non-wettability, self-cleaning, and antimicrobial properties for improved performance.
- 4. Method Limitations:** methods for creating superhydrophobic surfaces are complex and costly
- 5. Environmental Concerns:** A need exists for eco-friendly coatings that can be reused and recycled.
- 6. Cost and Versatility:** Cost-effective coatings suitable for various applications and liquid repellence are needed.

Advantage

The super liquiphobic fabrics are stable, reusable, and highly efficient superhydrophobic/ super oleophobic and super liquiphobic coatings.

- For correlating the results to industrial applications, the work has been motivated to achieve high static contact and low sliding angles for water and oil on fabricated surfaces with various simple, economical, and facile methods.
- The ultra hydrophobic materials with different inherent properties of self-cleaning, water-proof, stain-resistance, anti-microbial adhesion, and oil-water separations are produced with several composite materials such as polymers, nanoparticles, and silane couplers, and wax-based materials were found to be scarce.
- The non-wetting coatings on cellulosic filter paper and fabric surfaces sustainable under extreme conditions for various applications are meager with inherent limitations.

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