**Appendix A. Supporting Information**

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

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

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

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

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| **Fig. S4.** Calibration curves of thiamine using sensor (I) at different test solution temperatures. The shown intercepts resemble values used to calculate the temperature coefficient. |

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| **Fig. S5.** Calibration curves of thiamine using sensor (II) at different test solution temperatures. The shown intercepts resemble values used to calculate the temperature coefficient. |

Table S1. Dielectric constant values of some common plasticizers.

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

**Table S2.** Selectivity coefficients () of chemically modified thiamine CPSs.

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| --- | --- | --- |
| Interferent |  | |
| 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.