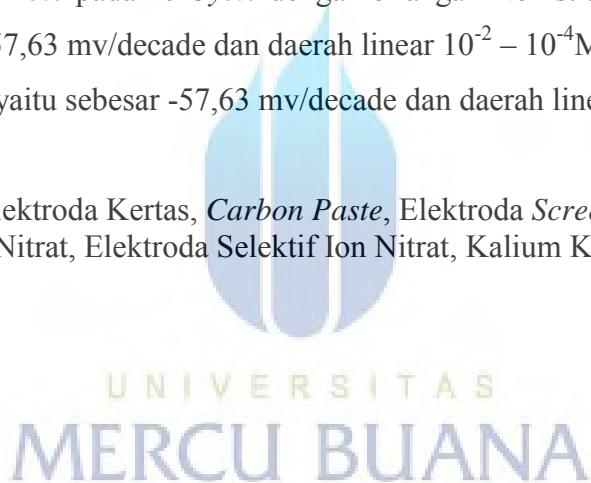


ABSTRAK

Sensor nitrat banyak diaplikasikan untuk keperluan dalam bidang seperti: pertanian, makanan, perikanan dan kesehatan. Dalam penelitian ini sensor nitrat dikembangkan untuk menggantikan elektroda plastik yang sudah banyak beredar di pasaran. Elektroda kertas *screen-printed* menggunakan pelapisan *red epoxy* pada kertas sebagai pelindung. Selanjutnya di tempelkan plat tembaga dan dilapiskan lagi menggunakan *red epoxy*, setelah itu di berikan lapisan *carbon paste* dan dilapiskan dengan membran *polypyrrrole* (PPY) menggunakan aplikasi *Potentiostatic* yang dipolimerisasikan di atas *carbon paste* dengan menggunakan metode *Cyclic Voltammetry* yang menggunakan beberapa variasi *Cycle*. Untuk penelitian ini, didapatkan nilai pelapisan optimal *PolyPyrrole* pada 20 *Cycle* dengan bilangan Nernst atau (slope) yang didapat yaitu sebesar -57,63 mv/decade dan daerah linear $10^{-2} – 10^{-4}$ M KNO₃.) yang didapat yaitu sebesar -57,63 mv/decade dan daerah linear $10^{-2} – 10^{-4}$ M KNO₃.

Kata Kunci : Elektroda Kertas, *Carbon Paste*, Elektroda *Screen-Printed*, *PolyPyrrole* (PPY), Sensor Nitrat, Elektroda Selektif Ion Nitrat, Kalium Klorida (KCl), Kalium Nitrat KNO₃.



DEVELOPMENT OF NITRATE (NO_3^-) SENSORS BASED ON PAPER ELECTRODE

ABSTRACT

Nitrate sensors are widely applied in agriculture, fisheries, food, and health fields. In this study the nitrate sensors were developed to replace plastic electrodes that have been on the market. Nitrate sensor was developed with screen-printed electrodes by coating using red epoxy as a protector on duplex paper. Then attach the copper plate and coated with red epoxy. Then the copper plate was attached and coated again using red epoxy, after that it was given a layer of carbon paste and coated with membrane polypyrrole (PPY) using the Potentiostatic application which was polymerized on carbon paste using the Cyclic Voltammetry method that uses several variations of the cycle. For this study the optimal coating value of PolyPyrrole at 20 Cycles with Nernst number (slope) was obtained which was -57.63 mV / decade and linear area 10^{-2} - $10^{-4} M KNO_3$.



Keywords: Paper Electrode, Carbon Paste, Screen-printed Electrode, PolyPyrrole (PPY), Nitrate sensor, Electroda Selectif Ion Nitrat, Potassium Chloride (KCl), Potassium Nitrat KNO_3 .