

Use of Saponin as a permeabilizing agent of *Kluyveromyces marxianus* var. *lactis* CCT 4086 cells in order to obtain ribonucleotides from glicerol-derived biodiesel

MILESSI, T.S.S.¹; BRANCO, R.F.¹; SILVA, S.S.¹.

1 - Universidade de São Paulo – Escola de Engenharia de Lorena – Biotechnology Department, Brazil.

Ribonucleotides (RNA) are bioactive molecules with functional properties employed in pharmaceutical and food industries. This compound is an intracellular molecule, thus it is a necessary a step for the extraction of this compound from the cell, which may be accomplished by physical, chemical or enzymatic processes. However its extraction by milder methods is still crucial to enable their large-scale production. An alternative for obtaining this compound would be the use of glicerol derived from biodiesel production, which after treatment can be used as carbon source in fermentative processes. A new approach for its successful use is the permeabilization of cells by natural surfactants such as saponins. The permeabilizing action of saponins was verified for different organisms such as worms and protozoa, but their action on microbial cells is unknown. However, it is known that cell permeabilization by saponin is a promising procedure for generating biodegradable byproducts. In this context, this study aimed to evaluate the influence of saponin in cells of *Kluyveromyces marxianus* var *lactis* CCT 4086 aiming to produce RNA. For this, tests were conducted using glycerol as fermentation substrate (30g.L⁻¹) which, after 24h of fermentation were subjected to the action of saponin (150 mg.L⁻¹). There was a gradual decrease in cell absorbance in function of time exposure to saponin solution. One hour after the addition of saponin it was observed a 26% reduction of cellular concentration of (9.8 g.L⁻¹ of cells to 7.3 g.L⁻¹). The RNA obtaining also had variations, it was noted an increase in the amount of RNA present in the medium and a decrease in the concentration of intracellular RNA. These results demonstrate a possible influence of saponin in permeabilization of yeast cells and extraction of intracellular RNA, and may eventually provide a new procedure for extraction of this compound.

Acknowledgments: *FAPESP; CAPES; CCT*

This document was created with Win2PDF available at <http://www.win2pdf.com>.
The unregistered version of Win2PDF is for evaluation or non-commercial use only.
This page will not be added after purchasing Win2PDF.