Stability Report

pH and thermal stability of lactium®

Date 12/02/2007

TRIALS AIM :

to measure the influence of pH and heating conditions on the stability of lactium® in water.

Product :

lactium® powder dissolved in distilled water (3% w/w).

Process :

• For pH stability, the solution of lactium® was acidified at different pH (2 to 12), at 20°C and 70°C during 20 min.

• For heat stability, the solution of lactium® was heat treated at different temperatures (20 to 120°C), during 20 min at pH 7.

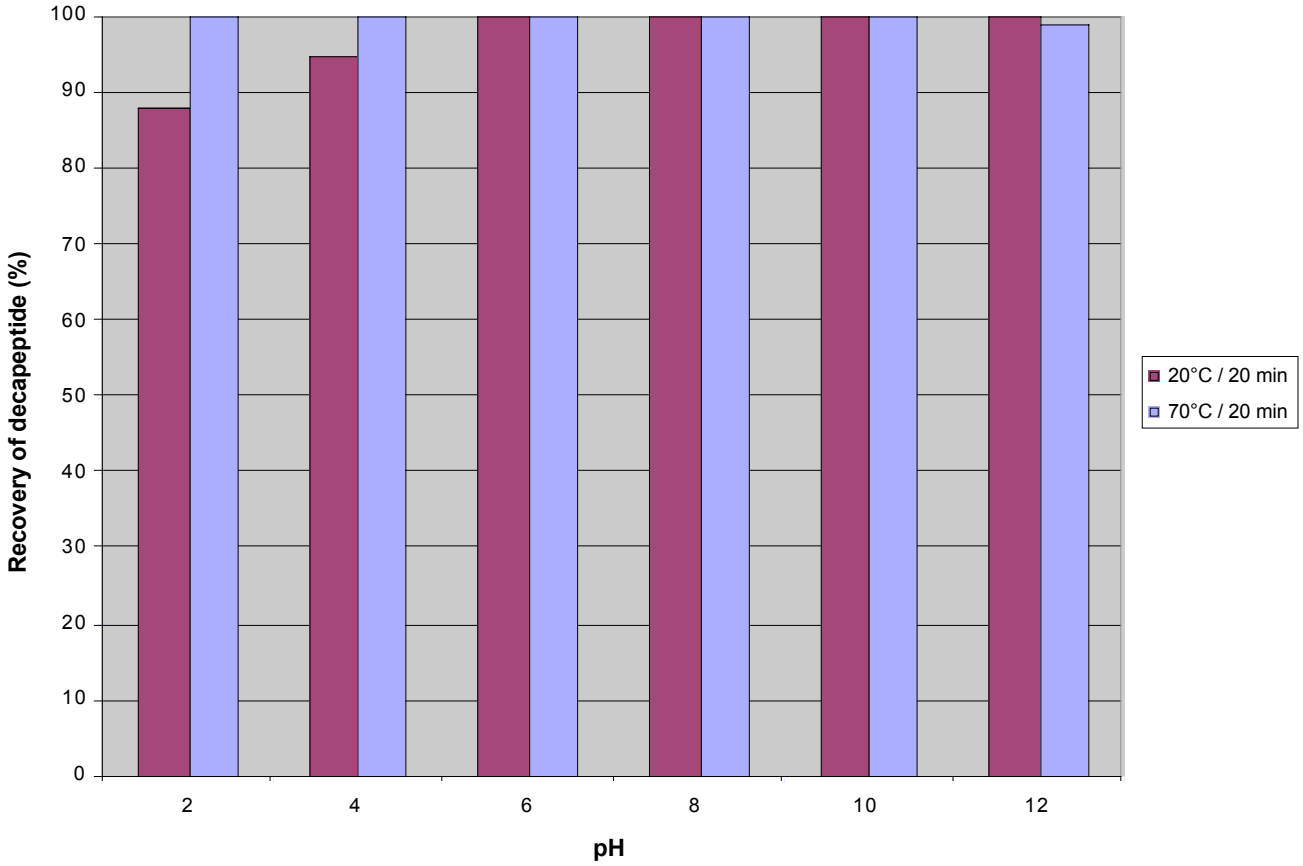
Analytical method :

• lactium® contains a specific decapeptide, α_{S1}-casein (f91-100). The stability of lactium® is determined from the recovery rate of the decapeptide, measured by HPLC. It is expressed in %.

• HPLC (method #MLB C119B)

Results :

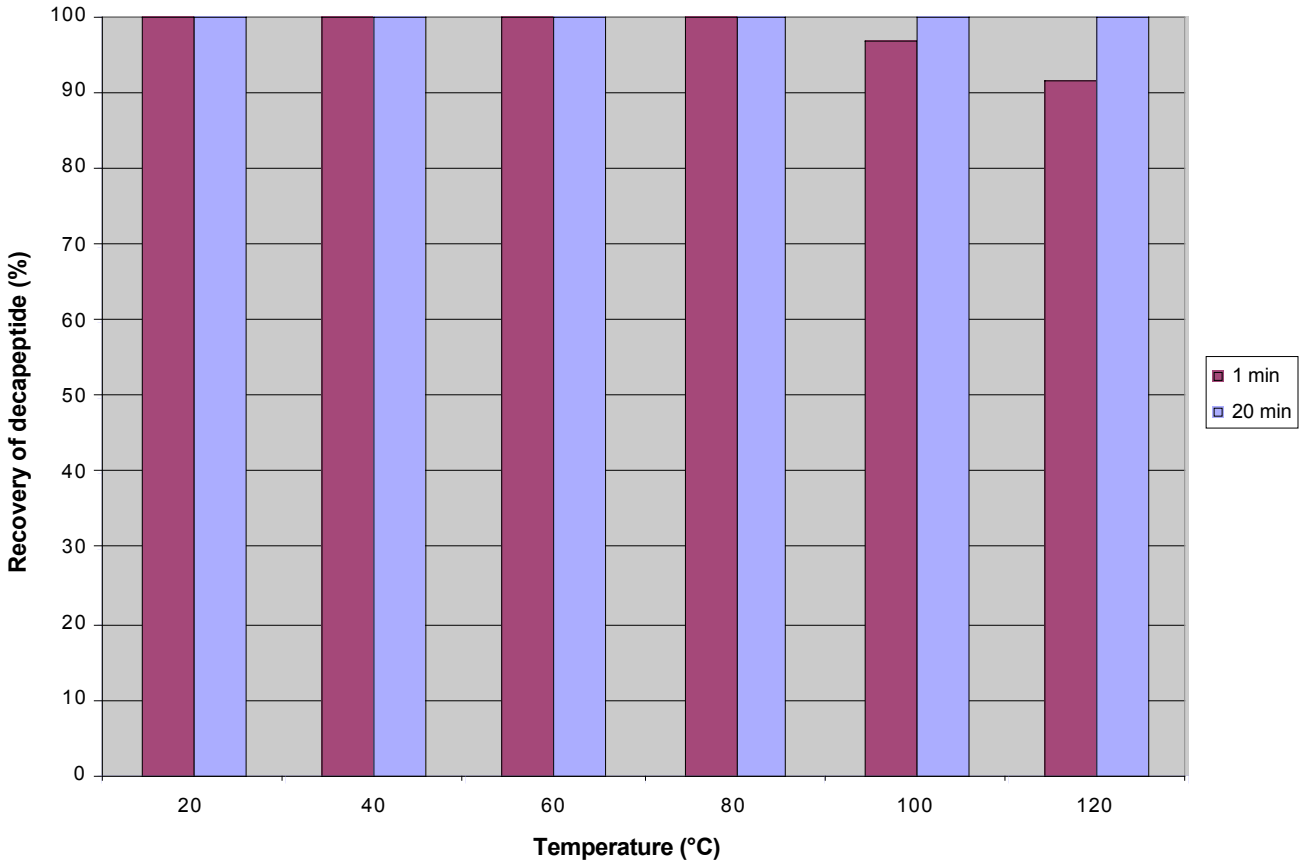
pH stability of lactium®



- lactium® is almost fully stable from pH 2 to 12,
- This is especially the case for the higher heat treatment,
- The lower recovery rate of the decapeptide observed at very acidic pH is probably due to a lower solubility of the powder of lactium®.

Results :

Thermal stability of lactium®



- lactium® is almost fully stable from 20 to 120°C,
- This is especially the case for intense heat treatment (High Temperature Long Time),
- a lower recovery rate of the decapeptide for short heating time can be noticed.

GENERAL CONCLUSIONS :

pH stability :

✓ lactium® shows a good stability from pH 2 to 12,

✓ at very acidic pH, the recovery rate of lactium® decreases, probably because of a lower solubility of the powder. This does not impact its activity.

Thermal stability :

✓ lactium® shows a good stability from 20 to 120°C,

✓ it is especially the case for intense heat treatment (high temperature long time), may be because of an improvement of the powder solubility.