

CHAPTER V

CONCLUSIONS

Poly (2,5-dimethoxyaniline) was successfully synthesized and coated on the Indium tin oxide electrode glass from the aqueous oxalic acid solution by using the electropolymerization technique.

The PDMA films have three absorption peaks in the redox process; they are leucoemeraldine (yellow color), emeraldine (green color), and pernigraniline (blue color) depending on the reaction state upon applying the electrical potential. With applied positive potential, the oxidation state occurs. The films change their color from yellow to blue. With applied negative potential, the reduction state occurs. The color of the films turns back from blue to yellow.

The response time and the color intensity of the PDMA films can be controlled by the electrical potential (a high voltage corresponds with a short response time), the type of electrolyte (the H_2SO_4 electrolyte corresponds with a shorter response time), and the concentration of the electrolytes.

Using HCl as the electrolyte, the films have shorter response times than those of H_2SO_4 at 0.8 V, while shorter response times can be obtained when applying the potential greater than 1.0 V, using H_2SO_4 as the electrolyte. The complete redox reaction occurs by using the electrolyte concentration lower than 0.001 M.