

Effects of pretreatments on drying properties and product quality of different capsicum varieties

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Background

- *Capsicum* spp:
 - Belong to the family Solanaceae
 - Originate from South and Central America
 - Occur in many colors and flavors
 - Are appreciated for their culinary qualities
 - Are often dried to extend storability
- Within the project 'Unravelling the potential of neglected crop diversity for high-value product differentiation and income generation for the poor: The case of chili pepper in its centre of origin', the process of drying local South American varieties will be optimized.

Problem Statement

- Fruits and vegetables undergo physicochemical during hot air (convective) drying
- Moisture, water activity, color and texture are important quality attributes
- Inappropriate drying procedures adversely affect product quality
- Pretreatment of fruits prior to drying may improve drying behavior and final product quality

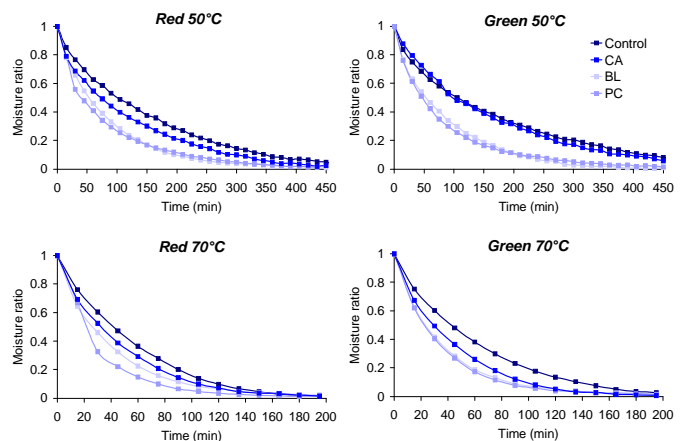
Material and Methods

- Red and green pepperoni (*C. annum*)
- Drying experiments conducted at 50 and 70°C
- Quality analysis according to standard methods
- Three pretreatments were applied:

CA	5% citric acid (C ₆ H ₈ O ₇)
BL	Blanching at 80°C for 3 min
PC	2% ethyl oleate + 5% potassium carbonate (K ₂ CO ₃)



Results



Effect of pretreatments on drying curves of red and green fruits at 50 and 70°C.

- Increased temperature reduced drying time by half
- Red fruits dried faster than green
- Blanching and K₂CO₃ increased drying rates especially at the lower temperature

Effect of pretreatments on final product quality of red fruits dried at 70°C until 0.4 water activity

	Moisture (%wb)	Texture (N)	Lightness	Color (hue)
Control	5.96 ^a	15.69 ^a	35.38 ^a	34.29 ^a
CA	5.13 ^a	13.68 ^a	37.93 ^b	32.03 ^a
BL	3.16 ^b	11.09 ^b	37.03 ^b	27.67 ^b
PC	4.45 ^a	9.96 ^b	37.84 ^b	29.73 ^b

*different letters in the same column denote significant differences at P<0.05

- Texture and color more impacted by pretreatments
- Blanching and K₂CO₃ positively affected quality

Conclusions

- Pretreatments were found to affect drying behavior and final product quality
- Blanching and K₂CO₃ had the most desired effects