Enzyme-functionalized electrochemical immunosensor based on electrochemically reduced graphene oxide and polyvinyl alcohol-Polydimethylsiloxane for detection of *Salmonella pullorum* & *Salmonella gallinarum*

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Supplementary material

Fig.S1 FTIR spectrum of PVA (a) and PVA/PDMS (b).

Spectroscopic characterization of the graft copolymer composition PVA-PDMS by FTIR analysis. FTIR reveals that chemically synthesized PVA-PDMS is well adhesion with each other which recorded in dry KBr pellet in the range of 400–4000 cm$^{-1}$.

As shown in Fig. 1(a) that the characteristic C–H stretching vibrations at 1400.14 cm$^{-1}$, this is characteristic absorbing peaks of the PVA. In Fig. 2(b), FTIR of PVA-PDMS, the absorption peak appeared at 1261.28 cm$^{-1}$ and 793 cm$^{-1}$, these were Si-O-
Si stretching vibration and Si-CH$_3$ stretching vibration. C=O stretching vibrations reflected at 1639.28 cm$^{-1}$. -OH stretching vibrations at 3322-3471 cm$^{-1}$, in part because of –OH of PVA, the other part is that –OH of H$_2$O. Stretching vibrations at 2086.70 cm$^{-1}$ possibly because of CO$_2$ impurity in the air mixed while PVA-PDMS preparation. This means that the PVA and PDMS cross-links together and forming a layer of polymer film.