

SUMMARY

The goals of this thesis were the comparison of three cooking treatments in vegetables and the selection of one of these treatments for each product. To achieve these aims, physico-chemical, nutritional and sensory properties and the microstructure were studied. In addition, a methodology to find equivalent cooking treatments, using a combination of Response Surface Methodology (RSM) and instrumental and sensory analyses, is proposed.

The cooking treatments applied were traditional cooking (TC- boiling water at 100 °C) and two vacuum treatments: cook-vide (CV- a method of cooking in continuous vacuum where products are in contact with boiling water below 100 °C by decreasing the atmospheric pressure) and sous-vide (SV- a method of cooking in vacuumized plastic pouches at a precisely controlled temperature). The vegetables studied were purple-flesh potatoes (*Solanum tuberosum* L. var. Vitelotte), green bean pods (*Phaseolus vulgaris* L. cv. Estefania), carrots (*Daucus carota* L. cv. Nantesa) and red cabbages (*Brassica oleracea* convar. capitata var. capitata f. rubra).

Considering samples with similar instrumental firmness and comparing the nutritional and sensory properties (particularly, aroma and taste) and consumer acceptance, SV treatment is recommended to cook the vegetables, except for carrots. For this vegetable, TC is recommended due to an increase in the extraction of β -carotene compared to the use of SV and to the similar consumer acceptance to samples cooked by SV.