Supporting information for:

Large-scale preparation and multi-dimensional characterization of high-purity mycotoxin deoxynivalenol in rice culture inoculated with Fusarium graminearum

Zhiyong Zhao [a,b]†, Suquan Song [a]†, Na Liu [a], Qinxiong Rao[a], Jiafa Hou [b], Sarah De Saeger [c], Aibo Wu [a] *

[a] Laboratory of Quality & Safety Risk Assessment for Agro-products (Shanghai), Ministry of Agriculture, Institute for Agri-food Standards and Testing Technology, Shanghai Academy of Agricultural Sciences, 1000 Jinqi Road, Shanghai 201403, P. R. China

[b] College of Veterinary Medicine, Nanjing Agricultural University, No.1 Weigang Street, Nanjing, Jiangsu 210095, P. R. China

[c] Laboratory of Food Analysis, Faculty of Pharmaceutical Sciences, Ghent University, Harelbekestraat 72, 9000 Gent, Belgium

† Zhiyong Zhao and Suquan Song contributed equally to this work.

* To whom correspondence may be addressed.

Phone: +86-21-62202875; Fax: +86-21-62203612

Email: wuaibo@saas.sh.cn

Figure captions

Fig. S-1

Preparative chromatograms of DON crude extract in the first run, the tenth and twentieth run in first day (a) and in the fifth day (b).

Fig. S-2

UV spectrum of purified DON and further-processing DON by different decolorizing agents ranged from 190 nm to 800 nm. Insert: the solution of purified DON before and after absorption by montmorillonite.

Fig. S-3

The chromatograms of peak purity of commercial DON standard (a) and obtained DON (b).

Table S-1

Previous reports on the production of deoxynivalenol

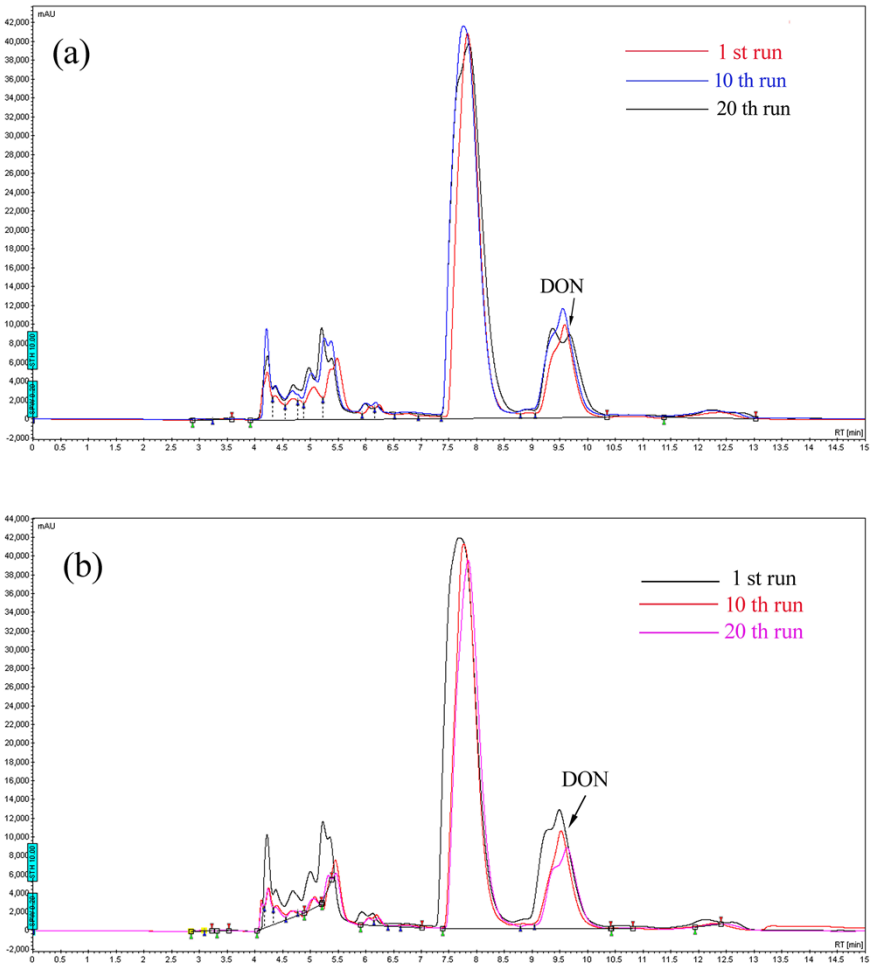
(a)
1 st run
10 th run
20 th run
DON
mAU
RT [min]
(b)
1 st run
10 th run
20 th run
DON
mAU
RT [min]

Fig. S-1

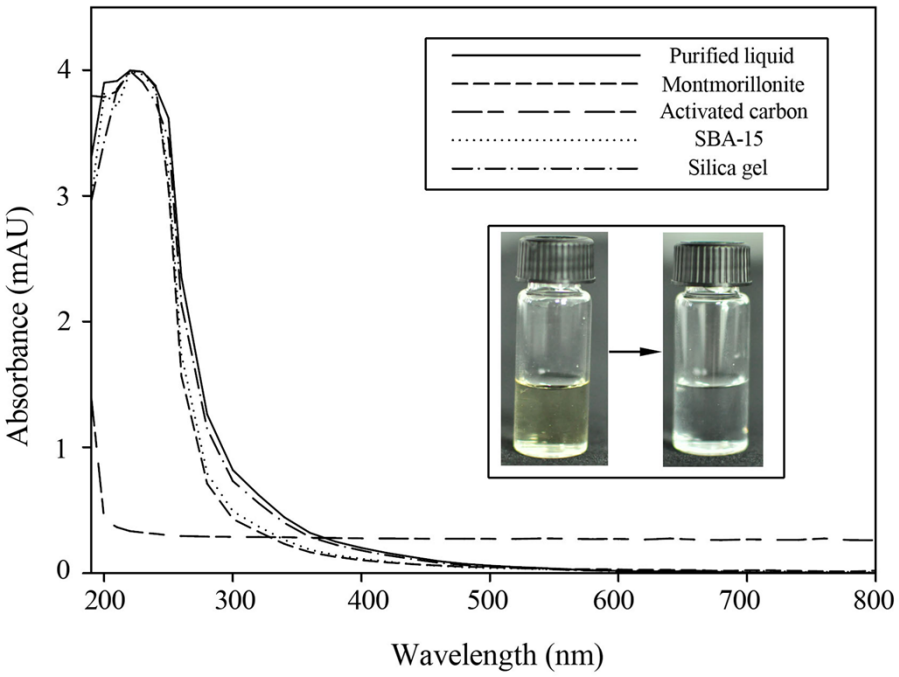
Purified liquid
Montmorillonite
Activated carbon
SBA-15
Silica gel
Absorbance (mAU)
Wavelength (nm)
0
1
2
3
4
200
300
400
500
600
700
800

Fig. S-2

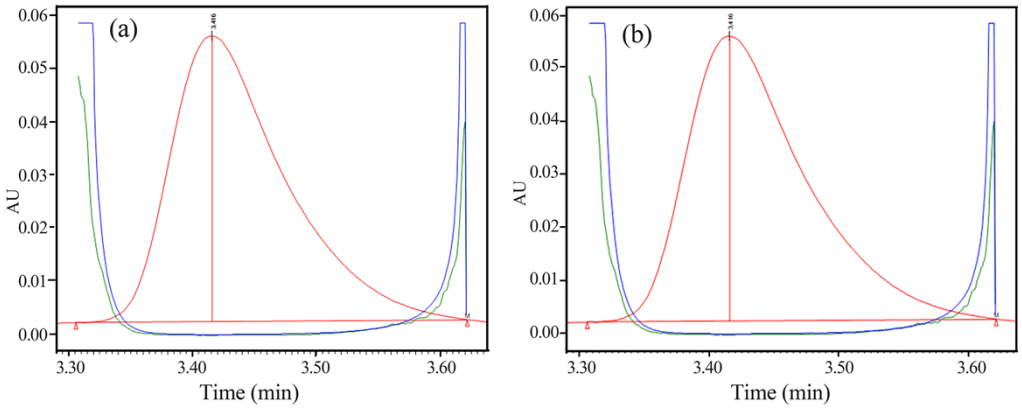

Fig. S-3

100 **Table S-1** Previous reports on the production of deoxynivalenol

101

References	Culture medium and the content of DON/Ac-DON	Sample pretreatments	Purified methods	Identification methods	The purity of DON
Bennett et al. (1981) [13]	Corn (20 μg DON/g)	80% methanol/water*; partitioned with ethyl acetate; defatted with petroleum ether;	Silica gel column and HPLC (C_{18} column)	GLC, MS and GLC-MS	NA
Vesonder et al. (1982) [14]	Corn (362 μg DON/g)	40% methanol/water*; partitioned with ethyl acetate; dried over sodium sulfate	Silica gel column, silanised silica gel column and pre-HPLC;	RPLC and GLC	95%～96%
Ehrlich and Lillehoj (1984) [11]	Rice (450 μg DON/g)	86% acetonitrile/ water*;	Silica gel 60, charcoal-alumina column and Sephadex LH20 column	HPLC	>90%
Witt et al. (1985) [15]	Liquid medium (Ac-DON)	methylene chloride*	Activated florisil column and Rexyn 201 (OH^-) ion-exchange column;	NA	NA
Greenhalgh et al. (1986) [12]	Rice (2840 μg Ac-DON/g)	10% methanol/water*; partitioned with ethyl acetate;	Florisil column and Rexyn 201 (OH^-) ion-exchange column;	GC-ECD and GC-MS	95%
Altpeter and Posselt (1994) [10]	Rice (600～700 μg DON/g)	60% methanol/water*; partitioned with ethyl acetate;	LPLC on silica gel column	TLC and HPLC	NA
Clifford et al.(2003) [16]	Rice (357μg DON/g)	70% methanol/water*; partitioned with ethyl acetate;	LPLC on silica gel column;	HPLC, MS and NMR	>99%
He et al. (2007) [9]	Rice (1160 μg DON/g) field mouldy corn (1300 μg DON/g)	Methanol*;	HSCCC	HPLC-UV and HPLC-MS/MS	>94.9%

102 NA, not available; *, extraction solution;
103 LPLC, low-pressure liquid chromatography; HSCCC, high-speed counter-current chromatography.
104 RPLC, radial pressure liquid chromatography; GLC, gas-liquid chromatography;
105 Pre-HPLC, preparative high performance liquid chromatography;
106 NMR, nuclear magnetic resonance spectroscopy; GC-ECD, gas chromatography-electrical conductivity detector;
107