Impact of selected factors-cultivar and cooking methods on dry matter, starch profile and texture in Spain potatoes

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Introduction

The cooking inducing significant changes, influencing the concentration and bioavailability of bioactive compounds in potato tubers. However, the negative and positive effects have been dependent on difference in processing conditions and the characters of potato cultivars.

Objectives

Study the effects of various cooking methods, i.e., boiling, baking and microwaving on the physicochemical properties (Texture, Dry Matter and starch profiles) in 4 selected cultivars (Agata, Caesar, Kennebec and Red Pontiac).

Experiment setup

Cooking potato

Parameters analyses

- Shear force (She)
- Hardness (Har)
- Total starch (TS)
- Resistant starch (RS)
- Soluble starch (SS)

Results and discussion

The texture values decreased with the treatment.
- The average of shear force of baking was slightly lower than the values of other cooking methods.
- The hardness is dependent on the treatments and the cultivars.

Conclusions

- The starch profile and texture parameters affected on the cooking methods and cultivars.
- After cooking treatment: the DM content of boiling was lower than the baking and microwaving and all cultivars showed an decrease of texture value.
- The RS content decreased (95-96%) and SS content increased 75%- 80% after cooking in all cultivars.
- A significant (p<0.05) and positive correlations were found which due to the common and complex interactions. DM significantly positive correlated with Har in all treatments (boiling, baking and microwaving). The significant positive correlations were found between TS, SS and DM content and negative correlations between DM and RS content for boiling and baking.

Reference