



Figure S1. Chemical structure of major mycotoxins.

Table S1. The main classification of mycotoxins, representative toxins of each type and their toxicological effects.

| Main Classification | Representative Toxins | Effect on Mammalian | Ref. |
|---------------------|--|---|------|
| AFs | AFB1, AFB2, AFG1, AFG2, and AFM1 | Carcinogenic, acute hepatitis, impaired immune system | [5] |
| CIT | CIT | Nephrotoxic | [2] |
| FBs | FB1 and FB2 | Carcinogenic, hepatotoxic, causative agent in leukoencephalomalacia in horses | [6] |
| TCTs | T-2 and HT-2 | Immuno-depressants, gastrointestinal haemorrhaging | [7] |
| OTs | OTA | Carcinogenic, nephrotoxic, hepatotoxic, teratogenic | [8] |
| PAT | PAT | Lung and brain haemorrhaging, carcinogenic, immunotoxic, genotoxic | [9] |
| ZEA | ZEA and its five metabolites α -zearalenol (α -ZEL), β -ZEL, α -zearalanol (α -ZAL), β -ZAL, and zearalanone (ZAN) | Estrogenic activity, potential carcinogenic and teratogenic | [10] |

Table S2. Sample pretreatment methods used for mycotoxins since 2017.

| Matrix | Targets | Pretreatment Methods | Ref. |
|--------------------------|------------------|----------------------|------|
| rice | AFB1, B2, G1, G2 | SLE | [16] |
| rice | AFB1, B2, G1, G2 | SLE-DES | [17] |
| rice and fragrant rice | AFB1, B2, G1, G2 | SLE-SPE | [18] |
| rice and noodle products | AFB1, B2, G1, G2 | SPE | [19] |
| rice and wheat | AFB1, B2, G1, G2 | SPE | [20] |
| rice and sorghum | AFB1, B2, G1, G2 | MSPE | [21] |
| rice and maize | AFB1, B2, G1, G2 | MSPE | [22] |

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| rice, edible oil and milk | AFB1, B2, G1, G2 | MSPE | [23] |
| corn, rice and millet | AFB1, B2, G1, G2 | MSPE | [24] |
| rice grain | AFB1, Sterigmatocystin, ZEA | IT-SPME | [25] |
| rice bran | 13 mycotoxins | DLLME | [26] |
| rice | AFB1, B2, G1, G2 | AA-DLLME | [27] |
| rice | AFB1, B2, G1, G2 | VALDS-ME | [28] |
| rice | AFs | MSPE | [29] |
| cereal products | HT-2 and T-2 | SPE | [30] |
| cereals | AFB1, B2, G1, G2 | SPE | [31] |
| cereal matrices | 6 TCTs | SWE-SPE | [32] |
| cereals | AFB1, B2, G1, G2 | MSPE | [33] |
| cereals | AOH, AME, ALT, TEN, and TeA | QuEChERS-DLLME | [34] |
| cereals | DON and ZEA | QuEChERS | [35] |
| corn and peanut | AFB1 | SPE | [36] |
| corn meal | AFB1, B2, G1, G2, FB1, and ZEA | SLE | [37] |
| corn and corn products | FB ₁ and FB ₂ | SPE | [38] |
| corn | ZEA and its derivatives | SPE | [39] |
| corn powder | FB ₁ | syringe SPE | [40] |
| maize | AFs, ochratoxins and enniatins | MSPE | [41] |
| maize | ZEA and its derivatives | MSPE | [42] |
| maize | FB ₁ and FB ₂ | MSPD | [43] |
| maize and oats | DON, T-2 | SPE | [44] |
| maize, wheat, watermelon and melon | AFB1, B2, G1, G2, OTA, OTB, T-2, HT-2 and DAS | MSPE | [45] |
| wheat and peanut | AFB1, B2, G1, G2 | D- μ -SPE | [46] |
| wheat | AFB1, B2, G1, G2 | DLLME | [47] |
| wheat | AFs | IL-DLLME | [48] |
| wheat and maize | AFB1, B2, G1, G2, OTA, STE, FB ₁ , FB ₂ , T-2, DON, and ZEA | QuEChERS | [49] |
| cornmeal | AFB1, B2, G1, G2 | MSPD | [50] |
| cornmeal | ZEN | MSPE | [51] |
| infant consumption cereal-based porridge | 14 mycotoxins | UAE | [52] |
| cereal-derived products | AFs, T-2 and HT-2 toxins, and fumonisins | QuEChERS | [53] |
| soybean | AFB1, B2, G1, G2 | in-syringe SPE-DLLME | [54] |
| peanut | AFB1 | SPME | [55] |
| peanut, almond and pistachio | 16 mycotoxins | QuEChERS | [56] |
| fresh peanut | AFB1 | UAE | [57] |
| peach seed, milk powder, corn flour and beer | FB ₁ , AFB ₁ , OTB, T-2 toxin, OTA and ZEA | MA-d- μ -SPE | [58] |
| biscuit | 9 mycotoxins | QuEChERS | [59] |
| foodstuffs | AOH and AME | SPE | [60] |
| foodstuffs | AFB1, B2, G1, G2, AFM1, and AFM2 | MSPE | [61] |
| peanut oils | AFB1 | LLE-SPE | [62] |
| edible oils | AFB1, B2, G1, G2 | LLE-SPE | [63] |
| edible vegetable oils | AFB1, B2, G1, G2 | MSPE | [64] |
| vegetable oil | FB ₁ , ZON and OTA | MSPE | [65] |
| vegetable oils | AFB1, B2, G1, G2 | MSPE | [66] |
| edible oil, soy sauce and bean sauce | 12 mycotoxins | SPE | [67] |
| milk powders | AFB1, B2, G1, G2 and M1 | SPE | [68] |
| milk and dairy products | AFM1 | SPE | [69] |
| milk | AFM1 | SPE | [70] |

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| milk | 9 mycotoxins | SPE | [71] |
| milk and yogurt | 6 mycotoxins | MSPE | [72] |
| milk | AFM1 | SALLE-on-line SPE | [73] |
| soy milk | AFB1, B2, G1, G2 | D- μ -SPE | [74] |
| milk | AFM1 | DES-DLLME | [75] |
| egg and milk | 39 mycotoxins and metabolites | QuEChERS | [76] |
| functional vegetable milks | FB1 and B2, HT-2 and T-2, ZEA, DON and fusarenon-X | SALLE | [77] |
| yogurt | AFs | DLLME | [78] |
| cheese | 32 mycotoxins | QuEChERS | [79] |
| nuts | OTA, AFB1, B2, G1, G2 | dilute-and-shoot | [80] |
| nut | AFB1, B2, G1, G2 | SPE | [81] |
| nuts | AFB1, B2, G1, G2 | MSPE | [82] |
| Pistachio nuts | AFB1, B2, G1, G2, OTA, ZEA, T2, and HT2 | QuEChERS | [83] |
| chestnut | 14 mycotoxins | d-SPE-QuEChERS | [84] |
| fruits and vegetables | 7 mycotoxins | SPE | [85] |
| apple products and dried fruits | patulin | VA-DSPME | [86] |
| apple juice | patulin | SD-LLLME | [87] |
| fruit berry by-products | AFs, OTA and Alternaria toxins | QuEChERS | [88] |
| grapes, processed grape products and animal-derived products | OTA | QuEChERS | [89] |
| strawberries | patulin | QuEChERS | [90] |
| red-pigmented fruits | patulin | QuEChERS | [91] |
| button mushroom | 13 mycotoxins | Dilute-and-shoot | [92] |
| tomato-based and fruit-based products | AOH, AME, TeA, and TEN | QuEChERS | [93] |
| tomatoes and derived tomato products | AME, AOH, TEN, TeA, ALT, ENNs A, A1, B, and B1, and BEA | QuEChERS | [11] |
| fruits, vegetables and their derivatives marketed | AOH | QuEChERS | [94] |
| chili pepper and processed groundnut | AFB1, B2, G1, G2 | SPME | [95] |
| feed | FB ₁ and FB ₂ | SLE-SPE | [96] |
| animal feed and food | 11 mycotoxins | SLE-SPE | [97] |
| fish feed | AFB1, B2, G1, G2 | μ -SPE | [98] |
| feed ingredients and compound feeds | 11 Mycotoxins | QuEChERS | [99] |
| mixed feed rations | 25 mycotoxins | (d)SPE-QuEChERS | [100] |
| feed | 15 mycotoxins | QuEChERS | [101] |
| animal feeds | ENNs and BEA | QuEChERS | [102] |
| feed and foodstuffs | CIT and OTA | QuEChERS | [103] |
| beer, red wine, corn, and Turkish coffee | OTA | SPE | [104] |
| beer | ZEA | on-line SPE | [105] |
| wine | OTA | on-line SPE | [106] |
| beer | 23 mycotoxins | QuEChERS | [107] |
| dark tea | AFB1, B2, G1, G2 | MFC-IAC | [108] |
| dark tea | AFB1, B2, G1, G2 | QuEChERS | [109] |
| Pu-erh tea | AFB1 | QuEChERS | [110] |
| coffee beans | 17 mycotoxins | QuEChERS | [111] |
| cocoa beans | ochratoxin A and AFB1, B2, G1, G2 | QuEChERS | [112] |
| non-dairy beverages | AFB1, B2 | μ -SPE | [113] |

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|--|--|--------------------|-------|
| plant-based beverages | AFB1, B2, G1, G2, OTA and DON, ZEA, T-2, HT-2, FB1 and FB2 | QuEChERS | [114] |
| edible and medicinal herbs | 6 AFs and 6 ZEAs | SPE | [115] |
| <i>Salviae miltiorrhiza Radix et Rhizoma</i> (Danshen) | ZEA, T-2, HT-2, NEO, DAS | MSPE | [116] |
| Indian medicinal herbs | AFB1, B2, G1, G2 | QuEChERS | [117] |
| functional and medicinal herbs | AFB1, B2, G1, G2, OTA, ZEA, DON, FB1, B2, B3 and T-2 | SPE (IAC)-QuEChERS | [118] |
| rat faeces | DON, 3AcDON, 15AcDON, DON3G, and DOM-1 | QuEChERS-d-SPE | [119] |
| human urine | ZEA, α -ZEL, β -ZEL, α -ZAL, β -ZAL, ZAN | SPE | [120] |
| pig hair | FB1 | SLE-SPE | [121] |
| chicken liver | DON, 3-ADON, 15-ADON, NIV, FUS-X, NEO, HT-2 and T-2 | QuEChERS | [122] |
| endometrial cancer tissues | ZEA | QuEChERS | [123] |