

CHAPTER V

CONCLUSION

POA nanoparticles were successfully synthesized using APS as an oxidant and SDS as a surfactant platform in the chemical oxidation polymerization in the range of 63 to 129 nm depending on the polymerization temperature, polymerization time, and SDS concentration. The synthesis produced POA nanofibers. The POA nanofiber size increased with increasing polymerization time and SDS concentration because these factors controlled the polymerization rate and created particle agglomeration and particle connection together. The electrical conductivity of POA increased from 0.025 to 193.44 S/cm with decreasing POA nanoparticle size. The condition that generated the highest conductivity (193.44 S/cm) with connected nano-fiber (65 ± 8.6 nm) was POA synthesized using 8:00 mole ratio of SDS at 3 °C for 48 h.