

We claim:

1. A UV shielding composite thin film having high thermal stability with T_d value in the range of 273 - 335°C, mechanical strength in the range of 24.9 – 71.2 Mpa, optical transparency in the range of 82-97%, elasticity with strain value in the range of 176.9 – 338.5% and storage modulus in the range of 2808 – 29918 Mpa, UV shielding efficiency in the range of 200 to 481 nm, and a thickness in the range of 0.06 to 0.08 mm comprising: i) 0.5 to 2.0 wt% of bio-derived furanic polymer (BFP); and ii) 99.5 to 98.0% of synthetic or natural polymer.
2. The UV shielding composite thin film as claimed in claim 1, wherein the BFP is obtained by a process of comprising the steps of:
 - a) catalytic dehydration of biomass saccharide in DMSO or ionic liquid (1-butyl,3-methylimidazolium chloride);
 - b) separating the BFP from the reaction mixture obtained in step a) by precipitation using a precipitation solvent selected from the group consisting of water and MeOH;
 - c) washing the precipitated BFP with water or MeOH or both; and
 - d) drying BFP using set of conditions selected from: ambient condition at temperature in the range of 24-28°C, in vacuum at 25°C to 70°C, at temperature in the range of 80 to 105°C.
3. The UV shielding composite thin film as claimed in claim 2, wherein the biomass saccharide is selected from the group consisting of, agarose chitosan, κ -carrageenan, cellulose, seaweed cellulose (Ulva), potassium alginate, starch, glucose, fructose, sucrose and xylose and the catalyst is selected from the group consisting of $AlCl_3$, $CrCl_3$, $CuCl_2$ + alumina, ion-exchange resins and HCl.
4. The UV shielding composite thin film as claimed in claim 1, wherein the synthetic polymer is selected from the group consisting of polyvinyl alcohol, polyvinyl chloride, polyvinylidene fluoride and polymethyl methacrylate.
5. The UV shielding composite thin film as claimed in claim 1, wherein the natural polymer is selected from the group consisting of agar, agarose,

carboxymethylcellulose, hydroxypropylmethylcellulose, κ -carrageenan and potassium alginate.

6. The UV shielding composite thin film as claimed in claim 1, wherein the UV-shielding efficiency is retained even on exposure to UV-radiation for 90 min, or in sunlight for 30 days and can be altered upon thermal treatment in the range -20 to 210 °C (by 32.5% of wavelength range).
7. A process for preparing UV shielding composite thin film having high thermal stability, mechanical stability, optical transparency, elasticity and thickness in the range of 0.06 to 0.08 mm as claimed in claim 1 comprising the following steps:
 - i. obtaining BFP by a process of catalytic dehydration of biomass saccharide in DMSO, or ionic liquid (1-butyl-3-methylimidazolium chloride); separating the BFP from the reaction mixture by precipitation using a precipitation solvent selected from the group consisting of, water and MeOH; washing the precipitated BFP with water, MeOH or both; and drying BFP using ambient condition at temperature in the range of 24-28 °C, or vacuum at 25 °C to 70 °C, or temperature in the range of 80 to 105 °C.
 - ii. dissolving a synthetic or natural polymer and BFP prepared in step i) in a solvent at a temperature in the range of 60 to 120 °C under stirring in the range of 350-450 rpm to form a homogenous solution;
 - iii. drying the homogenous solution obtained in step ii) at a temperature in the range of 60 to 120 °C for 2 to 4 days to obtain a film; and
 - iv. cooling the film to a temperature in the range of 24-28 °C, and peeling out the composite film.
8. The process as claimed in claim 7, wherein solvent used in step ii) is selected from the group consisting of dimethyl sulfoxide, n-methyl-2-pyrrolidone, dimethyl formamide and tetrahydrofuran.
9. The process as claimed in claim 7, further comprising modifying the colour of the film by decolorized BFP by treating with hydrogen peroxide, or by UV irradiation in THF (tetrahydrofuran).