



**Trial Report  
n° /2006**

**lactium® stability and  
activity in  
Stirred Yoghurt**



## TRIALS AIM :

- To observe the impact of lactium<sup>®</sup> on the quality attributes of a ***Stirred Yoghurt*** (aspect, flavour & taste).
  
- To validate lactium<sup>®</sup> activity in a ***Stirred Yoghurt*** after different shelf life times :
  - fresh product,
  - 28 days shelf life.



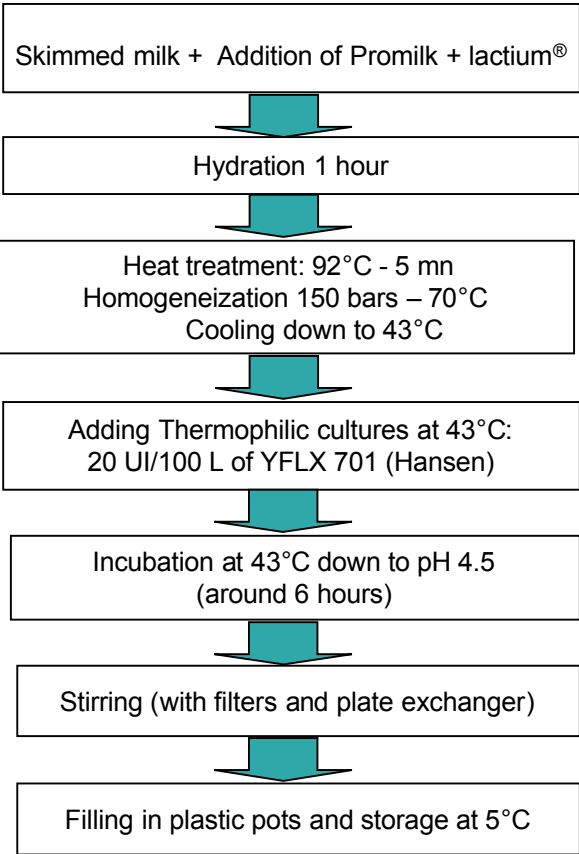
# Stirred Yoghurt

## 1- MATERIEL & METHODS

### ➤ Stirred yoghurt Recipe & Process

Raw Materials	Stirred Yoghurt	Stirred Yoghurt with lactium®
Skimmed Milk	97.50%	97.37%
PROMILK 500 G	2.50%	2.50%
lactium®		0.13%
Lactic bacteria (YFLX 700 Hansen)	qsp	qsp
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>

- **Visual appearance :**
- no significant difference between the Stirred Yoghurt with lactium® and the reference
- **Physical stability :**
- Similar stability regarding the syneresis after 4 weeks at 7°C between the 2 products
- **Sensory properties (triangle test) :**
- no significant difference between the Stirred Yoghurt with lactium® and the reference.





## Stirred Yoghurt

### 1- MATERIEL & METHODS

#### ➤ Conditioned Defensive Burying method

The Relaxing effect of stirred yoghurts containing lactium® was tested on Conditioned Defensive Burying method at different times :

- fresh yoghurt (D=0),
- yoghurt after 28 days of shelf life,
- yoghurt at end of shelf life.

Stirred yoghurt had been orally administered to the male Wistar rat :

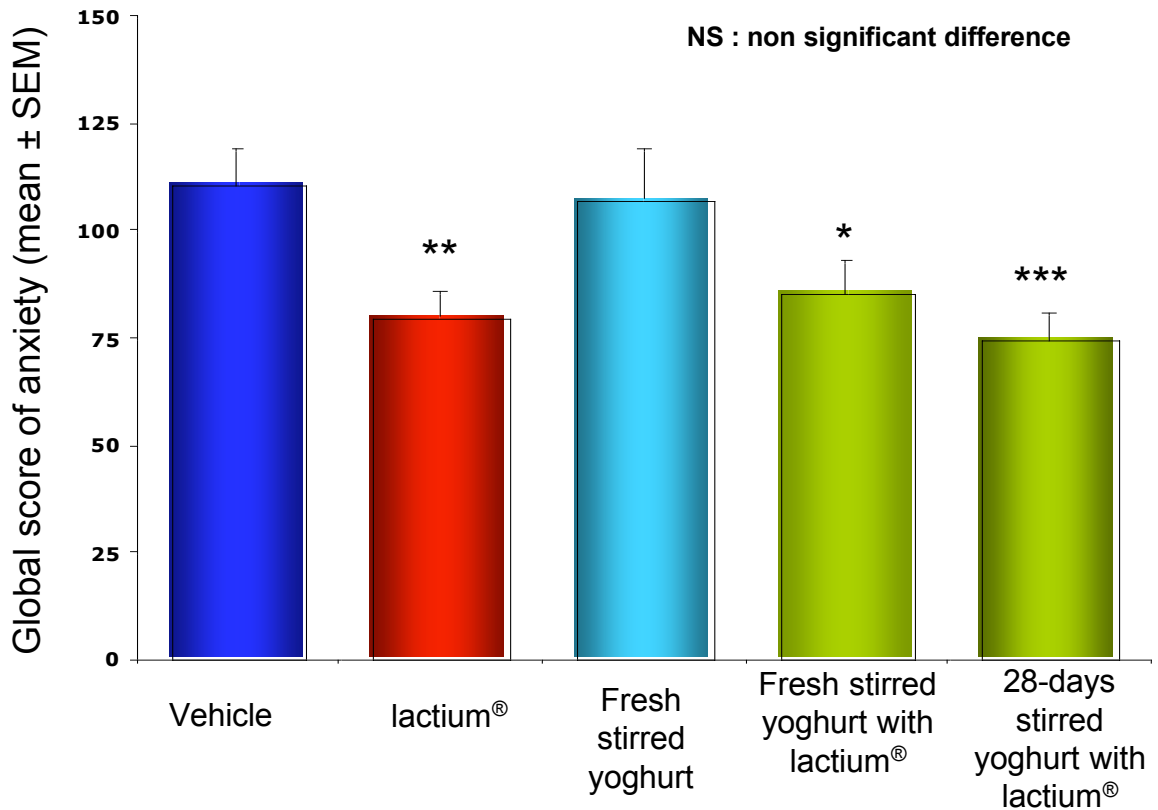
- Acclimatization of the rats during a period of 7 days
- 5 groups of 12 rats:
  - vehicle,
  - lactium® (reference),
  - fresh stirred yoghurt,
  - fresh stirred yoghurt with lactium®,
  - 28-days stirred yoghurt with lactium®.
- stirred yoghurts were lyophilized after proper ageing (0 and 28 days)
- After storage, all the powdered products were solubilized in sterilized water before administration
- stirred yoghurts were administered so that rats ingested 15 mg of lactium® which corresponds to the active dose in rats
- Oral administration was made 1 hour before the test
- After shock administration (stressing event), the behavior of the rats were recorded during 5 minutes
- Global anxiety score = Sum of the rankings for three parameters:
  - duration of probe-burying;
  - number of head stretching towards the probe
  - percentage of approaches towards the probe followed by retreats



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## 2- RESULTS

Products	Vehicle (n = 12)	lactium® (n = 12)	Fresh stirred yoghurt (n = 12)	Fresh stirred yoghurt with lactium® (n = 12)	28-days stirred yoghurt with lactium® (n = 12)
<b>Mean ± SEM</b>	110.46 ± 8.42	79.92 ± 5.61	107.33 ± 11.41	85.17 ± 7.86	74.63 ± 5.99
<b>ANOVA</b> F(4,55)=4.05; P<0.01 <b>Unpaired t-test</b> (vs. Vehicle) Significance		t=3.02 <b>P&lt;0.01</b>	t=0.22 <b>NS</b>	t=2.20 <b>P&lt;0.05</b>	t=3.47 <b>P&lt;0.005</b>



Unpaired t-test (vs. Vehicle): \*P<0.05 - \*\*P<0.01 - \*\*\*P< 0.005.



## Stirred Yoghurt

### 3- COMMENTS

- The addition of lactium<sup>®</sup> has no significant impact on the visual appearance of the stirred yoghurt. Similar stability regarding the syneresis is observed after 4 weeks and no sensory difference has been detected.
- Fresh and 28-days shelf life stirred yoghurt containing lactium<sup>®</sup>, orally administered, significantly decrease the global score of anxiety of rats submitted to a conditioned defensive burying test, in comparison with vehicle and pure lactium<sup>®</sup>.
- It is not the case for stirred yoghurt without lactium<sup>®</sup>.
- Specific starter cultures do not denature lactium<sup>®</sup> : this enables the addition of lactium<sup>®</sup> in products with living lactic bacterias.
- The thermal process and acidic pH do not denature lactium<sup>®</sup>.



## CONCLUSIONS :

- ✓ The addition of lactium<sup>®</sup> has no significant impact on the quality attributes of a stirred yoghurt (aspect, flavour & taste)
- ✓ The process of stirred yoghurt and the presence of living lactic bacterias do not decrease the activity of lactium<sup>®</sup>.
- ✓ Moreover, after 28-days of shelf-life, the stirred yoghurt with lactium<sup>®</sup> is still active and reduces significantly the symptom of stress.