

ABSTRACT

Comparison between organic and conventional strawberry (*Fragaria x ananassa* Duchesne): nutritional, physical, chemical, antioxidant, and pesticide residues composition.

Neuza Maria Brunoro Costa¹, Hélia de Barros Kobi¹, Pollyanna Ibrahim Silva¹, Jacimar Luis de Souza².

¹Federal University of Espírito Santo, Center of Agrarian Sciences, Alegre, ES, Brazil, 29500-000. neuzambc@gmail.com.

²INCAPER- Centro Serrano, BR-262, Km 94, Venda Nova do Imigrante, ES, Brazil, 29.375-000.

The strawberry is a "fruit" very appreciated by consumers for its color, aroma and attractive flavor and its nutritional properties. The cultivar, soil type, climate and cropping systems can influence the food chemical and physical properties. Conventional agriculture, based on the use of chemical, mechanical and biological inputs, can affect the environment and human health and, in view of this, sustainable models of organic and agroecological production have been proposed. Little is known, however, how the different production systems can affect the composition of the strawberry. The objective of this study was to compare the nutritional, physical-chemical and antioxidant properties as well as the content of pesticide residues in strawberries grown on organic and conventional systems. Two experiments were conducted. At first, we analyzed the quality of strawberries (*Fragaria x ananassa* Duchesne) cultivar Camarosa and Albion, grown in organic and conventional system, with beds covered and uncovered by producers in the Central highlands of Espírito Santo. Then, we studied the quality of strawberries (*Fragaria x ananassa* Duchesne) cv. Camarosa produced in conventional and organic system, grown under controlled conditions. The results of the strawberries produced in the organic and conventional farming systems showed a significant difference between culture types for variables: moisture, total

solids (TS) and carbohydrates. For Albion cultivar, higher values of moisture (91.77%) and lower total solids (8.22%) in samples of organic strawberries were observed. For the same system of tillage, conventional, cv. Albion showed the highest content of total solids. The mean values of carbohydrate showed significant differences between conventional strawberry systems (5.74%) and (8.18%) only for Albion cultivar. In the study with strawberries cv. Camarosa produced in organic and conventional tillage with and without cover in plastic tunnels beds system, environmental management factors did not significantly influence the levels of the variables. In the study with strawberries cv. Camarosa, grown under organic and conventional systems, in controlled conditions, significant differences were found for variables: moisture, total, soluble solids, protein, ash, carbohydrate and anthocyanin. The organic strawberries had higher moisture contents (91.48%) and ash (0.43%), while conventional strawberries had higher soluble solids (8.50 ° Brix) and anthocyanin (17.72 mg/100g). Regarding pesticide residues in all samples of organic strawberry, the values found for the pesticides analyzed, azoxystrobin, lambda-cyhalothrin and thiamethoxam were below the limit of detection (<LOD) of the method and the values of the residues found in the conventional strawberries were below the limit of quantification (<LOQ).

Acknowledgement: FAPES for financial support