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**Biodegradable polyhydroxybutyrate/poly- $\epsilon$ -caprolactone fibrous membranes modified by silica composite hydrol for super hydrophobic and outstanding antibacterial application**

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**Abstract:** Fibrous membranes based on polyhydroxybutyrate/poly- $\epsilon$ -caprolactone (PHB/PCL) blends were obtained by electrospinning. Composite nanoparticles produced from N-halamine precursors and silane precursors were used to modify silica hydrosol which were obtained by the condensation of tetraethylorthosilicate followed the Stöber method. The produced composite nanoparticles were characterized by TEM and FT-IR. The dip-pad process was used to coat the synthesized silica composite nanoparticles onto the fibrous membrane. The coated PHB/PCL fibrous membranes were characterized by SEM, FT-IR and TGA. After

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