USE OF A CHEMOMETRIC METHOD IN THE DETERMINATION OF THE ANTIOXIDANT PROFILE OF FRESH LITCHI FRACTIONS SUBMITTED TO DRYING.

Estela R. Queiroz, Celeste M. P. Abreu, Kelly S. Oliveira, Samira H. Spiller, Vinicius O. Ramos. Departament of Chemistry, Federal University of Lavras, PO Box 3037, 37200-000, Lavras, Minas Gerais, Brazil.

The antioxidant activity (AA) of a fruit is due to a number of substances able to block the harmful effects of free radicals. On account of the complexity of biological systems, it is difficult to analyze the AA of each compound separately. Therefore, aiming to elucidate which compounds are responsible for the AA of litchi fractions, a principal component analysis (PCA) was performed. A completely randomized design was used, consisting of 5 treatments (skin, pulp and seed fresh, peel and seed dried at 45 °C), evaluated in seven replicates of 20 fruits, for levels of vitamin C, phenols, β-carotene, lycopene and the AA by DPPH capture and by b-carotene/linoleic acid system. The PCA explained 82.90% of the total variance of the litchi antioxidant profile. The first component explains 60.51% of the information and groups the skin and seed dried with higher phenol and lycopene concentrations, pulp and seed fresh with intermediate phenol and lycopene levels and isolates the fresh skin, with higher AA, vitamin C and β-carotene levels. The second component explains 22.39% of the variance and discriminates the fresh peel of the other fresh fractions by the levels of β-carotene, vitamin C and AA. The fractions of litchi were separated into three groups, which shows that the fresh skin has more AA, vitamin C and β-carotene. It was possible to conclude, with the PCA, that the high AA found in the litchi fractions must be, especially, due to vitamin C and β-carotene.