

Supplementary material of Aceña-Heras et al. (2019) "Influence of pyrolyzed grape-seeds/sewage sludge blends on the availability of P, Fe, Cu, As and Cd to maize".

Table S1: Different proportions of sewage sludge and grape seeds used.

Process	Material (%)
1	100% grape seeds (GS)
2	75% GS -25% SS
3	50% GS -50% SS
4	50% GS -50% SS*
5	25% GS -75% SS
6	100% sewage sludge (SS)

*50% sewage sludge without being pyrolysed.

7 Table S2: Characterization of the soil.

Soil analysis		Result
pH		7,23
Electrical conductivity		0,235 mS/cm
Texture		Sandy Loam
Total organic matter		0,76%
Macronutrients	Total nitrogen	0,06%
	Available phosphorus	< 10 mg/kg
Micronutrients	Available iron	3,21 mg/kg
	Available zinc	< 0,2 mg/kg
	Available copper	0,92 mg/kg

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10 Table S3: Percentage of efficiency of elements (%) (averaged value $\pm$ standard error; n=3 or 4).

<i>Treatment</i>	<i>As (%)</i>	<i>Cd (%)</i>	<i>Cu (%)</i>	<i>Fe (%)</i>	<i>P (%)</i>
75% GS -25% SS	0.5 $\pm$ 0.1 b	0.19 $\pm$ 0.03 b	0.11 $\pm$ 0.01 b	0.05 $\pm$ 0.01 c	0.28 $\pm$ 0.04 b
50% GS -50% SS	0.9 $\pm$ 0.2 b	0.20 $\pm$ 0.03 b	0.21 $\pm$ 0.02 ab	0.10 $\pm$ 0.04 bc	0.46 $\pm$ 0.07 ab
25% GS -75% SS	0.7 $\pm$ 0.1 b	0.24 $\pm$ 0.05 b	0.12 $\pm$ 0.02 ab	0.10 $\pm$ 0.01 b	0.38 $\pm$ 0.05 ab
100% sewage sludge	0.6 $\pm$ 0.1 b	0.26 $\pm$ 0.04 b	0.11 $\pm$ 0.09 ab	0.10 $\pm$ 0.01 bc	0.42 $\pm$ 0.09 ab
Incubated mixture	2.0 $\pm$ 0.6 a	0.38 $\pm$ 0.05 a	0.21 $\pm$ 0.04 ab	0.22 $\pm$ 0.05 a	0.60 $\pm$ 0.07 a

11 Letters are comparing the treatments in each row.

12 **Table S4: Percentage of lixiviation of elements (%) (averaged value $\pm$ standard error; n=3 or 4)**

<i>TREATMENT</i>	As (%)	Cd (%)	Cu (%)	Fe (%)	P (%)
75% GS -25% SS	31 $\pm$ 8 a	BDL	0,25 $\pm$ 0,03 c	0,0010 $\pm$ 0,0003 b	0,056 $\pm$ 0,009 c
50% GS -50% SS	35 $\pm$ 4 a	BDL	0,40 $\pm$ 0,04 b	0,0012 $\pm$ 0,0005 b	0,093 $\pm$ 0,006 ab
25% GS -75% SS	18 $\pm$ 4 a	BDL	0,41 $\pm$ 0,02 b	0,0009 $\pm$ 0,0002 b	0,086 $\pm$ 0,006 bc
100% sewage sludge	15 $\pm$ 3 a	BDL	0,3 $\pm$ 0,03 bc	0,0022 $\pm$ 0,0009 b	0,116 $\pm$ 0,009 ab
Incubated mixture	22 $\pm$ 2 a	BDL	3,2 $\pm$ 0,3 a	0,0230 $\pm$ 0,0050 a	0,119 $\pm$ 0,007 a

13 Letters are comparing the treatments in each row.

14 BDL: below the detection limit.

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