

ABSTRACT

The lack of aesthetic properties of electrospun nanofibres in terms of colour appearance is the drive in this preliminary study. This research is conducted to study the dyeing behaviour and colorimetric properties of electrospun nanofibres blended with Remazol Yellow FG reactive dye using dope-dyeing method via electrospinning process. This paper reports the colorimetric properties of dyed poly vinyl alcohol (PVA) nanofibres within the range of 2.5 wt.% to 12.5 wt.% dye content. The electrospinning parameters were fixed at the electrospinning distance of 10 cm, constant feed rate of 0.5 mL/h and applied voltage of 15 kV. The resulting impregnated dye of 10 wt.% exhibits acceptable colour difference of dyed PVA nanofibres, with a mean fibre diameter of 177.1 ± 11.5 nm. The SEM micrographs show the effect of dye content on morphology and fibre diameter upon the increment of dye used. Further increase of dye content adversely affects the jet stability during the electrospinning, resulting in macroscopic dropping phenomenon. The presence of all prominent peaks of Remazol dye in the PVA nanofibers was supported with FTIR analysis. The addition of dye into the nanofibres has resulted in the enhancement of thermal stability of the PVA as demonstrated by TGA analysis