

Enzymatic activity measurements in *Streptococcus thermophilus*

Department of Food Science and Microbiology (Di.S.T.A.M),
University of Milan - Italy

CONTEXT

Streptococcus thermophilus is a major component of dairy starter cultures used for the manufacture of yoghurt and cheese.

In this study, β -galactosidase and lactate dehydrogenase activities were measured in *Streptococcus thermophilus* cells to evaluate the effect of carbon dioxide availability on the homolactic fermentation process¹⁾.

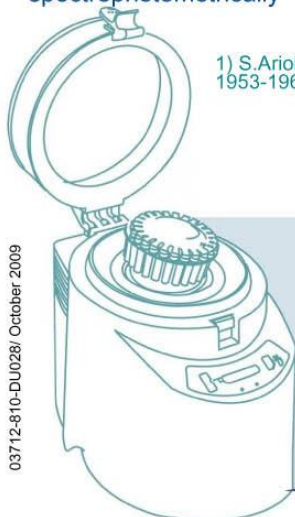
MATERIAL

- Precellys[®]24
- Precellys[®] kit: 03961-1-004 (glass beads 0.5 mm)
- Sample: Concentrated *S. thermophilus* cells washed
- Buffer: 50mM tris/HCl buffer, pH7.

PROTOCOL

- Precellys[®]24: 6800 rpm, 3 x 30 sec (30 sec break) in cold room or using Cryolys cooling option.
- Centrifugation: 15.000 xg, 10 min, +4°C.
- Analysis: Protein content within total cell extract by Bradford method / β -galactosidase and lactate dehydrogenase activities measured spectrophotometrically¹⁾.

1) S.Arioli et al., Microbiology 155 (2009), 1953-1965; DOI 10.1099/mic.0.024737-0



037112-810-DU028 / October 2009

CONCLUSION

Comparing to the former classical method of bacterial cell disruption, the use of Precellys[®]24 allows a perfect homogenization of the samples. Precellys[®]24 is easy to use, simple, efficient and much faster than the former method. The small dimension of Precellys[®]24 allow its location in a cold room thus preserving the activities of the overall enzymatic cell machinery.

Precellys[®]24 brings us efficiency, modernity, homogeneity in the results and time-saving.

RESULTS

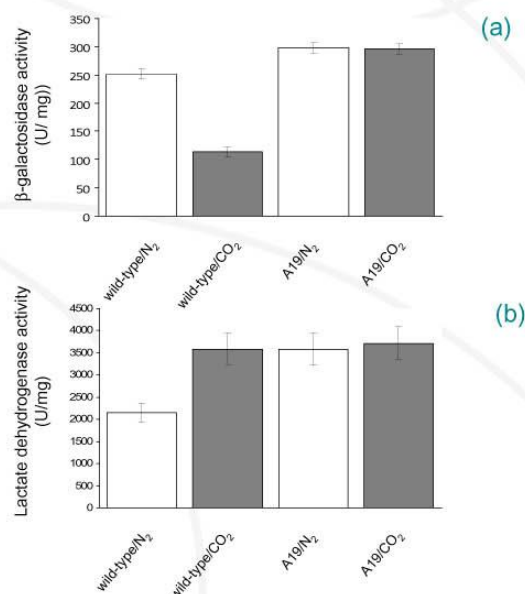


Figure 1: β -galactosidase (a) and lactate dehydrogenase (b) activities of *S. thermophilus* wild-type cells (white bars) and A19(Δ ppc; Δ carB) mutant cells (grey bars) grown in enriched CO₂ or N₂ atmosphere.

Our results originally show a direct correlation between the distribution of the HPr phosphorylated isoforms and the measured level of β -galactosidase and lactate dehydrogenase activities (Fig. 1) and its relevance in milk acidification process.



Problem



Solution

bertin
TECHNOLOGIES

For more details, please contact
precellys@bertin.fr



イワマ機器株式会社

<http://www.technosaurus.co.jp>

- 東京
〒162-0805 東京都新宿区矢来町 113 番地 TEL(03)3235-0661(代) FAX(03)3235-0669
- 大阪
〒532-0005 大阪市淀川区三国本町2丁目12番4号 TEL(06)6396-0501(代) FAX(06)6395-2588
- 福岡
〒812-0054 福岡市東区馬出 1 丁目 2 番 23 号 TEL(092)631-1012(代) FAX(092)641-1285

※会社名および商品名は、各会社の商標または登録商標です。
※本カタログに記載の規格・仕様・外観は予告なく変更する場合がありますので御了承下さい。