

# Oil absorption of potato chips made from *Solanum tuberosum* group Phureja collection of the national university of Colombia

L.J. Manrique, C.E. Núñez

Acta Horticulturae 1016: 95-102. (2014)

---

## Abstract

The potato is an important part of the global food system and is considered the number one non-cereal food. In processing, potato chips have high fat contents and the food frying process is characterized by unavoidable oil absorption. This fact affects the demand of fried foods and prompts the search for low-fat food alternatives. In the case of the potato, this problem has not yet been evaluated in the national collections and, for the breeding of potatoes for processing, it is necessary to know this phenotypic variable, especially for genotypes with low oil absorption. The aim of this study was to assess the oil absorption of potato chips made from the *Solanum tuberosum* Group Phureja Collection of the Universidad Nacional de Colombia and to reveal the phenotypic variability of this trait. The Collection was grown in a field under an augmented design in the La Calera locality (3,312 m a.s.l.), using as controls the cultivars: 'Criolla Galeras', 'Criolla Guaneña' and 'Criolla Paisa'. The oil extraction was carried out by means of a hydraulic press (15,000 psi) and additionally, the specific gravity and dry matter were evaluated. The genotypes with statistically lower oil absorption were Col 143, Col 135 and Col 138 with values lower than 25%. A group of genotypes showed oil absorption lower than 40% but without significant differences with the best used control. An inverse correlation between dry matter and oil absorption was found ( $r = -0.427$ ), which was significant, but we observed also genotypes with high dry matter accumulation and high oil absorption demonstrating that oil absorption is a complex mechanism which requires further study. The cultivars 'Criollo Guaneña' and 'Criollo Paisa' had acceptable dry matter and oil absorption for the processing of acceptable flakes, still higher than 'Criollo Galeras'. The dry matter values fluctuated between 16.30 and 29.93%, whereas the oil absorption values were between 22.74 and 47.01%.