Title (19)	:	**Preparation and Characterization of PVDF–TiO2 Mixed-Matrix Membrane with PVP and PEG as Pore-Forming Agents for BSA Rejection**
Journal	:	Nanomaterials 2023
Document Type	:	Article
Publisher	:	MDPI
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Link to Full Text	:	https://www.mdpi.com/2079-4991/13/6/1023
Link to Scopus Preview	:	https://www.scopus.com/inward/record.uri?eid=2-s2.0-85151385410&doi=10.3390%2fnano13061023&partnerID=40&md5=6df8e24c235ce036184717be4fd11422
Abstract	:	Polymeric membranes offer straightforward modification methods that make industry scaling affordable and easy; however, these materials are hydrophobic, prone to fouling, and vulnerable to extreme operating conditions. Various attempts were made in this study to fix the challenges in using polymeric membranes and create mixed-matrix membrane (MMMs) with improved properties and hydrophilicity by adding titanium dioxide (TiO2) and pore-forming agents to hydrophobic polyvinylidene fluoride (PVDF). The PVDF mixed-matrix ultrafiltration membranes in this study were made using the non-solvent phase inversion approach which is a simple and effective method for increasing the hydrophilic nature of membranes. Polyvinylpyrrolidone (PVP) and polyethylene glycol (PEG) as pore-forming chemicals were created. Pure water flux, BSA flux, and BSA rejection were calculated to evaluate the mixed-matrix membrane's efficiency. Bovine serum albumin (BSA) solution was employed in this study to examine the protein rejection ability. Increases in hydrophilicity, viscosity, and flux in pure water and BSA solution were achieved using PVP and PEG additives. The PVDF membrane's hydrophilicity was raised with the addition of TiO2 , showing an increased contact angle to 71◦ . The results show that the PVDF–PVP–TiO2 membrane achieved its optimum water flux of 97 L/(m2h) while the PVDF–PEG–TiO2 membrane rejected BSA at a rate greater than 97%. The findings demonstrate that use of a support or additive improved filtration performance compared to a pristine polymeric membrane by increasing its hydrophilicity