

*m*-toluidine polymer film coated platinum electrode was developed as a pH sensor in aqueous solution. The study was carried out by the simple potentiometric method by measuring its potentiometric response slope, and it was confirmed by cyclic potentiometer technique method. The effects of thicknesses of the sensor polymer film in term of number of cyclic voltammetric runs, different buffer solutions, and stability of the sensor with days on proton ions determination was studied. Linear calibration curve in pH range from 6.0 to 10 for 10 cyclic voltammetric runs was obtained by simple potentiometric method with Nernstian response slope of 57.34 mV/decade at 293 K. From the two methods of studying, the best thickness of the sensor polymer film was 10 cyclic voltammetric runs. Also, the best range of pH solutions were from 6.0 to 10. Moreover, the lifetime of the sensor was about nine days that enhanced to reach nine weeks.