Effect of addition of β-cyclodextrin on the ascorbic acid retention, color parameters and sensory analysis of orange juices

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Cyclodextrins (CDs) are cyclic oligosaccharides able to form inclusion complexes with various compounds, protecting it against the degradative effects of oxidation, visible or UV light, heat, enzymatic browning, taste modification, colour degradation and microbiological contamination, all of which are important in food quality. The purpose of this study was to evaluate the effect of the addition of β-cyclodextrin (β-CD) in orange juice. The orange juice was placed into glass bottles and stored at 6 °C for a period of 10 days. The parameters analyzed were ascorbic acid and color parameters (L*, a*, b*). Sensory evaluation was performed in the orange juices, to verify the differences in flavor. The results showed that the addition of β-CD to orange juice reduced degradation of ascorbic acid. While the juice, the reduction was 33.7%, in orange juice added to the CD, this reduction was 28%. For the color parameter values of lightness (L*) added to the juice β-CD were higher than for natural juice. These results demonstrated that the β-CD, acting as the encapsulating agent of the ascorbic acid, protected from degradation in the juice, but not helped in the control non-enzymatic browning of pigments, such as carotenoid and lycopene. The results of sensory analysis demonstrated that there were no significant differences as to the flavor at a level of significance of 5%. 