



17th Newsletter

Simultaneous determination of 11 mycotoxins in maize by mul- 2 tiple impurity adsorption combined with liquid chromatog- 3 raphy-tandem mass spectrometry

Maize has a complex composition, and matrix effects can significantly impact the accuracy of mycotoxin analysis; therefore, extracts need to be purified. In this study, 13 adsorbent materials (Table 1) were selected for mycotoxin adsorption experiments in maize.

Table. 1 Name of purification and adsorption materials.

Numbering	Name	Material type	Specification
1	BONDESIL-SI	Silica gel	400UM
2	Cleanert IC-H	ion exchange resin	40-60µm
3	Esela ® HLB	Hydrophile Lipophilic Balance	40-60µm
4	Aluminum oxide	Alkaline alumina	100-200µm
5	C18	Silica gel bonded octadecyl	50µm
6	PSA	Silica gel bonded N-propylethylenediamine	40-60µm
7	SCX	Sodium sulfonate bonded on silica gel	50µm
8	BONDESIL-FL	Flori silica	200µm
9	SAX	Silica Gel Bonded Halogenated Quaternary Ammonium Salt	40UM
10	SLE	diatomite	80-100Mesh
11	Pesti Carb	Activated carbon	120-400Mesh
12	CMCNs)	Carboxylated multiwalled carbon nanotubes	8-15nm
13	MCNs	Multiwalled carbon nanotubes	<8nm



The results showed that most adsorbent materials, except BONDESIL-SI, Cleanert IC-H, and Esela[®] HLB, were significantly enriched for mycotoxins. However, the adsorption rates for individual mycotoxins were substantially lower than 100% and could not be used as enrichment materials for the simultaneous detection of the 11 mycotoxins.

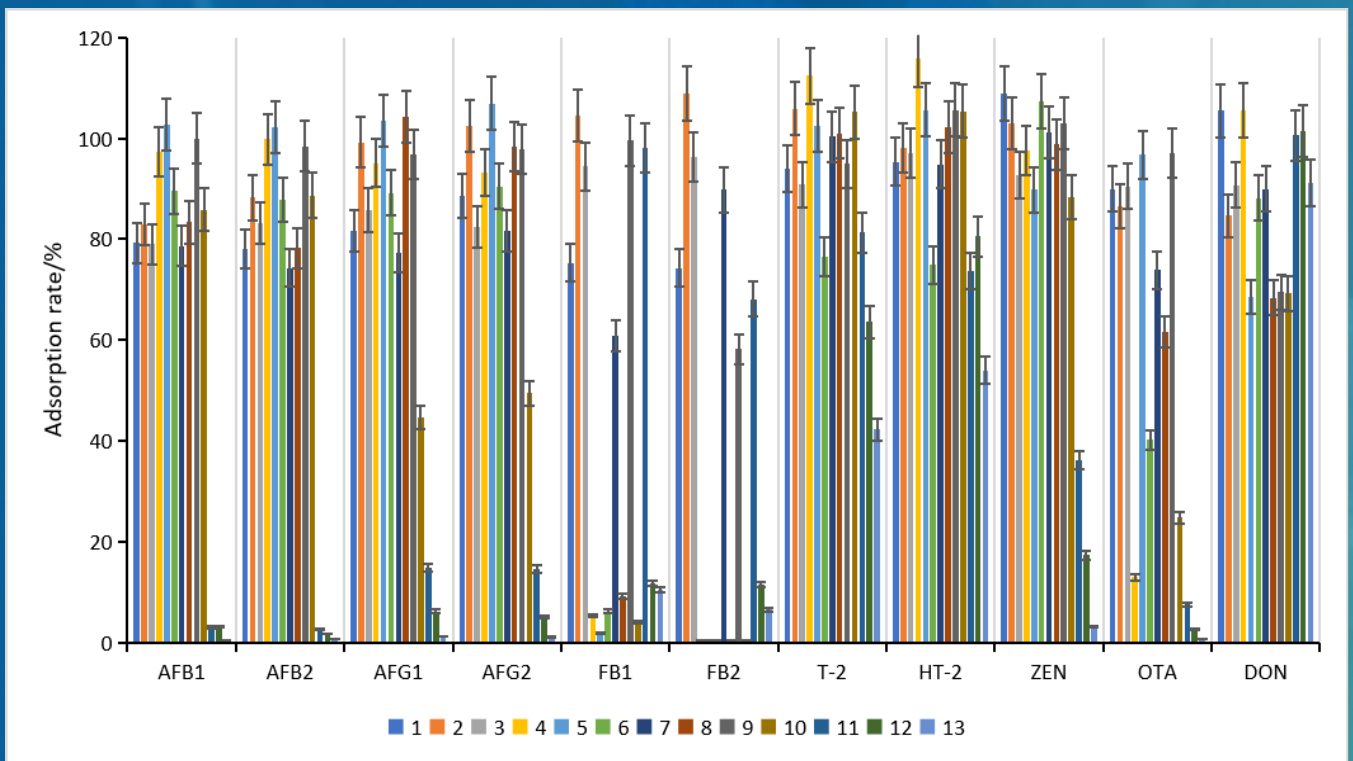


Fig. 1 Comparison of the adsorption effect of different purification and adsorption materials on impurities of maize species.