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## Incorporation of TiO<sub>2</sub> nanoparticles to polymeric blend membrane for Cr(VI) ion rejection by modifying functional groups of the membrane

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The removal of toxic metals from water resources is a major challenge as its presence can deteriorate human health on a long term effect. Modification of existing membranes can enhance the metal ions rejection. Till date, there are a number of purification methods for the elimination of heavy metal ions like chemical precipitation, ion-exchange, membrane filtration and adsorption. Our present study incorporates membrane filtration technique involving modification of Poly Vinyl Chloride (PVC) with 4-amino benzoic acid. The modified PVC polymer was then blended with polysulfone (PSf) in different compositions followed by the incorporation of TiO<sub>2</sub> in order to increase the hydrophilicity of the membrane and also to incorporate charge to the membrane surface. The modification of PVC was confirmed with NMR and ATR-IR spectroscopy. The presence of TiO<sub>2</sub> was confirmed by EDX studies. The flux properties of the membranes were calculated via pure water flux studies. The charge on the membrane was studied through ion-exchange capacity. The hydrophilicity of the blend membranes were calculated by water uptake and contact angle measurements. The morphology of the blend membranes were characterized using SEM analysis. The effect on rejection of Cr(VI) metal ion was carried out at different pressures and pH. In conclusion, it was observed that the incorporation of TiO<sub>2</sub> to the modified blend membrane with acid group showed better selectivity as well as productivity.

### Biography

Lavanya C is currently doing her PhD in Chemistry at Jain University, Bangalore, India. She obtained her Master's in Science from Bangalore University, India in 2012. She worked in the R&D Department of Syngene Intl. Pvt. Ltd.

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