**Polyphenolic-based Polymer Films from Novel Monomers and Crosslinkers**

We extended the idea of PCB binding to different acrylated polyphenols other than plant derived polyphenols. With this idea in mind, we acrylated different polyphenols namely, 4,4'-dihydroxybiphenyl, 4-phenylphenol and 2-phenylphenol and made copolymeric films with these materials. These materials were chosen with the idea that the hydrophobic features were similar to that of PCBs so that they will have good pi-pi stacking with the PCBs, and as a result, PCBs will effectively bind with these copolymeric materials.

**Fluorescence Based Sensing of PCBs**

Fluorescence is a sensing technique in which a molecule absorbs radiation at a particular wavelength and, almost immediately, reemits at a different wavelength. This is a useful tool for molecules with fluorescence properties.

**Fluorescence interaction of two molecules.**

**PCBs Interaction with Fluorescent Molecule**

Benzopyrene (BaP) is used as a model dye because it forms a hydrophobic complex with PCBs.

**PCBs and BaP make hydrophilic complex in water.** These two molecules act as a single molecule in the complex with their own unique properties. It enhances the fluorescence intensity of benzopyrene.

**Polymeric and Monomer Characterization**

The precursors and the monomers were characterized by different characterization techniques namely DSC, HPLC, FTIR, NMR. The NMR data verified the structure of these compounds, and the FTIR data confirmed the functional groups present in the compound.

**Fluorescence-Based Sensing of PCBs**

The fluorescence image of the composite nanomaterials, namely CMA/NMNs as the monomer and using the 44BMA as the crosslinker, and the relative amounts of the monomer and crosslinker were varied to attain different crosslinked density. Free radical polymerization was used for forming the film. The initiator used was APS and the solvent used was DMF.

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