

**Title** Impact of thermal treatment on micronutrients of a tamarillo nectar and stability of this nectar  
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### **Abstract**

The influence of thermal treatment on micronutrients (e.g. polyphenolic compounds, vitamin C or carotenoids) has been extensively studied in different food matrix. Nevertheless, the specific effects of couple [thermal pasteurisation / initial dissolved oxygen level] in a food matrix stay poorly studied. In this way, the influence of thermal treatment under aerobic and anaerobic conditions was assessed on a yellow tree tomato nectar (a good model in terms of vitamin C content, polyphenolic and carotenoid diversity). The stability of the nectar in terms of micronutrients was also studied.

Yellow tree tomato nectar was submitted to a thermal treatment (80°C, 90°C and 95°C) in aerobic and anaerobic conditions. Ascorbic acid (AA) and dehydro-ascorbic acid (DHAA) were quantified by HPLC using TCEP as reducing agent of DHAA. Carotenoids were quantified according to Dbuique-Mayer et al (2005). HPLC/MS2 was used for their structural study. Polyphenolic compounds were analysed after lyophilisation of the nectar, using HPLC/MS/MS technique.

After 10 min stabilised at 80°C under aerobic conditions, AA was totally degraded while DHAA was partly still remaining. Under anaerobic conditions, AA was completely protected from thermal degradation while DHAA content decreased. A slight decrease of the carotenoid content was observed after thermal treatment in aerobic and anaerobic conditions with structural modifications such as cisisomerization. The polyphenol content also exhibited a decrease in aerobic conditions.

This study provided us information on the behaviour of micronutrients during the processing of the tamarillo fruit and will help us to prevent losses of nutritional quality.