CHAPTER V
CONCLUSIONS

By using the electrospinning technique and silatrane precursor, PVA/silatrane composite nanofibres were obtained. From SEM micrographs, the parameters affecting the fibre morphology were silatrane concentration of spinning solution and applied voltage. The fibre diameter increase with increasing applied voltage. Furthermore, the number of sticking nanofibres increased with the silatrane concentration directly. After the calcination of the above composite fibres, amorphous silica nanofibres with diameter of 250-600 nm could be prepared. It was found that calcination temperature hardly influenced the morphology of nanofibres. Based on FTIR results, they indicated that prepared precalcined fibres are composed of both PVA and silatrane complexes and there are secondary interaction, particularly hydrogen bonding in the composite fibres between PVA and silatrane complexes. Moreover, FTIR spectra of electrospun silica fibres reveal that the obtained calcined nanofibres are silica nanofibres. Moreover, they indicated a substantial amount of silanol groups existing on the surface of calcined silica nanofibres like that of reactant silica particles. From XRD spectra, they indicated that the obtained silica nanofibres are amorphous, but they are more order when compared to reactant silica particles.