

## NEW DIPPING TREATMENTS TO CONTROL ENZYMATIC BROWNING OF APPLES DURING DRYING

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### ABSTRACT

The present experimental activity aims to improve the quality of apple wedges (var. *Golden delicious*) during 8-h drying at 60°C, using dipping treatments in fruit juices (orange, pineapple, green kiwifruit, yellow kiwifruit) and/or herbal teas (green tea, dandelion, licorice, roselle). Preliminary tests allowed to select both pineapple and green kiwifruit juices as well as roselle (*Hibiscus sabdariffa*) dry extract as feasible pretreatments able to control enzymatic browning by reducing the polyphenol oxidase (PPO) activity. In fact, 70, 80 and 100% inhibition of PPO activity were achieved using green kiwifruit (5% v/v), pineapple (7.7% v/v) juices and roselle dry extract (1.5% w/v), respectively.

The selected fruit juices, alone and in combination with roselle, were finally tested as pretreatment of the 8-h drying process. Product quality was evaluated at 0, 2, 4, 6 and 8 h of drying by monitoring changes in color, moisture content (g/gDW), soluble solid contents (SSC), water activity ( $a_w$ ) and total phenols content (GAE/gDW). Dipping in both pineapple and kiwifruit juices avoids changes in color of apple wedges during the first 2 h of drying (i.e. product heating period) and allowed to obtain a final product with a 28% lower moisture content (0.16), as well as the highest SSC (7.41 °Brix) and total phenols content (354.70 GAE/gDW). Roselle dipping treatment substantially changed the hue angle of apple wedges to the crimson color, decreased the SSC (7.20 °Brix) and increased the total phenols content (> 415 GAE/gDW) of all samples. The best dipping treatment, in terms of final quality of the product, corresponded to the green kiwifruit juices, alone or in combination with roselle dry extract.

**PAROLE CHIAVE:** *Golden delicious, dipping, drying, pineapple, kiwifruit, roselle*