

Comparison of Different Methodologies to Determine Raw Coffee Bean Moisture Content

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SUMMARY

The aim of this work was to compare methods to determine the moisture content on a wet weight basis (w.w.) of raw coffee beans. Six methodologies were evaluated in the moisture range from 9 to 17%: a) oven with forced ventilation (ISO method); b) oven with forced ventilation (Brazilian Agriculture Ministry method); c) Vacuum oven at 98°C for 24 h; d) Vacuum oven at 70°C for 24 h; e) Capacitance method using the Gehaka G 600 equipment; f) calorimetric method, using the infrared “AND” (130°C for 15 min). The ISO 1447 is the official method for raw coffee and was used as a standard for comparison with the other methods. All results were analysed by the Dunnet test at a level of 1 to 5% probability. The results indicated that the methods tested presented lower moisture values than the ISO 1447 method, except for Gehaka in the range from 11.8 to 14.2%. The Brazilian Agriculture Ministry method was the closest to ISO 1447 with approximately 1% of difference. The vacuum oven at 70°C for 24h was the method that differed most with a difference of approximately 4%. The infrared results were similar to the oven method at 98°C for 24h. Both differed about 2% from ISO 1447. The results from Gehaka suggested that the equipment over-estimates the moisture value in the range from 9 to 11% w.w. On the other hand, in the range from 12.4 to 16.6% it is closer to ISO 1447. Most of the methods tested presented a statistically significant difference when compared to ISO 1447.