

Supplementary Material: Glucose Sensing Using Capacitive Biosensor Based on Polyvinylidene Fluoride Thin Film

Ambran Hartono¹, Edi Sanjaya¹, and Ramli Ramli^{2,*}

1. PVDF Thin Film Characterization

FTIR characterization has been used to confirm the β fraction of PVDF samples. The FTIR results of PVDF films for PVDF solution concentrations of 10%, 15% and 20% are shown in Figure S1. It appears that for a sample with a PVDF solution concentration of 20% it has a larger β fraction compared to the other two concentrations. The α phase appears in wavelength regions 615, 760, 973, 1230 and 1400 cm^{-1} , γ phase is detected at 1230 cm^{-1} . Meanwhile, for β phase is appearing in 840, 880, 1075 and 1170 cm^{-1} . The β fraction of the PVDF sample with solution concentration 10 %, 15% and 20% are; 31%, 39% and 44.5%, respectively.

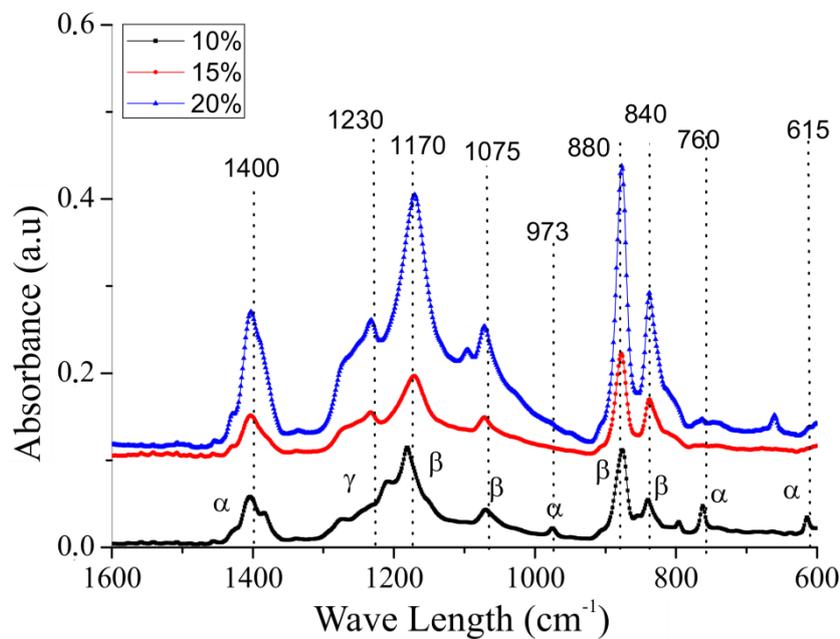


Figure S1. The FTIR results for PVDF film with different solution concentrations.

Furthermore, XRD characterization was performed on a PVDF sample with a concentration of 20% (S#3) for annealing temperature of 70°C, 80°C, 90°C, 100°C, and 110°C (referred as SS#1, SS#2, SS#3, SS#4, and SS#5), as shown in Figure S2. The XRD results showed that the optimum peak was obtained in samples with annealing temperature of 110°C. It was found that the degree of crystalline PVDF film was increased by increasing the annealing temperature. The values of the β fraction of PVDF samples for annealing temperatures of 70°C, 80°C, 90°C, 100°C, and 110°C were 37%, 38%, 44%, 50% and 58%, respectively.

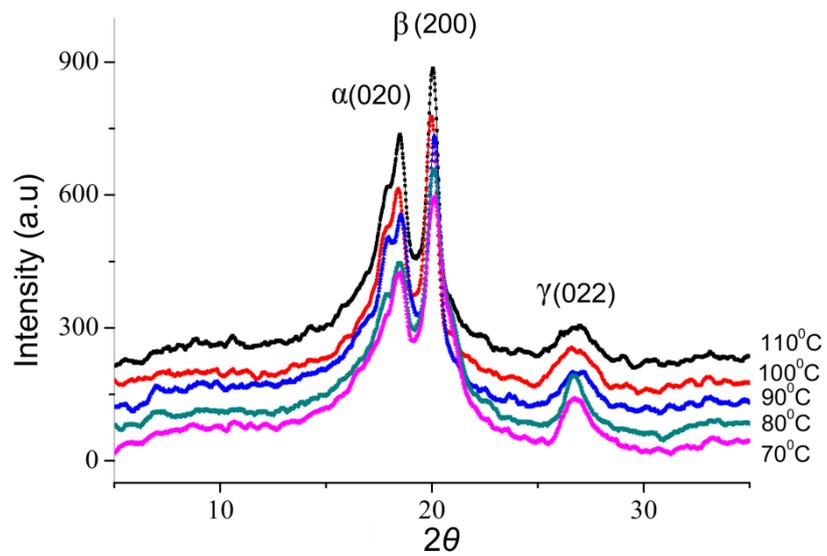


Figure S2. The XRD results for PVDF film with different annealing temperature.