PA195 Lipid Content and Fatty Acid Profile in Embryos, Endosperm, and Seeds of Dried *Coffea arabica*

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The limited longevity of coffee seeds has been attributed to the drying method, to the differential response of isolated parts of the seed to desiccation, and to the predominant reserve component, lipids, among other factors. In relation to this reserve component, not only its proportion, but also unsaturation, determined by the number of double connections, has an influence on desiccation tolerance. Thus, considering the strategic requirement to enable conservation of whole seeds and/or isolated embryos from *Coffea arabica* L., the aim of this study was to determine lipid content and its structural composition in different parts of the seed. For this purpose, total lipid content was extracted with petroleum ether in Soxhlet; and fatty acid composition, determined by gas chromatography, was evaluated in embryos, endosperm, and the whole seed during rapid and slow drying to water contents of around 5%. Slow drying was conducted with different salt solutions, and fast drying was carried out using silica gel. Results showed the highest concentration of total lipids, 23%, is in embryos in contrast to only 8% in the endosperm. In whole seeds, the percentage of total lipids decreases after slow and fast drying. According to profile analysis of fatty acids, linoleic acid predominates (48%) in the endosperm; linoleic acid is known for its instability because it is an unsaturated fatty acid. Palmitic acid is of greatest proportion (41%) in embryos. There was no significant variation in the profile of fatty acids after slow or fast drying for embryos and endosperm, indicating that the methods evaluated did not influence the lipid distribution and composition when parts of seeds were dried separately. However, as detected for total lipids, there was a reduction in the composition of palmitic, oleic, and linoleic acids in whole seeds after drying. Although there was no change in the composition of fatty acids in the embryo and endosperm after rapid and slow drying, the values of palmitic and linoleic acid varied significantly between these structures. Thus, it can be concluded that the predominance of linoleic acid in the endosperm in contrast to the embryo supports the hypothesis that there is more sensitivity in the endosperm than in embryos. It is also noteworthy that the total content of unsaturated fatty acids has more influence on sensitivity to desiccation than the percentage of total lipids.

Reference

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