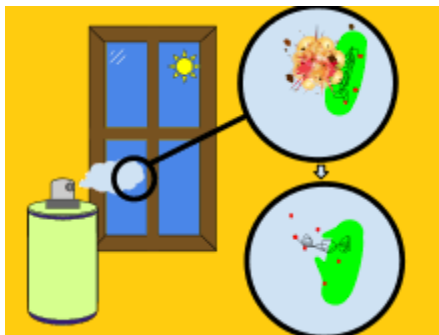


DBT-CIAB scientists developed lignin nanospray coating for light assisted microbial disinfection

A group of researchers from DBT's Center of Innovative and Applied Bioprocessing (DBT-CIAB), Mohali has recently developed a smart technique to convert lignin into a sustainable nanospray coating using water as a solvent. First, stable lignin nanospheres were synthesized in a single step which was later utilised as lignin nanospray (LNSR).



The LNSR retained UV blocking, antioxidant and antimicrobial properties of lignin as validated via multiple techniques. Further, the LNSR demonstrated photoluminescence and light activated photodynamic properties. The LNSR could be directly utilized to develop a sustainable coating. The lignin nanospray coating was found to be highly effective in destroying common microbes in the presence of light. This technology will be helpful in microbial disinfection of common surfaces.

There are multiple coating materials available commercially to fight microbial infections. These coatings are either difficult to synthesize or contain toxic chemicals. Lignin is natural biopolymer present in agri-biomass in large quantity. It has multiple properties including adhesiveness, UV resistance and antimicrobial nature, making it a promising material to develop coatings. This work has been recently published in the *Journal of Materials Chemistry*.

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