**Supporting Information**

**A novel fluorescent sensor based on aptamer and qPCR for determination of glyphosate in tap water**

Yong Shao1,2#, Run Tian1,2#, Jiaqi Duan3, Miao Wang1,2\*, Jing Cao1,2, Zhen Cao1,2, Guangyue Li3, Fen Jin1,2, A. M. Abd El-Aty4,5 & Yongxin She1,2\*,

1Institute of Quality Standardization & Testing Technology for Agro-Products, Chinese Academy of Agricultural Sciences, Beijing, China.

2Key Laboratory of Agrofood Safety and Quality (Beijing), Ministry of Agriculture and Rural Areas, Beijing, China.

3State Key Laboratory for Biology of Plant Diseases and Insect Pests, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing, China.

4Department of Pharmacology, Faculty of Veterinary Medicine, Cairo University, Giza, Egypt.

5Department of Medical Pharmacology, Medical Faculty, Ataturk University, Erzurum, Turkey.

\***Corresponding authors**:

wm0510@126.com; [0891syx@163.com](mailto:liguangyue@caas.cn).

**Table S1 Sequences of Oligonucleotides Used in This Work**

|  |  |
| --- | --- |
| Oligo | Sequence(5’-3’) |
| polyA | AAAAAAA-NH2 |
| polyT-Aptamer1 | TTTTTTTGCTAGACGATATTCGTCCATCCGAGCCCGTGGCGGGCTTTAGGACTCTGCGGGCTTCGCGGCGCTGTCAGACTGAATATGTC |
| complementary DNA | GACATATTCAGTCTGACAGCGCCGCGAAGCCCGCAGAGTACTAAAGCCCGCCACGGGCTCGGATGGACGAATATCGTCTAGC |
| upstream primer | GCTCGGATGGACGAATATCGTCTAG |
| downstream primer | TATTCGTCCATCCGAGCCCGTGGCG |

**Table S2 qPCR conditions**

95℃ 30 S

95℃ 5 S

60℃ 34 S 40 circles

95℃ 15 S

60℃ 1 min

**Table S3 Estimation of glyphosate recovery based on this method**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sample | Standard Addition Amount (ppm) | Recovery Rate(%) | | | RSD(%) |
| Tap water | 1.4 | 105.4 | 96.1 | 113.1 | 0.58 |
|  | 0.7 | 109 | 96.9 | 104.3 | 0.40 |
|  | 0.35 | 104.9 | 91.5 | 114.4 | 0.73 |

**References**

1. Chen, F.; Li, G.; Liu, H.; Leung, C.-H.; Ma, D.-L., G-quadruplex-based detection of glyphosate in complex biological systems by a time-resolved luminescent assay. *Sensors and Actuators B: Chemical* **2020,** *320*.