Fabric phase sorptive extraction combined with gas chromatography-mass spectrometry as an innovative analytical technique for the determination of selected polycyclic aromatic hydrocarbons in herbal infusions and tea samples

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Figure S1. Structures of the selected PAHs

Figure S2. Representative chromatogram of a spiked herbal infusion sample (c = 10.00 ng mL\(^{-1}\))
Figure S3. Comparison of different sol-gel coated FPSE membrane for the extraction of the selected PAHs.

Figure S4. Study of the effect of sample volume on extraction efficiency.
Figure S5. Study of stirring rate effect on analytes recovery.

Figure S6. Study of salt addition effect on extraction efficiency.
Figure S7. Selection of the appropriate eluting solvent

Figure S8. Study of eluent volume effect on extraction efficiency.
Figure S9. Results of the reusability study of the sol-gel C$_{18}$ coated FPSE media
| Phase                  | Substrate     | Networking Precursor                  | Polymer/Precursor/Particle                      | Building block |
|------------------------|---------------|---------------------------------------|-------------------------------------------------|----------------|
| 1. Sol-gel mixed mode  | Cellulose     | Methyl trimethoxysilane               | Octadecysilane (C18)                            | ![silicon structure] |
|                        |               |                                       | 3-Mercaptopropyl trimethoxysilane               | ![Sulfate group] |
| 2. Sol-gel graphene    | Cellulose     | Methyl trimethoxysilane               | Graphene                                         | ![graphene structure] |
| 3. Sol-gel polytetrahydrofuran | Cellulose | Methyl trimethoxysilane               | Poly(tetrahydrofuran)                           | ![polytetrahydrofuran structure] |
| 4. Sol-gel CW20M       | Cellulose     | Methyl trimethoxysilane               | Carbowax 20M                                    | ![carbowax structure] |
| 5. Sol-gel Graphene    | Polyester     | Methyl trimethoxysilane               | Graphene                                         | ![graphene structure] |
| 6. Sol-gel polyethylene glycol 300 | Cellulose | Methyl trimethoxysilane               | Poly(ethylene glycol) 300                       | ![polyethylene glycol structure] |
| 7. Sol-gel octadecyl   | Cellulose     | Methyl trimethoxysilane               | Octadecysilane                                  | ![octadecyl structure] |
|   | Sol-gel poly(dimethyl diphenyl siloxane) | Cellulose | Methyl trimethoxysilane | Poly(dimethyl diphenyl siloxane) |
|---|------------------------------------------|-----------|------------------------|--------------------------------|
| 8 |                                          |           |                        | ![Chemical Structure](attachment:image) |
| 9 | Sol-gel poly(diphenylsiloxane)           | Cellulose | Methyl trimethoxysilane | Poly(diphenylsiloxane)          |
|   |                                          |           |                        | ![Chemical Structure](attachment:image) |
| 10| Sol-gel poly(diphenylsiloxane)           | Polyester | Methyl trimethoxysilane | Poly(diphenylsiloxane)          |
|   |                                          |           |                        | ![Chemical Structure](attachment:image) |
| 11| Sol-gel octyl                            | Cellulose | Methyl trimethoxysilane | Octyl silane                    |
|   |                                          |           |                        | ![Chemical Structure](attachment:image) |
| 12| Sol-gel polycaprolactone-polydimethylsiloxane-polycaprolactone | Cellulose | Methyl trimethoxysilane | Poly(caprolactone)-b-Poly(dimethylsiloxane)-b-Poly(caprolactone) |
|   |                                          |           |                        | ![Chemical Structure](attachment:image) |
| No.  | System Description                                                      | Chain Components                                                                 | Chemical Structure                                                                 |
|------|------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 13.  | Sol-gel poly(caprolactone)-poly(dimethylsiloxane)-poly(caprolactone)   | Polyester, Methyl trimethoxysilane, Poly(caprolactone)-b-poly(dimethylsiloxane)-b-poly(caprolactone) | ![Chemical Structure](image1)                                                     |
| 14.  | Sol-gel chitosan                                                       | Methyl trimethoxysilane, Chitosan                                                | ![Chemical Structure](image2)                                                     |
| 15.  | Sol-gel poly(ethylene glycol)-poly(propylene glycol)-poly(ethylene glycol) | Cellulose, Methyl trimethoxysilane, Poly(ethylene glycol)-b-poly(propylene glycol)-b-poly(ethylene glycol) | ![Chemical Structure](image3)                                                     |
| 16.  | Sol-gel poly(propylene oxide)-poly(ethylene oxide)-poly(propylene oxide) | Cellulose, Methyl trimethoxysilane, Poly(propylene oxide)-b-poly(ethylene oxide)-b-poly(propylene oxide) | ![Chemical Structure](image4)                                                     |
| Analyte   | Added (ng mL⁻¹) | CH-1 Found (ng mL⁻¹) | CH-1 RR% | CH-2 Found (ng mL⁻¹) | CH-2 RR% | CH-3 Found (ng mL⁻¹) | CH-3 RR% | GMT Found (ng mL⁻¹) | GMT RR% | IN-1 Found (ng mL⁻¹) | IN-1 RR% | IN-2 Found (ng mL⁻¹) | IN-2 RR% | IN-3 Found (ng mL⁻¹) | IN-3 RR% | GT Found (ng mL⁻¹) | GT RR% |
|-----------|-----------------|----------------------|----------|----------------------|----------|----------------------|----------|----------------------|----------|----------------------|----------|----------------------|----------|----------------------|----------|----------------------|----------|
| Naphthalene | 0 <LOD         | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | 9.1 ± 0.5       | 91.0    |
|           | 10 9.1 ± 0.5   | 91.0                 | 9.4 ± 0.4| 94.0                 | 9.8 ± 0.9| 98.0                 | 9.2 ± 0.3| 92.0                 | 10.7 ± 0.4| 93.0                 | 9.6 ± 0.5| 96.0                 | 10.1 ± 0.1| 101.0               |          |
| Fluorene  | 0 <LOD         | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | 10.2 ± 0.1      | 102.0    |
|           | 10 10.2 ± 0.1  | 102.0                | 9.7 ± 0.1| 97.0                 | 9.3 ± 0.2| 93.0                 | 9.8 ± 0.3| 98.0                 | 8.9 ± 0.3| 89.0                 | 10.5 ± 0.3| 105.0                | 9.3 ± 0.3| 93.0                 | 9.3 ± 0.3| 93.0               |          |
| Phenanthrene | 0 <LOD       | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | 10.3 ± 0.7      | 103.0    |
|           | 10 10.3 ± 0.7  | 103.0                | 10.6 ± 0.6| 106.0                | 10.8 ± 0.4| 108.0                | 10.3 ± 0.1| 103.0                | 10.9 ± 0.1| 109.0                | 10.9 ± 0.2| 109.0                | 95.1 ± 0.3| 95.0                 | 10.1 ± 0.2| 98.0               |          |
| Pyrene    | 0 0.52 ± 0.04  | -                    | 0.31 ± 0.02| <LOD                 | -        | 0.42 ± 0.01          | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | <LOD                 | -        | 10.4 ± 0.4      | 98.8    |
|           | 10 10.4 ± 0.4  | 98.8                 | 10.1 ± 0.1| 97.9                 | 10.0 ± 0.4| 100.0                | 10.1 ± 0.3| 96.8                 | 10.0 ± 0.3| 100.0                | 10.8 ± 0.1| 108.0                | 9.9 ± 0.5| 99.0                 | 10.0 ± 0.1| 100.0              |          |