OBJECTIVES

- To determine total vitamin C content, L-ascorbic acid and L-dehydroascorbic acid in six samples of orange juice (one nectar, three concentrated juices, one filtered freshly squeezed juice and one unfiltered freshly squeezed juice);
- To evaluate the nutritional value of these juices as a source of vitamin C.

MATERIALS AND METHODS

- The oranges and orange juices were acquired in local supermarkets, and only the edible portion was analysed (Figure 1);
- Vitamin C content was determined by a highly precise and accurate high performance liquid chromatography method coupled with a photodiode array detector, previously validated;
- The total vitamin C content was determined by reducing dehydroascorbic acid to ascorbic acid (adding a reducing agent tris(2-carboxyethyl)phosphine, TCEP).

RESULTS AND DISCUSSION

- Total vitamin C content in the analysed samples varied between 42.5 ± 0.7 and 66.4 ± 0.2 mg/100 g of edible portion, for nectar and concentrated juice, respectively (Figure 2).
- The highest ascorbic acid value and the lowest dehydroascorbic acid content (60.9 ± 0.3 and 1.3 ± 0.6 mg/100 g of edible portion, respectively) were observed in the concentrated juice.
- The freshly squeezed juices presented higher vitamin C and ascorbic acid contents than the nectar.

CONCLUSION

Taking into account the established DRI, orange juices can be considered a good source of vitamin C. Most of the vitamin C content in the analysed orange juices is due to the presence of L-ascorbic acid, which is the main biologically active form of this vitamin and it is an effective antioxidant. Since orange juice is an important and highly consumed source of vitamin C, and due to the wide range of different types of orange juices available in the market, it is essential to analyse total vitamin C content (L-ascorbic and L-dehydroascorbic acids).