

Title Effect of mild pressure treatments and thermal blanching on yellow bell peppers (*Capsicum annuum* L.)

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Abstract

The effect of thermal blanching, in conditions carried out at industrial level, and pressure treatments of 100 and 200 MPa on quality of yellow bell peppers was compared. While the soluble protein content was reduced from 13 to 34% by the blanching treatments, the pressure treated peppers showed equal (100 MPa) to higher levels (up to 33%) for 200 MPa. The ascorbic acid (AA) content of the peppers was not affected by thermal blanching, with the exception of the more severe condition (98 °C/150 s), whereas all pressurized samples showed an increase of AA content in the range of 11–48%. Polyphenol oxidase activity was found mainly in the soluble fraction (around 80%) and decreased progressively as the temperature and time of blanching increased, till reaching about 50% the value of unprocessed peppers, while the pressure treatments showed no effect. Peroxidase activity was practically absent in the ionically-bound fraction (only 1% of total activity) and was reduced by the blanching treatments by 80%–100%, while the pressure treatments only reduced peroxidase activity from 5 to 10%. Activity of pectin methylesterase was undetectable in fresh and both thermally and pressure processed peppers. Firmness of peppers measured from the skin side was about 2.5 fold higher than from the flesh side. After the thermal blanching and the pressure treatments, firmness of peppers was better retained when measured from the flesh side. Upon freezing the pressure treated and the thermally blanched peppers showed similar relative decreases in firmness.