Preparation of electrospun nanofiber/biodegradable film from crosslinked poly(vinyl alcohol) by maleic anhydrate

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PVA(polyviny alcohol) is a polyhydroxy polymer that has been studied intensively because of its good film forming and physical properties, high hydrophilicity, processability, biocompatibiltiy, and good chemical resistance. PVA film and PVA fiber chemically crosslinked with maleic acid in the presence of H2SO4 were prepared by casting/electrospinning from aqueous solution. Electrospun PVA fiber and PVA film were investigated by differential scanning calorimetry(DSC), thermal gravity analysis(TGA). The morphology of electrospun PVA fiber was observed to field emissions scanning electron microscopy(FE-SEM). The structure of crosslinking of PVA fibers and PVA films were analyzed by infrared reflection-absorption spectroscopy(FTIR). The mechanical characteristic of crosslinked PVA film were measure by universal test machine(UTM).