

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

1. The conclusions of the present research are the following:
2. RF gel can be used as a precursor for synthesis of mesoporous structures of carbon fibers and carbon nanospheres by electrospinning techniques.
3. Morphology and size distribution of RF fibers and RF particles can be controlled by controlling aging time of RF gel and preparation condition for RF gel.
4. Changing in the processing parameters, such as applied electric field strength, applied voltage and distance between tip and collector has effect on the size and morphology of RF particles.
5. Fiber are formed when the RF gel has high cross-link network and the RF gel has suitable viscosity.

5.2 Recommendations for the Future Studies

In this study effects of various processing parameters, such as applied electrical field strength, working distance, applied voltage, as well as the preparation condition for RF gel, such as composition, aging time and addition of aluminium precursor, i.e., aluminium acetylacetonate into the RF-gel by electrospinning method were investigated. Some recommendations for future work are listed as follows:

1. Effect of the other metal alkoxide precursors in spinning solution on physical and chemical properties of the RF gel fibers should be investigated.
2. Although it is found that carbon micro-fiber were form under aging RF in 8%-relative humidity (RH), the effects of various processing parameters to reduce the averaged diameter of carbon fiber should be investigated.
3. Physical properties, i.e., tensile strength, modulus of carbon fibers should be investigated.
4. Effect of humidity of the electrospinning environment should be investigated.
5. Doping of-aluminium into the RF gel should be done together with a means to retard condensation process before taken it to be spun.