CHAPTER VII
CONCLUSIONS

7.1 Conclusions

In this work, Poly(vinylidene fluoride-co-Hexafluoropropylene) (PVDF-HFP) was fabricated and utilized as a matrix for the composite films. We compared two kinds of cellulose based material, extracted microcrystalline cellulose (MCC) from sugarcane bagasses in 1-20 wt.%, and extracted bacterial cellulose (BC) from Nata de coco in 1-5 wt.%, as a filler to improve the dipole alignment of PVDF-HFP matrix. A twin screw extruder was used to compound the composite and the film was fabricated by the cast film extruder. The increment in β-phase crystalline presented with higher amount of cellulose, both MCC and BC. The dielectric constant corresponded to piezoelectric coefficient was enhanced from 2.00 of neat PVDF-HFP to 3.75 with 10 wt.% MCC loading and 3.25 with 5 wt.% BC loading. Besides, the presence of MCC and BC in the composite films leaded to an improvement in thermal properties, and mechanical properties in terms of Young's modulus and tensile strength with no dimensional changes at 110 °C due to the excellent thermal, and mechanical properties of cellulose structure.