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(54) Title of the invention : EFFECTIVE REMOVAL OF HAZARDOUS ATRAZINE AND CHLORPYRIFOS BY WASTE-DERIVED LINKER HAVING NOVEL MIL-53 (ALUMINIUM) / PMMA-NANOFIBER INCORPORATED PVDF MEMBRANES

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(57) Abstract :

A method of preparation of thin-film nanocomposite membranes with nanofibers (300 and 310) comprising: dispersing a 0.15g of a polyvinylpyrrolidone (PVP) in a 12.45g of a n1Methylpyrrolidone by sonication for 20 minutes (NMP) to obtain a PVP-NMP solution (301); adding 2.7g of a poly(vinylidene) fluoride (PVDF) to the PVP-NMP solution and magnetically stirred at room temperature for 24 hrs to obtain an dope solution (302); degassing the dope solution and casting at room temperature to obtain a PVDF substrate (303); sandwiching a PVDF substrates between a high density polyethylene frames and a glass plates to form well of 4 mm depth (304); pouring an aqueous 2% (w/v) solution of a piperazine onto the PVDF substrate and allowed to stand for 2 mins (305); wiping the excess piperazine solution with a rubber roller and pouring 0.15% (w/v) of a Trimesoyl chloride organic solution in a n-hexane on top of the PVDF substrate and allowed to stand 1 minute (306); and pouring out the excess Trimesoyl chloride solution by keeping the glass plate with membrane vertical and drying in an oven for 25 minutes at 60? to obtain a thin film composite (TFC) (307), wherein the thin film composite (TFC) is obtained using normal non-solvent induced phase separation method for an effective removal of the Atrazine and Chlorpyrifos from contaminated water. << FIG. 3A & FIG. 3B >>

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