In a previous study, two novel antihypertensive peptides, which corresponded to fragments f(90-94) (RYLGY) and f(143-149) (AYFYPEL) of αs1-CN, have been identified in a peptic bovine casein hydrolysate (Contreras et al., 2009).

A relevant question for the industrial application of bioactive peptides is if these compounds would survive to processing conditions. However, there are little data about this issue.

The main objective was to evaluate the resistance of the peptides RYLGY and AYFYPEL to drying, homogenization and pasteurization, and their stability in yoghurts stored at 4 ºC. The stability of the ACE-inhibitory activity and the antihypertensive activity was also evaluated.

2. Material and Methods

Preparation of the casein hydrolysate

Food grade conditions (previously optimized)
- Casein
- Water
- Enzyme
- With/without an additive (for improving taste)

Spray-/Freeze-drying

Incorporation of the casein hydrolysate into yoghurt

Pilot scale
- Casein hydrolysate
- Pasteurization 95ºC, 7 min
- Homogenization 180 bar
- Commercial yoghurt
- Storage at 4ºC (0-4 weeks)

Large scale
- Casein hydrolysate
- Pasteurization 95ºC, 7 min
- Homogenization 180 bar
- Commercial yoghurt
- Storage at 4ºC (0-4 weeks)

In addition, the peptides were quantified by HPLC-MS, using the method of Contreras et al. (2010).

3. Results and discussion

3.1. Effect of drying

The moment of the incorporation of a food additive did not affect the peptide content in the final product (Table 1). In addition, the content of both peptides and the ACE-inhibitory activity were comparable after spray-drying and freeze-drying and between both scales, with or without the additive, obtained on a large scale was maintained after atomization (Fig. 2).

3.2. Effect of pasteurization and homogenization. Stability during shelf-life

The active peptides were stable during the processes of homogenization and pasteurization. Moreover, no significant reduction of both peptides was detected during the shelf-life of the yoghurts prepared on pilot (Fig. 3) and large scale (data not shown).

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