Study of the Genetic Diversity of the Banana Passionfruit (Passiflora mollisima) through Molecular RAPD Markers and Determination of the Vitamin C Amount Based on the Different MASL Heights Where It Grows

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The purpose of this research project is to determine the amount of vitamin C (Ascorbic Acid) in a native fruit from Peru, called Tumbo or Passiflora mollisima L. that is little-known by the scientific community. 6 different varieties of this fruit have been collected in different regions of the country. The genetic diversity of two varieties of this fruit was evaluated in this research. This vine fruit has a high content of vitamins, including the ones that are the object of this research. A method called iodometric titration was used to determine ascorbic acid. In this method the Tumbo juice is titrated with iodine and starch, which forms a blue substance. When processing the fruit in diverse experimental titrations, its contents of vitamin C was determined. The fruit that was found to have more vitamin is a variety from the Apurímac region, where the collection place is at a higher altitude and it is located in the center of the country. This fact also allowed to determine the geographical factors that influence the content of vitamin, considering that the fruit that had the smallest amount of vitamin was the variety from the Tacna region that is located at a low elevation at the south of the country. It was concluded that the altitude is a key factor in the amount of vitamin C in this fruit, and also the vitamin C content is three times higher than the one of orange juice according to the bibliography consulted. The evaluation of genetic diversity was carried out using the RAPD technique (Random Amplified Polymorphic DNA). The evaluated samples were obtained from Junín and Huánuco Departments, which supply the wholesale marketplace of Lima in small amounts. It was demonstrated that there is a great genetic variability in Tumbo within the localities studied.

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