

Assessment of current drying practices for South American pepper varieties (*Capsicum* spp) with respect to final product quality

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Background

- Chilis are used worldwide as a flavoring and coloring agent for foods
- Traditional open-air sun drying of chili in Bolivia and Peru leads to essential losses in product quality
- Final products are often not marketable
- To avoid quality losses, factors influencing the quality have to be determined and controlled
- 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



Fig. 1: Traditional open-air field drying in Bolivia. Fruits are exposed on bare soil for several weeks. The process is highly weather-dependent and leads to contamination and a non-uniform product.

Material and Methods

- Experiments were conducted with local small-scale farmers in Padilla (Chiquisaqua province) in Bolivia and around Lima, Peru from May to August 2010
- The drying process was monitored at 2-5 day intervals by sampling the drying bulk
- Moisture content of whole fruits and individual fruit parts as well as surface color (CIELAB), extractable color (ASTA value), and aflatoxin content were determined
- Crops were the common red and yellow cultivars in Bolivia and 'Panca' in Peru

Results

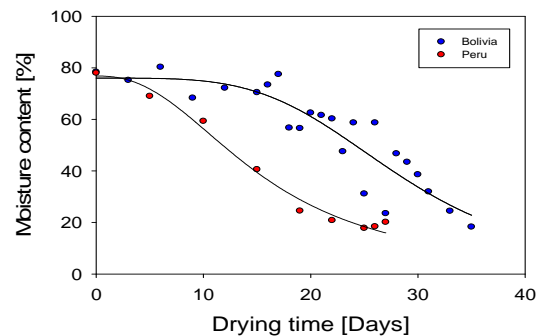


Fig. 2: Moisture content (% wet basis) of chili during open-air field drying in Bolivia and Peru.

- Drying lasted 24 d in Bolivia and 12 d in Peru (Fig. 2)
- Moisture content was most variable at harvest (Table 1)
- Moisture content of individual parts varied (Table 2)
- Hue angle decreased during drying for each variety
- ASTA values ranged from 70-155 with a mean of 126.1
- Initial and final samples all tested positive for aflatoxins meaning contamination does not occur during drying

Table 1: Moisture content (% wet basis) at different points during the production process

	Ripened	Harvest	Dried	Stored
Mean	75.99	69.34	20.33	18.05
Deviation	4.84	12.34	8.09	2.76
Range	66-82	45-81	12-42	16-20

Table 2: Moisture content of individual fruit parts of Peruvian 'Panca' at the beginning and end of drying

	Stem	Seed	Flesh	Placenta
Beginning	59.5	51.0	83.5	85.1
End	14.4	9.7	21.9	23.2