

# Effect of convective drying assisted by ultrasound on drying time and aroma of tamarillo (*Cyphomandra betacea* Cav. Sendt) and mango (*Mangifera indica* L.) fruits

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## Abstract

New trends in global healthy food consumption have increase the production of fresh fruits and fruit based value-added products as a result of the awareness of their high contents of bio-active compounds like carotenoids, vitamins, minerals, dietary fiber and antioxidants. High moisture content in fruits can generate high losses in post-harvest handing, storage and distribution. Dehydration process based on water activity reduction, is a common option for overcoming such losses. Regular hot air drying could affect negatively the quality properties of the fruit due to the long residence time at high temperature. Power ultrasound (US) application during the convective drying has been used as a new method able to decrease drying time. The aim of this work was to evaluate the effect of the convective drying assisted by ultrasound on drying time and aroma losses of tamarillo slices (TS) and mango slices (MS). An experimental design was developed for both fruits, showing the positive effect of ultrasound during convective drying process. Power ultrasound (20 kHz, 45 W) was applied in different cycles during drying test at 50°C, applying 5 minutes and 10 minutes of ultrasound each half hour intermittently. Weigh loss of samples was measured every hour until reaching moisture content of  $10.0 \pm 1.0\%$  (wet basis). Aroma losses measurement was development by SPME method, and the results were compared with the fresh fruit data for all the drying tests.

**Keywords:** Aroma, convective drying, mango, tamarillo, ultrasound