

### -Yield phenolics extracts

Sample	Weight (1 ml dried extract+eppendorf)	Weight Eppendorf	Weight sample	Starting sample weight	Yield %
spn	0.7891	0.7444	0.0447	1.0265	4.35460302
spn	0.8048	0.7636	0.0412	1.0265	4.013638578
spn	0.796	0.7519	0.0441	1.0265	4.296151973
cpn	0.7964	0.7639	0.0325	1.038	3.131021195
cpn	0.7821	0.7498	0.0323	1.038	3.111753372
cpn	0.7747	0.7444	0.0303	1.038	2.919075145

### -Mineral analysis

Parameter Tested	Method Used	Unit of Measurement
metals	ICP-MS determination	<b>µg/g</b>

### Additional information

LDM= Limit of detection of the method,

LCM= Limit of quantification of the method

SD= Standard deviation

(µg/g)	Na	Mg	K	Ca	Fe	Cu	Zn
LDM	8.234	0.722	41.462	89.452	4.110	0.135	0.327
LCM	15.057	2.188	60.973	94.159	17.118	0.409	0.643

Sample	Na	SD	Mg	SD	K	SD	Ca	SD	Fe	SD	Cu	SD	Zn	SD
Cotyledons	70	10	4000	100	12000	300	1700	100	80	10	BLD	-	BLD	-
Seeds	374	14	1340	42	11268	352	2244	81	78	2	8.3	0.2	29.2	0.4

### -Fiber analysis

Sample	Crucible weight	Filter weight	Sample weight	Total weight 100°C-Stove	Total weight-muffle	Fiber weight	Ash weight	Crude fiber	% Crude fiber
Cotyledons	20.0365	0.371	1.0423	20.4999	20.0399	0.0924	0.0034	0.089	8.538808404
Cotyledons	18.7434	0.3752	1.0111	19.1832	18.7459	0.0646	0.0025	0.0621	6.141825734
Cotyledons	20.4637	0.3735	1.0631	20.9179	20.4665	0.0807	0.0028	0.0779	7.327626752
seeds	21.9534	0.3605	2.0975	22.827	21.9629	0.5131	0.0095	0.5036	24.00953516
seeds	19.6376	0.3709	2.0199	20.4306	19.6393	0.4221	0.0017	0.4204	20.81291153
seeds	20.7104	0.3684	2.0801	21.5593	20.7016	0.4805	-0.0088	0.4893	23.52290755

### -Lipids quantification

Sample	Weight Erlenmeyer flask+Sample	Weight Erlenmeyer flask	Weight sample	Lipids	%
Cotyledons	80.9081	80.7848	1.0039	0.1233	12.2820998
Cotyledons	124	124.3772	1.038	0.1081	10.4142582
Cotyledons	134.5492	133.9774	5.0219	0.5718	11.3861288
Seeds	100.8722	100.8375	1.0023	0.0347	3.46203731
Seeds	86.6097	86.5872	1.0265	0.0225	2.19191427

Seeds	124.773	124.3717	10.0186	0.4013	4.00554968
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### -Carbohydrate quantification

Calibration curve:  $Y=0.0182X$ -  $R^2= 0.9947$

Sample	DO	DO'	DO''	vol (ml)	g de har
Cotyledons sugar extraction 10 $\mu$ L	0.782	0.782	0.809	1	0.5
Seeds sugar extraction-10 $\mu$ L 1/5	0.67	0.709	0.689	2	0.5

### -Free phenolic compounds quantification

Calibration Curve:  $Y=0.0699x$ -  $R^2=0.9999$

Sample	DO 1	DO2	DO	Volumen	Sample weight
Cotyledons extract-10 ul	0.217	0.236	0.257	40	6.8068
Seeds extract-10 ul	0.628	0.68	0.669	50	7.008

### -Bound phenolic compounds quantification

Calibration Curve:  $Y=0.0699x$  - $R^2=0.9999$

Muestra	DO	DO	DO	DO prom
Cotyledons extract-50 $\mu$ L	0.121	0.121	0.116	0.11933333
Seeds extract-20 $\mu$ L	0.171	0.195	0.205	0.19033333

### -Flavonoids phenolic compounds quantification

Calibration curve:  $Y=0,017.X$   $R^2=0.9996$

Sample	DO	DO	DO	Volumen (mL)	Sample Weight (g)
Seeds extract- 30 $\mu$ L	0.095	0.092	0.097	50	7.008
Cotyledons extract- 30 $\mu$ L	0.116	0.112	0.112	40	6.8068

### -Condensed tannins compounds quantification

Calibration curve:  $Y=0.0708X$  -  $R^2=0.9931$

Sample	DO	DO	DO	Volumen extract (mL)	Weight of phenolic compounds extraction residue (g)
Seeds	0.621	0.619	0.609	13	2.0023
Cotyledons	BDL	BDL	BDL	-	-

### -Phenolic compound profile and HPLC quantification

Compounds **1**, **2**, **5** and **6** were quantified with a reference curve of schaftoside.

Compounds **7** and **8** were quantified with a reference curve of vitexin.

Compound	Rt (min)	UV (nm)	MS	MS/MS	Tentative identification	Seed phenolic extracts mg/g	Cotyledons phenolic extracts mg/g
<b>1</b>	16.45	324, 273	725	635 (61), 605 (100), 563 (83), 473 (28), 353 (6)	Isoschaftoside hexoside	1.09	BDL
<b>2</b>	19.22	324, 273	725	665 (16), 635 (22), 605 (38), 563 (100)	Schaftoside hexoside	1.54	BDL
<b>3</b>	28.38	335, 271	593	575 (6), 503 (27), 473 (100), 353 (13)	Vicenin II/Isomer	0.18	BDL
<b>4</b>	37.45	338, 271	563	545 (22), 503 (57), 473 (100), 443 (18)	Isoschaftoside	16.16	3.21
<b>5</b>	40.21	337, 272	563	545 (11), 473 (68), 443 (100), 353 (18)	Schaftoside	10.72	2.13
<b>6</b>	47.19	-	431	311 (100)	Vitexin	0.16	BDL
<b>7</b>	49.86	334, 272	431	341 (38), 311 (100)	Isovitexin	0.93	BDL

### -Antioxidant activity

#### -Depuration radical-cation ABTS

#### Cotyledons

ABTS Cotyledons <i>Neltuma nigra</i> )						
	DO sample		DO control 100%		%scavenging	
Sample	1 minute	6 minutes	1 minute	6 minutes	1 minute	6 minutes
3.37 µg/ml	0.54	0.417	0.597	0.595	9.55	29.92
6.77 µg/ml	0.504	0.33	0.626	0.596	19.49	44.63
10.17 µg/ml	0.314	0.22	0.586	0.523	46.42	57.93
ABTS Cotyledons <i>Neltuma nigra</i> )-Duplicate						
	DO sample		DO control 100%		%scavenging	
Sample	1 minute	6 minutes	1 minute	6 minutes	1 minute	6 minutes
3.37 µg/ml	0.523	0.4	0.597	0.595	12.40	32.77
6.77 µg/ml	0.482	0.313	0.626	0.596	23.00	47.48
10.17 µg/ml	0.44	0.268	0.586	0.523	24.91	48.76
ABTS Cotyledons <i>Neltuma nigra</i> )-Triplicate						
	DO sample		DO control 100%		%scavenging	

Sample	1 minute	6 minutes	1 minute	6 minutes	1 minute	6 minutes
3.37 µg/ml	0.52	0.392	0.597	0.595	12.90	34.12
6.77 µg/ml	0.534	0.3	0.626	0.596	14.70	49.66
10.17 µg/ml	0.395	0.236	0.586	0.523	32.59	54.88

ABTS Cotyledons <i>Neltuma nigra</i>								
Sample (µg/ml)	% scavenging		% scavenging duplicate		%scavenging triplicate		% scavenging average	
	1 minute	6 minutes	1 minute	6 minutes	1 minute	6 minutes	1 minute	6 minutes
3.37	9.55	29.92	12.40	32.77	12.90	34.12	11.61	32.27
6.77	19.49	44.63	23.00	47.48	14.70	49.66	19.06	47.26
10.17	46.42	57.93	24.91	48.76	32.59	54.88	34.64	53.86

## Seeds

ABTS Seeds <i>Neltuma nigra</i>						
Sample	DO sample		DO control 100%		%scavenging	
	1 minute	6 minutes	1 minute	6 minutes	1 minute	6 minutes
SPN-1.26 µg/ml	0.47	0.434	0.581	0.577	19.10	24.78
SPN-1.88 µg/ml	0.347	0.236	0.584	0.566	40.58	58.30
SPN-3.14 µg/ml	0.187	0.084	0.575	0.558	67.48	84.95
ABTS Seeds <i>Neltuma nigra</i> -DUPLICATE						
Sample	DO sample		DO control 100%		%scavenging	
	1 minute	6 minutes	1 minute	6 minutes	1 minute	6 minutes
SPN-1.26 µg/ml	0.483	0.441	0.581	0.577	16.87	23.57
SPN-1.88 µg/ml	0.415	0.356	0.584	0.566	28.94	37.10
SPN-3.14 µg/ml	0.244	0.152	0.575	0.558	57.57	72.76
ABTS Seeds <i>Neltuma nigra</i> -TRIPLICATE						
Sample	DO sample		DO control 100%		%scavenging	
	1 minute	6 minutes	1 minute	6 minutes	1 minute	6 minutes
SPN-1.26 µg/ml	0.503	0.445	0.581	0.577	13.43	22.88

SPN-1.88 µg/ml	0.353	0.254	0.584	0.566	39.55	55.12		
SPN-3.14 µg/ml	0.23	0.12	0.575	0.558	60.00	78.49		
<i>ABTS Seeds Neltuma nigra</i>								
	% scavenging		% scavenging duplicate		%scavenging triplicate		% scavenging average	
Sample (µg/ml)	1 minute	6 minutes	1 minute	6 minutes	1 minute	6 minutes	1 minute	6 minutes
1.26	19.10	24.78	16.87	23.57	13.43	22.88	16.47	23.74
1.88	40.58	58.30	28.94	37.10	39.55	55.12	36.36	50.18
3.14	67.48	84.95	57.57	72.76	60.00	78.49	61.68	78.73

## -FRAP

**FeSO<sub>4</sub> calibration curve:  $Y=27.827x+0,0212$**

		DO	DO	DO	mg en µL ensayados
Sample	Blanco work solution	0.1027	0.1005	0.1006	
Cotyledons-15µl extracts	sample	0.71	0.7595	0.7686	0.4755
	control	0.0477	0.042	0.0402	
Seeds 15 µl extracts 1/10	Sample	0.5458	0.5749	0.6138	0.06495
	control	0.0362	0.0375	0.035	

## - Hydrogen peroxide scavenging activity

Sample	µg/ml	DO	%	% depuration
Seeds	21.21	0.288	61.2765957	38.7234043
		0.283	60.212766	39.787234
		0.278	59.1489362	40.8510638
	31.82	0.217	46.1702128	53.8297872
		0.217	46.1702128	53.8297872
		0.213	45.3191489	54.6808511
	42.43	0.187	39.787234	60.212766
		0.183	38.9361702	61.0638298
		0.182	38.7234043	61.2765957
c 100%		0.446		
		0.498		
		0.468		
Blanco		0.046		
		0.045		
		0.044		

muestra	µg/ml	DO	%	% depuration
Cotyledons	59.07	0.373	79.3617021	20.6382979
		0.41	87.2340426	12.7659574
		0.41	87.2340426	12.7659574
	88.60	0.361	76.8085106	23.1914894
		0.381	81.0638298	18.9361702
		0.404	85.9574468	14.0425532
	118.14	0.398	84.6808511	15.3191489
		0.387	82.3404255	17.6595745
		0.376	80	20
c 100%		0.479		
		0.497		
		0.471		
Blanco		0.046		
		0.045		
		0.044		

### - Superoxide anion scavenging

Sample	µg/ml	Control 100%	Sample control	DO		
Seeds	6.73	0.894	0.132	0.76	0.773	0.76
	16.83	0.898	0.159	0.68	0.776	0.787
	33.67	0.82	0.226	0.775	0.784	0.801
	50.50	0.696	0.229	0.841	0.906	0.94
Cotyledons	6.05	0.771	0.123	0.811	0.81	0.833
	12.09	0.875	0.136	0.863	0.879	0.852
	18.14	0.697	0.145	0.976	1.014	0.97
	24.18	0.728	0.18	0.999	1.08	1.076
	30.23	0.618	0.161	1.098	1.099	1.082

### - β-Carotene-linoleic acid bleaching assay

Samples	µg/ml	Average DO t0	Average DO t 2 hs	Sample control	Average R
Seeds	7.26	0.966	0.382	0.03	0.598
	14.52	0.966	0.437	0.046	0.529
	29.04	0.966	0.711	0.094	0.255
Cotyledons	9.31	0.966	0.373	0.007	0.593
	18.62	0.966	0.486	0.015	0.48
	37.24	0.966	0.573	0.091	0.438
Control		0.966	0.274		0.692

### - Inhibitory activity of enzymes related to metabolic syndrome

#### - α-Glucosidase inhibition

Sample	µg/ml	DO sample			DO sample control			DO control 100%			I %		
Seeds	1.88	1.135	1.011	0.918	0.108	0.107	0.109	1.452	1.431	1.441	29.27	36.83	43.88
	3.76	1.105	0.851	0.845	0.157	0.159	0.160	1.452	1.431	1.441	34.71	51.64	52.48
	7.52	0.992	0.81	0.743	0.246	0.236	0.182	1.452	1.431	1.441	48.62	59.89	61.08
	11.3	0.902	0.871	0.835	0.347	0.346	0.324	1.452	1.431	1.441	61.78	63.31	64.55

Cotyledons	1.36	1.354	1.299	1.3265	0.218	0.239	0.224	1.555	1.781	1.668	26.94	40.48	33.90
	2.72	1.266	1.405	1.375	0.383	0.385	0.397	1.555	1.781	1.668	43.21	42.73	41.37
	4.04	1.56	1.429	1.39	0.554	0.54	0.534	1.555	1.781	1.668	35.30	50.08	48.68
	5.4	1.918	1.947	1.915	0.7	0.681	0.697	1.555	1.781	1.668	21.67	28.92	26.98

### - $\alpha$ -Amylase inhibition

	$\mu\text{g/mL}$	DO			AMILASE (UA/DL)	% Residual activity	% Inhibición
100% Activity		0.190	0.188	0.192	2472.90		
Seeds	3.25	0.165	0.24	0.277	1973.05	79.79	20.21
Sample control		0.004	0.006	0.004			
Seeds	9.74	0.278	0.267	0.272	1493.41	60.399	39.61
Sample control		0.007	0.007	0.007			
Seeds	32.48	0.288	0.289	0.290	1536.40	62.13	37.87
Sample control		0.027	0.028	0.029			

### -Technofunctional properties

Water holding capacity and oil holding capacity				
	Sample flour (g)	Solvent(g)	Recovered (g)	Retained (g) /Sample flour (g)
Seeds-Water	0.5011	5.0083	4.1817	0.8266
	0.5043	4.9915	3.9836	1.0079
	0.5027	4,9999	4,08265	0,9172
Seeds-Oil	0.5089	5.0305	4.2253	0.8052
	0.5021	4.8813	4.0512	0.8301
	0.5055	4,9557	4.1382	0.8176
Cotyledons-Water	0.5006	4.9835	3.7975	1.1860
	0.5043	4.9841	3.8279	1.1562
	0.5024	4.9838	3.8127	1.1711
Cotyledons-Oil	0.5069	5.1073	4.4089	0.6984
	0.509	5.1300	4.3857	0.7443
	0.5079	5.1186	4.3973	0.7212

				Emulsifying activity		Emulsifying stability
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muestra	Flour sample (g)	Tube volume	Emulsion volume	ml emulsified / Tube volume	Emulsion volume 80 °C	ml emulsified 80°C/ Tube volume
Seeds	1.0422	10	1	0.1	0.5	0.05
	1.0422	10	2	0.2	0.5	0.05
	1.0422	10	1	0.1	0.5	0.05
Cotyledons	1.0091	10	0.6	0.06	0.6	0.06
	1.0091	10	0.6	0.06	0.5	0.05
	1.0091	10	0.7	0.07	0.5	0.05