**Appendix A. Supporting Information**

**Potentiometric and surface topography studies of new carbon-paste sensors for determination of thiamine in multivitamin ampoules**

*Yousry M. Issa,a Fekria M. Abou Attia,b Omaima E. Sherif,a Ahmed S. Abo Dena b\**

*a Chemistry Department, Faculty of Science, Cairo University, Giza 12613, Egypt*

*b National Organization for Drug Control and Research (NODCAR), P.O. Box 29, Giza, Egypt*

\* Corresponding author e-mail: ahmed\_said5899@yahoo.com



**Fig. S1.** Calibration curves for TH using sensor (I) and sensor (II).

|  |
| --- |
|  |
| **Fig. S2.** Calibration curves of thiamine using sensor (I) at different test solution temperatures. |

|  |
| --- |
|  |
| **Fig. S3.** Calibration curves of thiamine using sensor (II) at different test solution temperatures. |

|  |
| --- |
|  |
| **Fig. S4.** Calibration curves of thiamine using sensor (I) at different test solution temperatures. The shown intercepts resemble $E\_{cell}^{°}$values used to calculate the temperature coefficient. |

|  |
| --- |
|  |
| **Fig. S5.** Calibration curves of thiamine using sensor (II) at different test solution temperatures. The shown intercepts resemble $E\_{cell}^{°}$values used to calculate the temperature coefficient. |

Table S1. Dielectric constant values of some common plasticizers.

|  |  |
| --- | --- |
| **Plasticizer** | **Dielectric constant** |
| NPOE | ~24.0 |
| DBP | ~6.4 |
| DOP | ~5.1 |
| TCP | ~7.0 |
| EHA | ~5.0 |

**Table S2.** Selectivity coefficients ($-logK\_{TH,j^{z+}}^{pot}$) of chemically modified thiamine CPSs.

|  |  |
| --- | --- |
| Interferent | $$-logK\_{j^{z+}}^{pot}$$ |
| 2%TH-TPB+DBP | 2%TH-TPB+NPOE |
| Na+ | 2.78 | 3.64 |
| K+ | 2.20 | 2.93 |
| Ca2+ | 3.40 | 2.40 |
| Mg2+ | 3.60 | 3.80 |
| Zn2+ | 3.40 | 2.93 |
| D-alanine | 3.68 | 3.24 |
| DL-serine | 3.29 | 3.31 |
| Fructose | 2.70 | 2.87 |
| Lactose | 3.17 | 3.16 |

TH: thiamine; TPB: tetraphenylborate; NPOE: ortho-nitrophenyloctyl ether; CPS: carbon-paste sensor; DBP: dibutylphthalate.