

Electronic supplementary information

Table S1. Experimental matrix and responses obtained after execution of the experimental design to evaluate the best condition of extraction. n=3.

Experiment	Variables			Responses			
	Temperature (°C)	HNO ₃ (1%; v:v)	Agitation time (min.)	Extracted concentration ± SD (mg kg ⁻¹)			
				FAAS			
Na	K	Ca	Mg				
1	+ (70)	+ (With)	+ (4)	3.04±0.13	2.76±0.04	1.62±0.07	0.74±0.004
2	+ (70)	+ (With)	- (2)	2.96±0.04	2.82±0.02	1.51±0.07	0.75±0.04
3	+ (70)	- (Without)	+ (4)	3.06±0.08	2.91±0.08	1.45±0.07	0.74±0.05
4	+ (70)	- (Without)	- (2)	3.21±0.06	2.78±0.05	1.7±0.15	0.82±0.03
5	- (25)	+ (With)	+(4)	3.11±0.07	2.56±0.14	1.98±0.04	0.90±0.02
6	- (25)	+ (With)	- (2)	2.79±0.04	2.75±0.14	1.93±0.10	0.91±0.03
7	- (25)	- (Without)	+ (4)	2.89±0.05	2.9±0.05	1.91±0.01	0.90±0.02
8	- (25)	- (Without)	- (2)	2.88±0.01	2.82±0.05	1.8±0.03	0.81±0.03

Mathematical models

Na^+ :

$$R = 2.993 + 0.15_{temperature} + 0.065_{agitation\ time} - 0.035_{acid} - 0.1_{temperature \times acid} - 0.135_{agitation\ time \times acid}$$

K^+ :

$$R = 2.787 + 0.06_{temperature} - 0.01_{agitation\ time} - 0.13_{acid} - 0.045_{temperature \times acid} - 0.075_{agitation\ time \times acid}$$

Ca^{2+} :

$$R = 1.757 - 0.335_{temperature} + 0.005_{agitation\ time} + 0.045_{acid} - 0.07_{temperature \times acid} + 0.075_{agitation\ time \times acid}$$

Mg^{2+} :

$$R = 1.737 - 0.335_{temperature} + 0.005_{agitation\ time} + 0.045_{acid} - 0.07_{temperature \times acid} + 0.075_{agitation\ time \times acid}$$

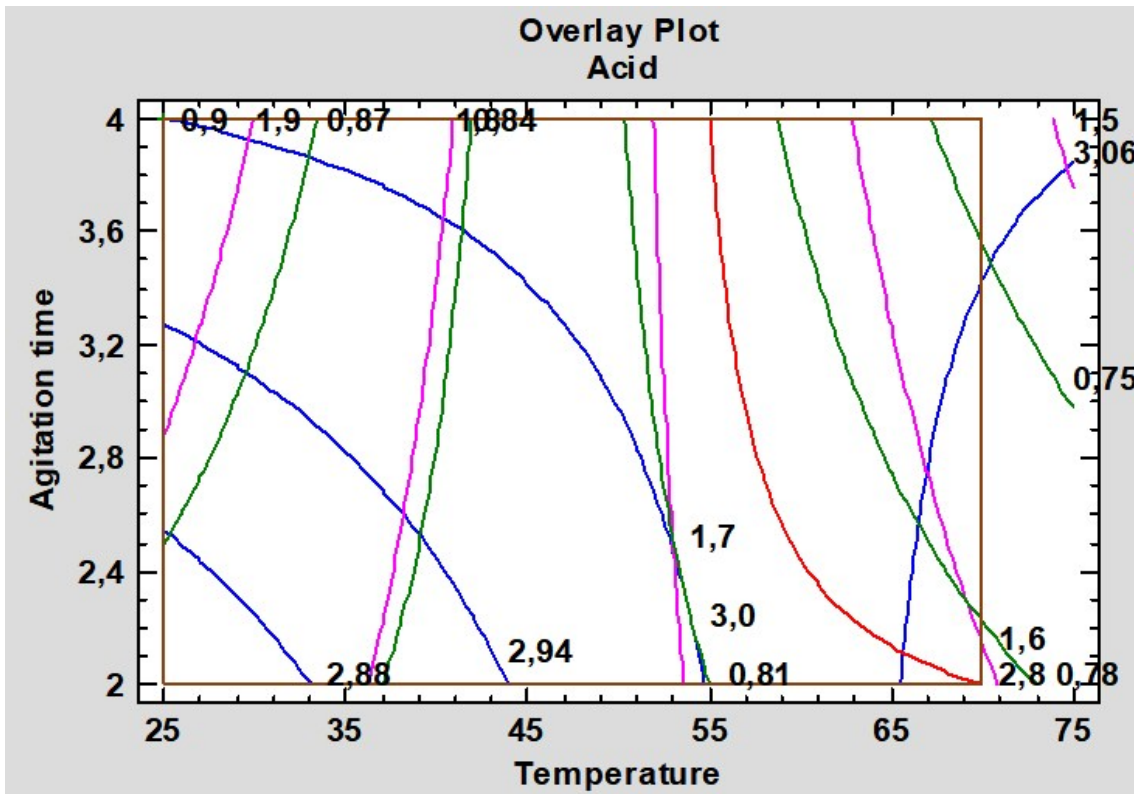


Fig. S1. Contour plot superimposed to Na (blue line), K (red line) Ca (pink line) and Mg (green line) obtained by Statgraphics Centurion XVI v. 16.1.15 software.