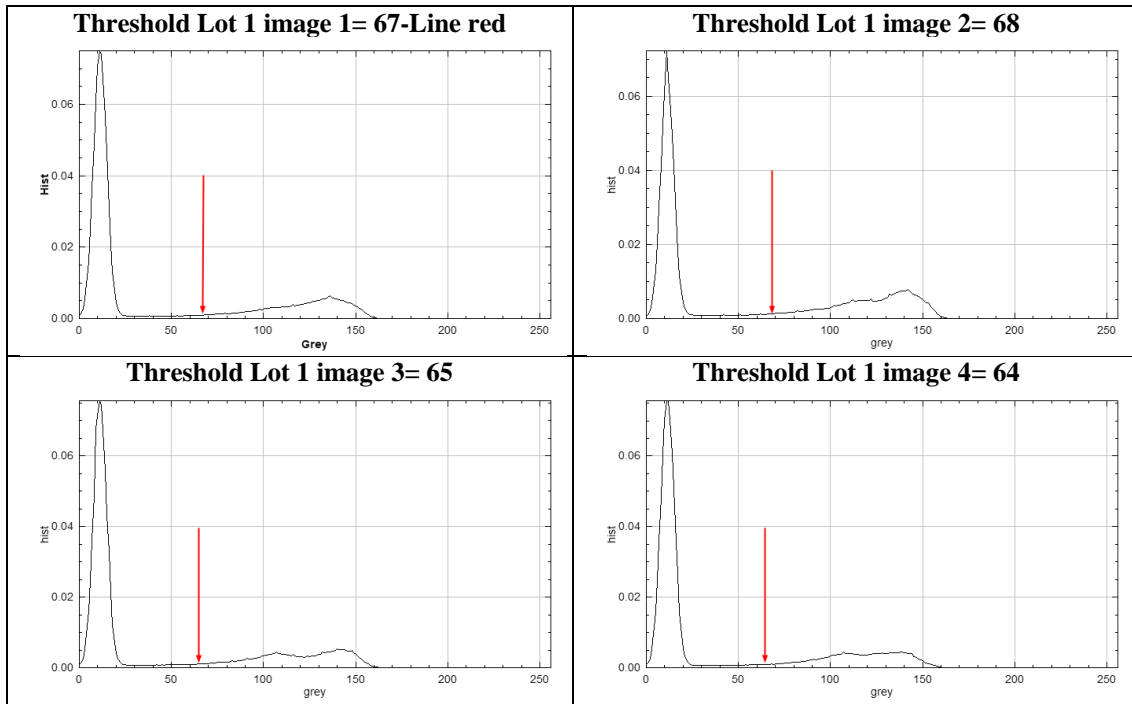


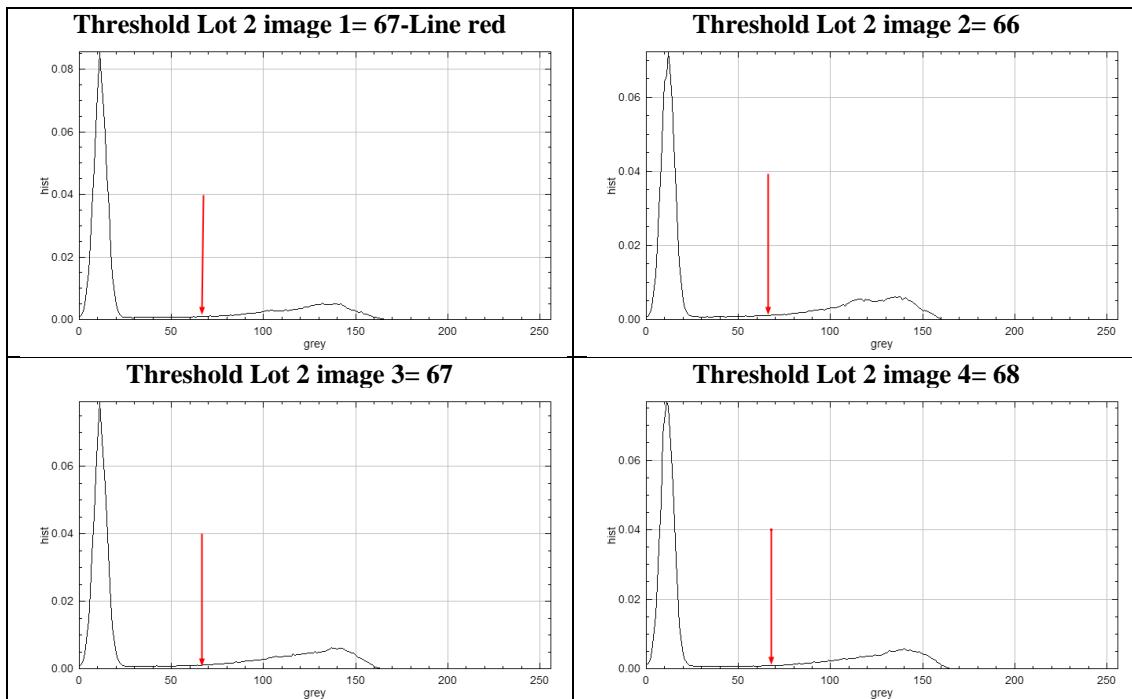
## Supplementary Information

### Supplementary figures

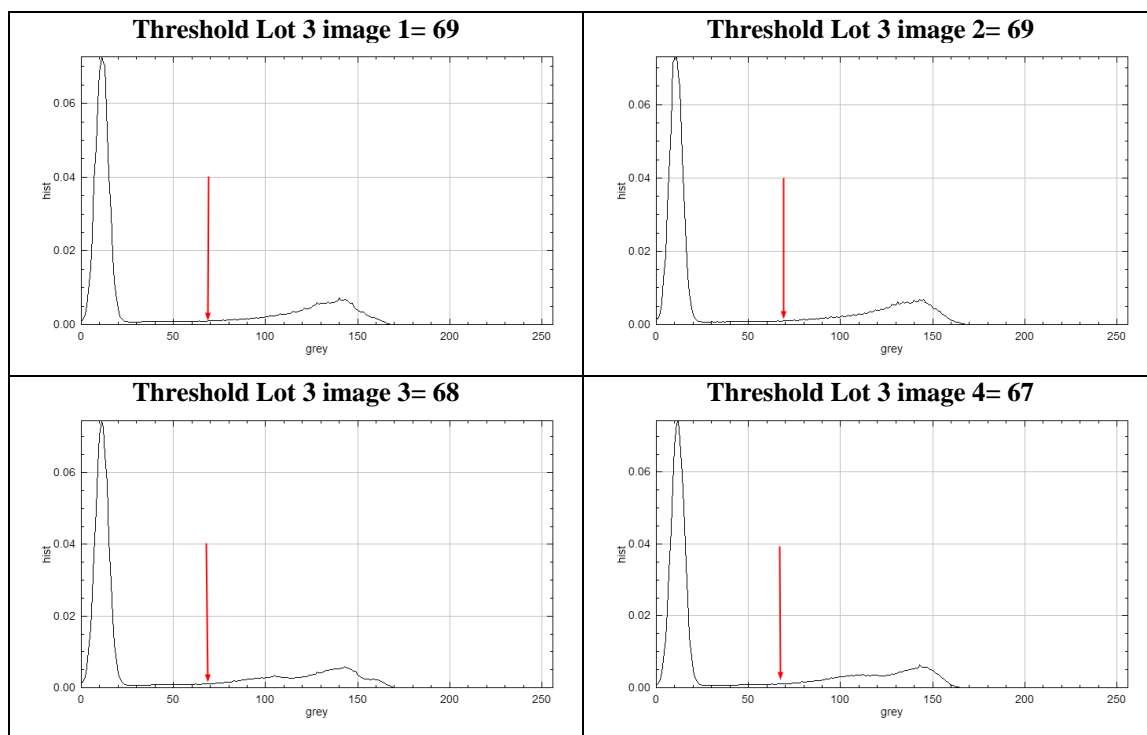
**Fig S1.** Histogram plots for radiographic images of jojoba seeds, lot 1. The red line indicates the threshold determined by the Auto Threshold command in ImageJ software. Each image was composed of 25 seeds.



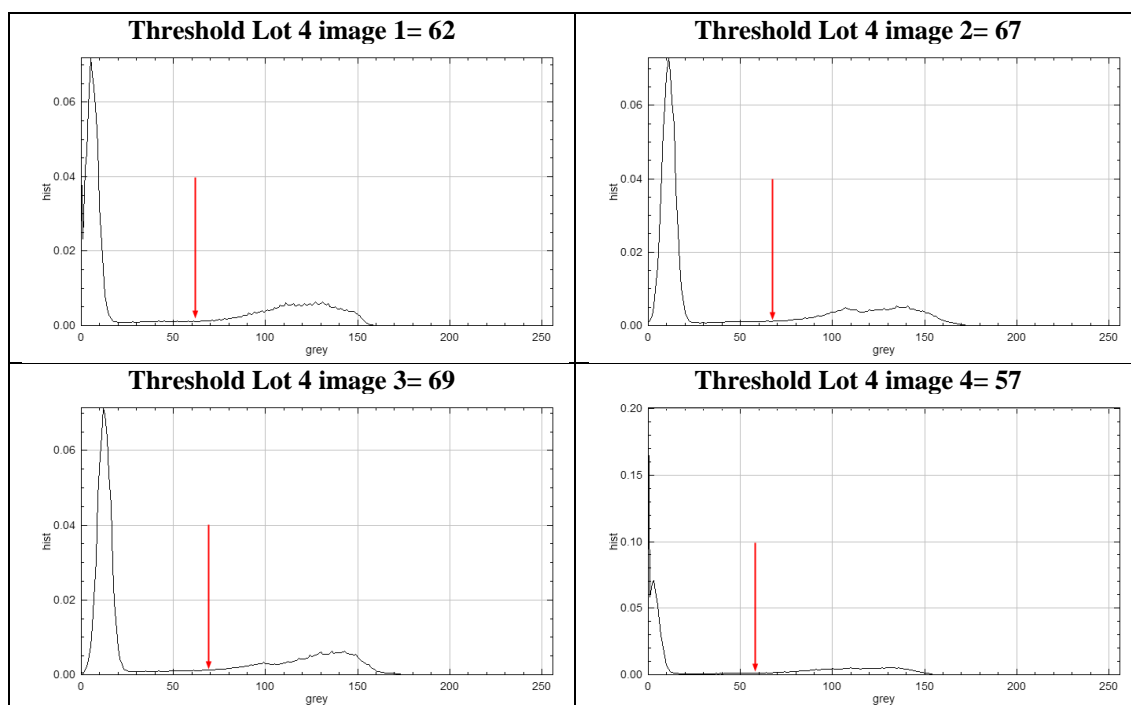
**Fig S2.** Histogram plots for radiographic images of jojoba seeds, lot 2. The red line indicates the threshold determined by the Auto Threshold command in ImageJ software. Each image was composed of 25 seeds.



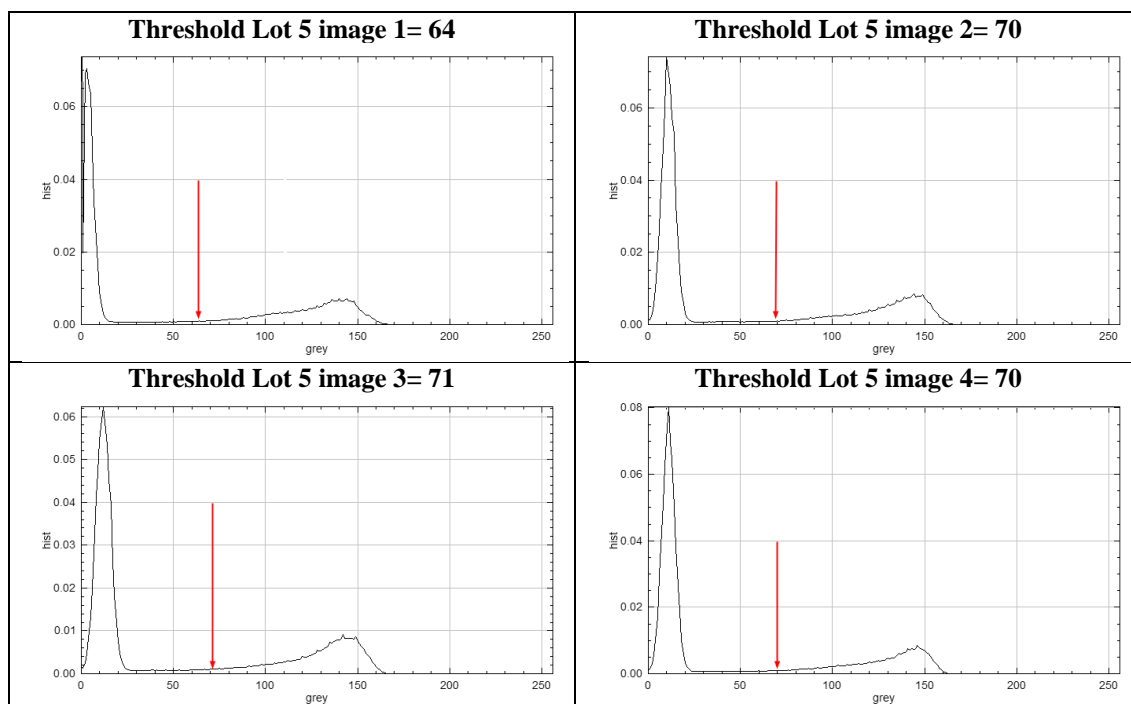
**Fig S3.** Histogram plots for radiographic images of jojoba seeds, lot 3. The red line indicates the threshold determined by the Auto Threshold command in ImageJ software. Each image was composed of 25 seeds.



**Fig S4.** Histogram plots for radiographic images of jojoba seeds, lot 4. The red line indicates the threshold determined by the Auto Threshold command in ImageJ software. Each image was composed of 25 seeds.



**Fig S5.** Histogram plots for radiographic images of jojoba seeds, lot 5. The red line indicates the threshold determined by the Auto Threshold command in ImageJ software. Each image was composed of 25 seeds.



**Supplementary table.**

**Table S1.** p-value for the Shapiro-Wilk and Bartlett tests for the features extracted from the radiographic images.

<b>Feature</b>	<b>ANOVA (Pr&gt;F)</b>	<b>Shapiro-Wilk test (p)</b>	<b>Bartlett test (p)</b>
<b>Area</b>	0.00001367	0.9689	0.0509
<b>Perimeter</b>	0.003165	0.8663	0.6459
<b>Width</b>	0.000274	0.9963	0.3869
<b>Height</b>	0.000751	0.4717	0.8301
<b>Circularity</b>	0.0207	0.598	0.6721
<b>Solidity</b>	0.00001096	0.9333	0.4244
<b>Aspec ratio</b>	0.0000291	0.189	0.08616
<b>Mean gray</b>	0.01497	0.7418	0.3574
<b>IntDen</b>	0.0000161	0.9575	0.0505
<b>Mode</b>	0.003849	0.8268	0.1688
<b>Min</b>	0.05974ns	0.9101	0.3209
<b>Max</b>	0.008931	0.3293	0.9378
<b>Median</b>	0.0148	0.7348	0.32
<b>Round*</b>	1.675e-05	0.1756	0.02269

ANOVA test values ((Pr>F) < 0.05) indicate the existence of different means. ns: not significant by the ANOVA test (p>0.05). \* The data are not normally distributed, nor are the variances homogeneous, as analyzed using the Kruskal-Wallis method.

**Table S2.** Comparações múltiplas entre lotes pelo teste de Tukey HSD (p ajustado) e tamanhos de efeito (g de Hedges) com intervalos de confiança de 95%.

Comparison	Differences	IC inf	IC sup	P-adj	g  - Hedges
<b>Area</b>					
Lot 5 – Lot 1	14.7111	7.52	21.90	<b>0.000116</b>	3.40
Lot 5 – Lot 2	15.89	8.70	23.08	<b>0.0000489</b>	11.8
Lot 5 – Lot 3	4.44	-2.75	11.63	0.35587	1.55
Lot 5 – Lot 4	12.82	5.630	20.01	<b>0.000495</b>	4.50
Lot 4 – Lot 1	1.89	-5.30	9.08	0.92277	0.370
Lot 4 – Lot 2	3.07	-4.12	10.26	0.684	1.01
Lot 4 – Lot 3	-8.38	-15.57	-1.19	<b>0.0189</b>	2.12
Lot 3 – Lot 1	10.27	3.08	17.50	<b>0.00392</b>	2.00
Lot 3 – Lot 2	11.45	4.26	18.64	<b>0.00149</b>	3.74
Lot 2 – Lot 1	-1.18	-8.37	6.01	0.985	0.265
<b>Perimeter</b>					
Lot 5 – Lot 1	1.73	-0.27	3.74	0.1067	1.37
Lot 5 – Lot 2	2.82	0.82	4.82	<b>0.00446</b>	3.14
Lot 5 – Lot 3	0.25	-1.75	2.26	0.9946	0.346
Lot 5 – Lot 4	1.69	-0.32	3.69	0.121	1.89
Lot 4 – Lot 1	0.05	-1.96	2.05	0.999	0.0352
Lot 4 – Lot 2	1.12	-0.87	3.14	0.437	1.15
Lot 4 – Lot 3	-1.43	-3.44	0.57	0.229	1.71
Lot 3 – Lot 1	1.48	-0.52	3.48	0.204	1.21
Lot 3 – Lot 2	2.57	0.56	4.57	<b>0.0094</b>	3.04
Lot 2 – Lot 1	-1.09	-3.09	0.92	0.477	0.816
<b>Width</b>					
Lot 5 – Lot 1	0.86	0.344	1.37	<b>0.00094</b>	2.50
Lot 5 – Lot 2	0.79	0.28	1.30	<b>0.00199</b>	2.30
Lot 5 – Lot 3	0.15	-0.36	0.66	0.890	0.518
Lot 5 – Lot 4	0.33	-0.19	0.84	0.328	1.04
Lot 4 – Lot 1	0.53	0.02	1.04	<b>0.0408</b>	2.20
Lot 4 – Lot 2	0.47	-0.05	0.98	0.085	1.91
Lot 4 – Lot 3	-0.18	-0.69	0.34	0.824	1.11
Lot 3 – Lot 1	0.71	0.19	1.22	<b>0.0053</b>	3.34
Lot 3 – Lot 2	0.64	0.13	1.15	<b>0.0115</b>	3.01
Lot 2 – Lot 1	0.07	-0.45	0.58	0.99	0.236
<b>Height</b>					
Lot 5 – Lot 1	0.89	0.25	1.53	<b>0.0049</b>	2.12
Lot 5 – Lot 2	0.87	0.23	1.51	<b>0.0056</b>	2.54
Lot 5 – Lot 3	0.45	-0.19	1.08	0.249	1.22
Lot 5 – Lot 4	1.07	0.43	1.71	<b>0.0009</b>	3.12
Lot 4 – Lot 1	-0.18	-0.82	0.46	0.898	0.529
Lot 4 – Lot 2	-0.20	-0.84	0.44	0.870	0.799
Lot 4 – Lot 3	-0.63	-1.26	0.01	0.056	2.27
Lot 3 – Lot 1	0.44	-0.195	1.08	0.25	1.21
Lot 3 – Lot 2	0.43	-0.21	1.07	0.282	1.55
Lot 2 – Lot 1	0.02	-0.62	0.65	0.999	0.043
<b>Circularity</b>					
Lot 5 – Lot 1	0.038	0.007	0.068	<b>0.012</b>	2.13

Lot 5 – Lot 2	0.018	-0.012	0.048	0.384	0.968
Lot 5– Lot 3	0.019	-0.011	0.049	0.325	1.16
Lot 5 – Lot 4	0.027	-0.003	0.058	0.085	1.36
Lot 4 – Lot 1	0.010	-0.020	0.041	0.828	0.657
Lot 4 – Lot 2	-0.009	-0.0395	0.021	0.872	0.556
Lot 4 – Lot 3	-0.008	-0.038	0.022	0.917	0.558
Lot 3 – Lot 1	0.018	-0.012	0.049	0.370	1.71
Lot 3 – Lot 2	-0.001	-0.031	0.029	0.999	0.0994
Lot 2 – Lot 1	0.020	-0.011	0.050	0.311	1.44

**Solidity**

Lot 5 – Lot 1	0.0041	0.0023	0.00597	<b>0.00004</b>	6.82
Lot 5 – Lot 2	0.0036	0.0018	0.00545	<b>0.00017</b>	5.92
Lot 5– Lot 3	0.00351	0.0017	0.00539	<b>0.00024</b>	3.49
Lot 5 – Lot 4	0.00602	0.0041	0.00786	<b>0.0000003</b>	6.42
Lot 4 – Lot 1	-0.0019	-0.0037	-0.00054	<b>0.0422</b>	1.84
Lot 4 – Lot 2	-0.0024	-0.0042	-0.00056	<b>0.0081</b>	2.33
Lot 4 – Lot 3	-0.0025	-0.0043	-0.00067	<b>0.0057</b>	1.92
Lot 3 – Lot 1	0.00062	-0.0012	0.00245	0.835	0.567
Lot 3 – Lot 2	0.00011	-0.0017	0.00194	0.999	0.098
Lot 2 – Lot 1	0.00051	-0.0013	0.00234	0.907	0.691

**Aspect ratio**

Lot 5 – Lot 1	0.052	-0.006	0.111	0.092	1.25
Lot 5 – Lot 2	0.018	-0.041	0.077	0.877	1.05
Lot 5– Lot 3	0.102	0.043	0.161	<b>0.0006</b>	4.77
Lot 5 – Lot 4	0.126	0.067	0.184	<b>0.000072</b>	8.68
Lot 4 – Lot 1	-0.073	-0.132	-0.014	<b>0.011</b>	1.75
Lot 4 – Lot 2	-0.108	-0.166	-0.049	<b>0.0038</b>	6.35
Lot 4 – Lot 3	-0.024	-0.082	0.035	0.726	1.11
Lot 3 – Lot 1	-0.049	-0.108	0.009	0.120	1.11
Lot 3 – Lot 2	-0.084	-0.143	-0.025	<b>0.003</b>	3.64
Lot 2 – Lot 1	0.035	-0.024	0.093	0.403	0.804

**Mean**

Lot 5 – Lot 1	7.807	-0.108	<b>15.722</b>	0.051	2.61
Lot 5 – Lot 2	6.514	-1.401	14.430	0.133	2.59
Lot 5– Lot 3	4.714	-3.202	12.630	0.388	1.26
Lot 5 – Lot 4	10.095	2.180	18.011	<b>0.009</b>	1.96
Lot 4 – Lot 1	-2.288	-10.203	5.628	0.895	0.438
Lot 4 – Lot 2	-3.581	-11.497	4.334	0.639	0.722
Lot 4 – Lot 3	-5.381	-13.297	2.534	0.270	0.946
Lot 3 – Lot 1	3.094	-4.822	11.009	0.748	0.807
Lot 3 – Lot 2	1.800	-6.115	9.716	0.953	0.519
Lot 2 – Lot 1	1.293	-6.62	9.208	0.986	0.492

**IntDen**

Lot 5 – Lot 1	2640.80	1362.98	3918.62	<b>0.00010</b>	3.43
Lot 5 – Lot 2	2640.28	1362.46	3918.09	<b>0.00010</b>	11.6
Lot 5– Lot 3	1024.13	-253.69	2301.94	0.1489	1.55
Lot 5 – Lot 4	2657.96	1380.15	3935.78	<b>0.00009</b>	7.18
Lot 4 – Lot 1	-17.17	-1294.98	1260.65	0.99	0.0209
Lot 4 – Lot 2	-17.69	-1295.50	1260.13	0.99	0.0484
Lot 4 – Lot 3	-1633.84	-2911.65	-365.02	<b>0.0096</b>	2.27

Lot 3 – Lot 1	1616.67	338.85	2894.48	<b>0.010</b>	1.64
Lot 3 – Lot 2	1616.15	338.33	2893.97	<b>0.010</b>	2.46
Lot 2 – Lot 1	0.522	-1277.29	1278.34	1.00	0.000680
<b>Mode</b>					
Lot 5 – Lot 1	11.080	1.991	20.17	<b>0.0137</b>	3.19
Lot 5 – Lot 2	8.650	-0.438	17.739	0.065	4.18
Lot 5 – Lot 3	7.025	-2.064	16.114	0.172	1.69
Lot 5 – Lot 4	13.660	4.71	22.749	<b>0.0025</b>	2.43
Lot 4 – Lot 1	-2.580	-11.669	6.51	0.901	0.417
Lot 4 – Lot 2	-5.010	-14.099	4.078	0.461	0.907
Lot 4 – Lot 3	-6.635	-15.724	2.454	0.2132	1.01
Lot 3 – Lot 1	4.055	-5.034	13.14	0.650	0.825
Lot 3 – Lot 2	1.625	-7.464	10.71	0.979	0.402
Lot 2 – Lot 1	2.430	-6.659	11.52	0.918	0.730
<b>Max</b>					
Lot 5 – Lot 1	13.21	3.495	22.925	<b>0.0059</b>	2.89
Lot 5 – Lot 2	9.620	-0.095	19.335	0.0528	2.01
Lot 5 – Lot 3	9.663	-0.051	19.378	0.0515	1.94
Lot 5 – Lot 4	10.130	0.415	19.845	<b>0.0390</b>	1.71
Lot 4 – Lot 1	3.080	-6.635	12.795	0.860	0.557
Lot 4 – Lot 2	-0.510	-10.225	9.205	0.999	0.0896
Lot 4 – Lot 3	-0.466	-10.181	9.248	0.999	0.0795
Lot 3 – Lot 1	3.547	-6.168	13.261	0.790	0.788
Lot 3 – Lot 2	-0.043	-9.758	9.671	1.000	0.00924
Lot 2 – Lot 1	3.590	-6.125	13.304	0.782	0.841
<b>Median</b>					
Lot 5 – Lot 1	8.21	-0.162	16.582	0.0558	2.62
Lot 5 – Lot 2	7.050	-1.322	15.422	0.120	2.87
Lot 5 – Lot 3	4.799	-3.573	13.171	0.425	1.18
Lot 5 – Lot 4	10.640	2.268	19.012	<b>0.0100</b>	2.01
Lot 4 – Lot 1	-2.430	-10.802	5.942	0.894	0.443
Lot 4 – Lot 2	-3.590	-11.962	4.782	0.681	0.700
Lot 4 – Lot 3	-5.841	-14.213	2.531	0.249	0.964
Lot 3 – Lot 1	3.411	-4.961	11.783	0.719	0.795
Lot 3 – Lot 2	2.251	-6.121	10.623	0.917	0.589
Lot 2 – Lot 1	1.160	-7.212	9.532	0.992	0.411

**Table S3.** Silhouette width values for seed lots obtained from hierarchical cluster analysis based on standardized Euclidean distance and the UPGMA method.

<b>Lots</b>	<b>Cluster</b>	<b>Neighbor</b>	<b>Silhouette width</b>
<b>Lot 1</b>	1	2	0.116076
<b>Lot 2</b>	1	2	0.54365
<b>Lot 3</b>	1	2	0.44192
<b>Lot 4</b>	1	2	0.51189
<b>Lot 5</b>	2	1	0.00000
<b>Average silhouette</b>			<b>0.32270</b>