Hydroxyccinamic acid-like compounds in Colombian boiled diploid potato genotypes

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CONCLUSION

In all genotypes ChA (ranging from 77±9 to 438±114 mg/100 g DW) was by far the most abundant non-ACN-HCA-LC, followed by *crypto*-ChA (from 22±8 to 101±9 mg/100 g DW). Intra-varietal variation was observed by the high coefficient of variation (CV) found for ChA when the biological replicates were analysed (ranging from 4 to 75%), contrasting with the good reproducibility of the chromatographic method (CV for ChA lower than 4% within and between days). Furthermore, inter-varietal variability was observed not only by the differences in total content of non-ACN-HCA-LC, but also by the differences in quantity of each individual compound.

INTRODUCTION

In Colombia, among different cooking methods, potato tuber is mainly consumed in boiled preparations. Phenolic compounds are of interest due to their role in human health. Hydroxycinnamic acid-like compounds (HCA-LC) are the main phenolic compounds in quantity and diversity present in potato tubers [*1*]. HCA-LC can be classified as non-anthocyanin (non-ACN)-HCA-LC and as ACN-HCA-LC. Chlorogenic acid (ChA), followed by others such as *neo*-ChA, *crypto*-ChA, and caffeic acid are the main contributors in quantity to the non-ACN-HCA-LC in potato tubers. At the National University of Colombia we have a collection of more than 100 potato genotypes from the Phureja group that have not been characterized for their phenolic composition. The **aim** of this work was to quantify the aforementioned compounds in 60 boiled Colombian potato genotypes from the Phureja group.

MATERIALS AND METHODS

Plant Material

Potato tubers from the Phureja group were grown in a farm (2,580 masl; average annual temperature 14 °C) 42 km far from Bogotá (Colombia). Three biological replicates were analysed.

Ultra high performance liquid chromatography (UHPLC)

Non-ACN-HCA-LC were quantified by the external standard method when using an UHPLC coupled to a diode array detector, with ChA as standard for ChA, *neo*-ChA, and *crypto*-ChA. Caffeic acid was used as standard for the quantification of caffeic acid. Quantity of non-ACN-HCA-LC was expressed as mg/100 g potato dry weight (DW). The chromatographic method [*2*] was tested for reproducibility within and between days with authentic ChA.

RESULTS

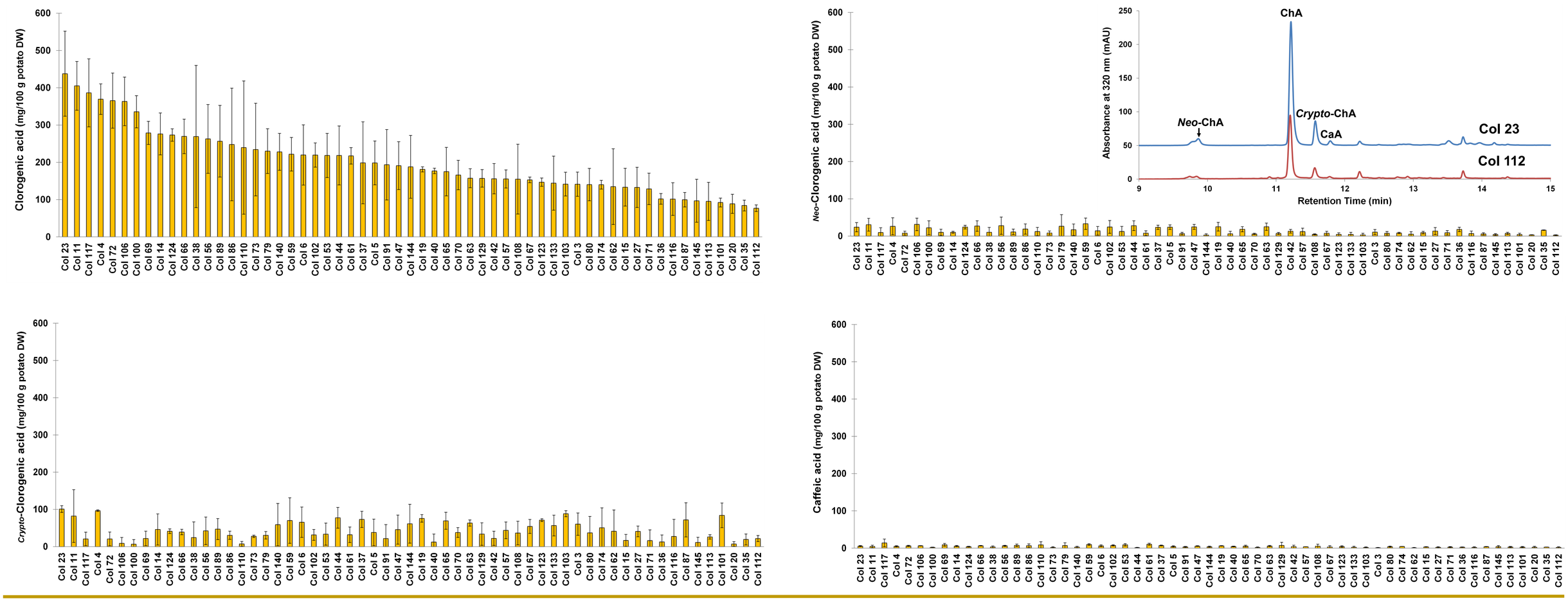

Figure 1. Chlorogenic acid (ChA), *crypto*-ChA, *neo*-ChA, and caffeic acid contents in 60 boiled potato genotypes from the Pureja group. Insert shows chromatograms at 320 nm of two potato extracts.

REFERENCES

[*1*] Narvaez-Cuenca et al. 2013. *Food Chemistry* 130, 730-738. [*2*] Narváez-Cuenca et al. 2012. *Food Chemistry* 139, 1087-1097.

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