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A review of pectin methylesterase inactivation in citrus juice during pasteurization

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Abstract

Background

Pectin, naturally found in citrus, plays a key role in the quality of the obtained juices. Pectin methylesterase enzyme (PME) influences the cloud stability, viscosity, color, mouth feeling and flavor of the juices by de-esterification of pectin. Iinactivation of PME is introduced as a pasteurization index in citrus juices, due to its higher thermal resistance than the spoilage microorganisms.

Scope and approach

Inactivation of PME using different thermal (conventional, microwave and ohmic heating) and non-thermal (pulsed electric field, high pressure processing and high pressure carbon dioxide) processes is important in juice production. The aim of this study was to review the effect of these processing methods on the PME inactivation in different citrus juices.

Key finding and conclusion

Using non-thermal methods in combination with moderate thermal methods can be more effective in PME inactivation with minimum loss in citrus juice quality.

Keywords: Pectin methylesterase; Citrus juice; Pasteurization; Thermal methods; Non-thermal methods