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# Influence of Drying Methods on the Post-Harvest Quality of Coffee: Effects on Physicochemical, Sensory, and Microbiological Composition

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**Table S1.** Physico-chemical and microbiological analysis of Coffea arabica grains from the Campo das vertentes region subjected to different drying methods during different harvest periods[1].

| Parameters | Campo Das Vertentes | | | | | |
|---|---|---|---|---|---|---|
| | Solar + Mechanical Dryer | | | Coffeedryer | | |
| | Begin | Middle | End | Begin | Middle | End |
| Weight of 100 green coffee beans(g) | 11.19±0.15$^{bB}$ | 11.77±0.31$^{bA}$ | 11.21±0.04$^{bB}$ | 12.76±0.11$^{aA}$ | 12.68±0.10$^{bA}$ | 12.51±0.09$^{aA}$ |
| Aw | 0.59±0.00$^{aA}$ | 0.58±0.00$^{aA}$ | 0.58±0.00$^{aA}$ | 0.53± 0.00$^{bA}$ | 0.53±0.00$^{bA}$ | 0.53±0.00$^{bA}$ |
| L* | 46.90±0.37$^{bA}$ | 47.14±1.70$^{aA}$ | 47.16±1.26$^{aA}$ | 49.20±0.044$^{aA}$ | 48.16±0.74$^{aA}$ | 48.25±0.56$^{aA}$ |
| ºHUE | 82.70±0.92$^{aA}$ | 81.89±1.14$^{aB}$ | 83.56±0.39$^{aA}$ | 83.70±0.22$^{aB}$ | 80.49±1.12$^{aC}$ | 85.04±0.79$^{aA}$ |
| C* | 16.86±0.54$^{bB}$ | 18.04±0.60$^{aA}$ | 16.57±0.68$^{bB}$ | 18.67±0.21$^{aA}$ | 18.49±0.16$^{aA}$ | 17.84±0.48$^{aA}$ |
| Moisture(%) | 14.07±0.16$^{aA}$ | 12.48±0.30$^{aB}$ | 12.10±0.30$^{aB}$ | 9.91±0.35$^{bA}$ | 9.94±0.20$^{bA}$ | 10.42±0.41$^{bA}$ |
| Lipids (%) | 2.18±0.08$^{aA}$ | 2.18±0.16$^{aA}$ | 2.36±0.10$^{aA}$ | 2.52±0.31$^{aA}$ | 2.38±0.30$^{aA}$ | 2.37±0.14$^{aA}$ |
| β-Carotene bleaching (%protection) | 42.62±4.44$^{aA}$ | 42.52±3.71$^{aA}$ | 38.37±0.46$^{bA}$ | 49.87±5.18$^{aA}$ | 46.28±1.39$^{aA}$ | 54.71±9.37$^{aA}$ |
| Phenolics compounds (g EAG. 100g$^{-1}$) | 2.79 ±0.05$^{bA}$ | 2.21±0.14$^{bA}$ | 2.07± 0.06$^{bA}$ | 2.79±0.04$^{aA}$ | 2.75±0.07$^{aA}$ | 2.81±0.17$^{aA}$ |
| pH | 6.28±0.01$^{aA}$ | 6.27±0.01$^{bA}$ | 6.28±0.01$^{aA}$ | 6.27±0.01$^{aC}$ | 6.32± 0.02$^{aA}$ | 6.30±0.00$^{aB}$ |
| ATT (%) | 223.33±11.55$^{aA}$ | 236.66±5.77$^{aA}$ | 210.00±11.55$^{aA}$ | 233.33±5.77$^{aA}$ | 190.00±10.00$^{bC}$ | 223.33±0.00$^{aB}$ |
| SS (%) | 26.66±0.58$^{bA}$ | 27.66±0.58$^{bA}$ | 27.33±0.58$^{bA}$ | 33.00±1.00$^{aA}$ | 33.66±1.53$^{aA}$ | 31.00±1.00$^{aC}$ |
| Ash (%) | 5.88±0.14$^{aA}$ | 5.73±0.17$^{bA}$ | 5.70±0.16$^{aA}$ | 4.97±0.11$^{bA}$ | 5.19±0.06$^{bA}$ | 5.24±0.04$^{bA}$ |
| Protein (%) | 0.17±0.01$^{aA}$ | 0.19±0.01$^{bA}$ | 0.16±0.01$^{aA}$ | 0.19±0.01$^{aA}$ | 0.17±0.01$^{aA}$ | 0.18±0.01$^{aA}$ |
| Total Carbohydrate (%) | 77.69±0.14$^{bB}$ | 79.42±0.02$^{aA}$ | 79.66±0.44$^{bA}$ | 82.40±0.37$^{aA}$ | 82.29±0.05$^{aA}$ | 81.78±0.46$^{aB}$ |
| Hygienic-sanitary quality (log. UFC.g$^{-1}$) | 6.47±$^{aB}$ | 7.35±$^{aA}$ | 5.10±$^{aC}$ | 4,60±$^{aA}$ | 0.00±$^{bB}$ | 4.60±$^{aA}$ |
| Length (mm) | 9.40±0.00$^{aB}$ | 9.44±0.00$^{aA}$ | 9.19±0.00$^{bC}$ | 9.35±0.00$^{bC}$ | 9.39±0.00$^{bB}$ | 9.46± 0.00$^{aA}$ |
| Width (mm) | 6.60±0.00$^{bB}$ | 6.62±0.00$^{bA}$ | 6.56±0.00$^{bC}$ | 6.63±0.00$^{aC}$ | 6.81±0.00$^{aA}$ | 6.62±0.00$^{aB}$ |
| Thickness (mm) | 3.53±0.00$^{bB}$ | 3.55± 0.00$^{bA}$ | 3.51± 0.00$^{bC}$ | 3.65± 0.00$^{aB}$ | 3.67± 0.00$^{bA}$ | 3.61± 0.00$^{aC}$ |
| Geometric diameter (mm) | 6.01± 0.00$^{bB}$ | 6.05± 0.00$^{bA}$ | 5.96±0.00$^{bC}$ | 6.09±0.00$^{aB}$ | 6.16± 0.00$^{aA}$ | 6.09±0.00$^{aB}$ |
| Arithmetic diameter (mm) | 6.51± 0.00$^{bB}$ | 6.54±0.00$^{bA}$ | 6.42± 0.00$^{bC}$ | 6.54± 0.00$^{aC}$ | 6.62±0.00$^{bA}$ | 6.57± 0.00$^{aB}$ |

| | | | | | | |
|---|---|---|---|---|---|---|
| Esphericity (%) | 67.35± 0.00$^{aA}$ | 64.11± 0.00$^{aC}$ | 64.94±0.00 $^{aB}$ | 65.21±0.00 $^{bC}$ | 65.73± 0.00$^{aA}$ | 64.46± 0.00$^{bC}$ |
| Circularity (%) | 80.63±0.00 $^{aA}$ | 70.29±0.00 $^{bC}$ | 71.63±0.00 $^{aB}$ | 71.00± 0.00$^{bB}$ | 72.68±0.00 $^{aA}$ | 70.34±0.00 $^{bC}$ |
| Surface área (mm$^2$) | 113.82± 0.00$^{bB}$ | 114.96± 0.00$^{bA}$ | 111.55± 0.00$^{bC}$ | 116.61±0.00 $^{aC}$ | 119.39±0.00 $^{aA}$ | 116.69± 0.00$^{aB}$ |
| Volume (mm$^3$) | 115.52± 0.00$^{bB}$ | 115.88±0.00 $^{aA}$ | 111.93±0.00 $^{bC}$ | 117.96±0.00 $^{aB}$ | 121.52±0.00 $^{aA}$ | 117.80± 0.00$^{aC}$ |

[1] Means ± standard deviation followed by different lower case letters horizontally show statistical differences using the Tukey test ($p < 0.05$), different upper case letters vertically horizontally show statistical differences using the t-Student ($p < 0.05$).

**Table S2.** Physico-chemical and microbiological analysis of Coffea arabica grains from the Alta Mogiana region subjected to different drying methods during different harvest periods[1].

| Parameters | Alto Mogiana | | | | | |
|---|---|---|---|---|---|---|
| | Solar Dryer | | | Coffeedryer | | |
| | Begin | Middle | End | Begin | Middle | End |
| Weight of 100 green coffee beans(g) | 9.18±0.08$^{bB}$ | 9.82±0.13$^{bA}$ | 9.86±0.07$^{bA}$ | 11.46±0.14$^{aA}$ | 11.38±0.08$^{aA}$ | 11.34±0.08$^{aA}$ |
| Aw | 0.52±0.00$^{aC}$ | 0.51±0.00$^{aB}$ | 0.53±0.00$^{aA}$ | 0.46±0.00$^{bB}$ | 0.46±0.00$^{aA}$ | 0.47±0.00$^{bA}$ |
| L* | 49.19±0.51$^{bA}$ | 49.61±0.40$^{aA}$ | 48.10±0.16$^{bB}$ | 49.93±0.35$^{aA}$ | 49.20±0.28$^{aB}$ | 49.67±0.17$^{aA}$ |
| ºHUE | 83.45±0.44$^{aA}$ | 83.77±0.34$^{aA}$ | 83.91±0.24$^{aA}$ | 85.45±0.75$^{aA}$ | 83.55±0.21$^{aA}$ | 83.65±0.43$^{aA}$ |
| C* | 16.49±0.19$^{bA}$ | 16.52±0.37$^{bA}$ | 16.04±0.15$^{bA}$ | 17.20±0.12$^{aA}$ | 17.28±0.41$^{aA}$ | 17.63±0.36$^{aA}$ |
| Moisture(%) | 7,73±0.05$^{bB}$ | 7.76±0.09$^{bB}$ | 8,86±0.11$^{aA}$ | 8,21±0.14$^{aB}$ | 9.01±0.38$^{aA}$ | 8.11±0.05$^{bB}$ |
| Lipids (%) | 3.37±0.50$^{aA}$ | 2.93±0.46 $^{aA}$ | 3.28±0.39 $^{aA}$ | 3.10±0.41 $^{aA}$ | 3.41±0.60 $^{aA}$ | 3.33±0.52 $^{aA}$ |
| β-Carotene bleaching (%protection) | 28.43±4.17$^{bA}$ | 29.72±5.64$^{bA}$ | 26.81±2.25$^{bA}$ | 51.14±4.64$^{aA}$ | 45.05±6.00$^{aA}$ | 47.71±4.80$^{aA}$ |
| Phenolics compounds (g EAG. 100g$^{-1}$) | 2.16±0.07$^{bB}$ | 2.22±0.15$^{bA}$ | 2.21±0.09$^{bA}$ | 3.53±0.33$^{aA}$ | 3.00±0.05$^{aB}$ | 3.20±0.13$^{aB}$ |
| pH | 6.31±0.01$^{bA}$ | 6.27±0.01$^{bB}$ | 6.22±0.01$^{bC}$ | 6.34±0.03$^{aA}$ | 6.30±0.01$^{aB}$ | 6.32±0.00$^{aB}$ |
| ATT (%) | 196.66±5.77$^{aB}$ | 236.66±5.77$^{aA}$ | 245.00±0.00$^{aA}$ | 180.00±10.00$^{bB}$ | 206.66±5.77$^{bA}$ | 190.00±0.00$^{bB}$ |
| SS (%) | 31.66±0.58$^{bB}$ | 33.33±1.15$^{aB}$ | 36.33±0.58$^{aA}$ | 36.67±1.53$^{aA}$ | 34.00±3.00$^{aA}$ | 34.66±0.58$^{aA}$ |
| Ash (%) | 5.04±0.12$^{aA}$ | 5.05±0.09$^{bA}$ | 5.06±0.10$^{bA}$ | 5.25±0.02$^{aA}$ | 5.34±0.23$^{aA}$ | 5.34±0.17$^{aA}$ |
| Protein (%) | 0.18±0.01$^{aA}$ | 0.18±0.01$^{aA}$ | 0.18±0.01$^{aA}$ | 0.18±0.00$^{aA}$ | 0.18±0.01$^{aA}$ | 0.17±0.01$^{aA}$ |
| Total Carbohydrate (%) | 83.66±0.40$^{aA}$ | 84.06±0.47$^{aA}$ | 82.60±0.37$^{aB}$ | 83.24±0.52$^{bA}$ | 82.04±0.79$^{aB}$ | 83.03±0.34$^{aA}$ |
| Hygienic-sanitary quality (log. UFC.g$^{-1}$) | 5.02±0.14$^{aA}$ | 3.99±0.00$^{bC}$ | 4.87±0.14$^{aB}$ | 4.33±0.03$^{bB}$ | 4.61±0.02$^{aA}$ | 0.00±0.00$^{bC}$ |
| Length (mm) | 8.49±0.00$^{bA}$ | 8.42±0.00$^{bB}$ | 8.29±0.00$^{aC}$ | 9.30±0.00$^{aA}$ | 9.23±0.00$^{aB}$ | 6.56±0.00$^{bC}$ |
| Width (mm) | 6.36±0.00$^{bA}$ | 6.23±0.00$^{bB}$ | 6.24±0.00$^{aC}$ | 6.69±0.00$^{aA}$ | 6.58±0.00$^{aB}$ | 3.27±0.00$^{bC}$ |
| Thickness (mm) | 3.51±0.00$^{bA}$ | 3.50±0.00$^{bB}$ | 3.46±0.00$^{bC}$ | 4.10±0.00$^{aB}$ | 4.11±0.00$^{aA}$ | 3.67±0.00$^{aC}$ |
| Geometric diameter (mm) | 5.73±0.00$^{bA}$ | 5.68±0.00$^{bB}$ | 5.63±0.00$^{bC}$ | 6.27±0.00$^{aA}$ | 6.23±0.00$^{aB}$ | 6.07±0.00$^{aC}$ |
| Arithmetic diameter (mm) | 6.12±0.00$^{bA}$ | 6.05±0.00$^{bB}$ | 6.00±0.00$^{bC}$ | 6.70±0.00$^{aA}$ | 6.64±0.00$^{aB}$ | 6.51±0.00$^{aC}$ |
| Esphericity (%) | 67.68±0.00$^{aB}$ | 67.60±0.00$^{aC}$ | 68.36±0.00$^{aA}$ | 67.48±0.00$^{bB}$ | 67.50±0.00$^{bA}$ | 65.36±0.00$^{bC}$ |
| Circularity (%) | 75.12±0.00$^{aB}$ | 74.33±0.00$^{aC}$ | 75.62±0.00$^{aA}$ | 72.14±0.00$^{bA}$ | 71.43±0.00$^{bB}$ | 70.76±0.00$^{bC}$ |
| Surface área (mm$^2$) | 103.40±0.00$^{bA}$ | 101.37±0.00$^{bB}$ | 99.68±0.00$^{bC}$ | 125.06±0.00$^{aA}$ | 123.24±0.00$^{aB}$ | 115.71±0.00$^{aC}$ |
| Volume (mm$^3$) | 98.99±0.00$^{bA}$ | 96.81±0.00$^{bB}$ | 93.66±0.00$^{bC}$ | 129.40±0.00$^{aA}$ | 127.85±0.00$^{aB}$ | 117.07±0.00$^{aC}$ |

[1] Means ± standard deviation followed by different lower-case letters horizontally show statistical differences using the Tukey test ($p<0.05$), different upper case letters vertically horizontally show statistical differences using the t-Student ($p<0.05$).Table S3. Notes on the sensory evaluation of coffee

beverage from genetic varieties of arabica coffee from Campo das vertentes subjected to different drying methods.

**Table S2.** Cont.

| Parameters | Solar + Mechanical Dryer | | | Coffeedryer | | |
|---|---|---|---|---|---|---|
| | Begin | Middle | End | Begin | Middle | End |
| Fragrance/Aroma | 7.00$^{bA}$ | 7.00$^{bA}$ | 7.00$^{bA}$ | 7.50$^{aA}$ | 7.33$^{aA}$ | 7.16$^{aA}$ |
| Uniformity | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ |
| Clean Cup | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ |
| Sweetness | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ |
| Flavor | 7.00$^{bA}$ | 7.00$^{bA}$ | 7.00$^{bA}$ | 7.50$^{aA}$ | 7.33$^{aA}$ | 7.16$^{aA}$ |
| Acidity | 7.00$^{bA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.33$^{aA}$ | 7.00$^{aB}$ | 7.00$^{aB}$ |
| Body | 7.00$^{bA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.33$^{aA}$ | 7.00$^{aB}$ | 7.00$^{aB}$ |
| Aftertaste | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ |
| Balance | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ |
| Overall | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ |
| Final score | 79.00$^{bA}$ | 79.00$^{bA}$ | 79.00$^{aA}$ | 80.93$^{aA}$ | 80.00$^{aB}$ | 79.33$^{aB}$ |

[1] Means followed by different lower-case letters horizontally show statistical differences using the Tukey test ($p<0.05$), different upper-case letters vertically horizontally show statistical differences using the t-Student ($p<0.05$).Table S4. Notes on the sensory evaluation of coffee beverage from genetic varieties of arabica coffee from Alta Mogiana subjected to different drying methods[1].

**Table S2.** Cont.

| Parameters | Solar Dryer | | | Coffeedryer | | |
|---|---|---|---|---|---|---|
| | Begin | Middle | End | Begin | Middle | End |
| Fragrance/Aroma | 7.00$^{aA}$ | 7.16$^{bA}$ | 7.00$^{bA}$ | 7.33$^{aA}$ | 7.33$^{aA}$ | 7.50$^{aA}$ |
| Uniformity | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ |
| Clean Cup | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ |
| Sweetness | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ | 10.00$^{aA}$ |
| Flavor | 7.00$^{aA}$ | 7.16$^{aA}$ | 7.00$^{bA}$ | 7.33$^{aA}$ | 7.33$^{aA}$ | 7.50$^{aA}$ |
| Acidity | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ |
| Body | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ |
| Aftertaste | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ |
| Balance | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ |
| Overall | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ | 7.00$^{aA}$ |
| Final score | 79.00$^{bA}$ | 79.00$^{bA}$ | 79.00$^{bA}$ | 80.00$^{aA}$ | 80.00$^{aA}$ | 80.00$^{aA}$ |

[1] Means followed by different lower case letters horizontally show statistical differences using the Tukey test ($p<0.05$), different upper case letters vertically horizontally show statistical differences using the t-Student ($p<0.05$).