Novel Hg(II)-selective poly(vinyl) chloride (PVC) membrane electrodes based on oxime compounds of (4-(4-methylphenylaminoisonitrosoacetyl)biphenyl, $I_1$; 4-(4-
hlorophenylaminoisonitrosoacetyl)biphenyl, $I_2$; N,N-bis[1-(4-phenylphenyl)-2-hydroxyimino-
2-(4-chloroaniline)-1-ethylidene]-diethylenetriamine, $I_3$ and N,N-bis[1-(4-
phenylphenyl)-2-
hydroxyimino-2-(4-chloroaniline)-1-ethylidene]- 1,3-propanediamine), $I_4$
were developed.

Effects of the species and ratios of ionophore, plasticizer, PVC and lipophilic additive on the
potentiometric response of electrodes were investigated in order to determine the electrode
specifications. Overall results revealed that the optimum membrane composition was: 4%
ionophore, 64% plasticizer (o-NPOE), 31% PVC, and 1% lipophilic additive (NaTPB).

Obtained results showed that the electrodes have detection limit of $1.76 \times 10^{-6}$, $1.68 \times 10^{-6}$,
$2.35 \times 10^{-6}$ and $2.44 \times 10^{-6}$ and have linear responses of 34.2, 33.4, 35.9
and 37.6 mV/pHg$^{2+}$ for

a wide concentration range of Hg(II) ions. According to durability studies, the electrodes can
be used for approximately 1 month without any considerable divergence in potential values.

Analytical applications of the electrodes were performed and it was found that developed

electrodes can successfully be used as indicator electrodes for the potentiometric
titration of

Hg(II) ion with EDTA solution.