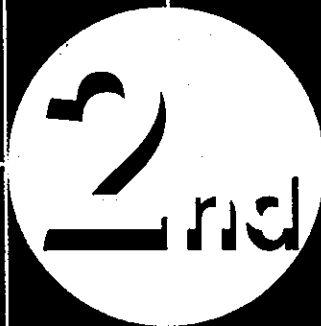




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S. Fayo de Azevedo E. C. Ferreira K.Ch.A.M. Luyben P. Osseweijer

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## Glycerol bioconversion to 1,3-propanediol by *Clostridium butyricum* in continuous cultures with cell recycle

M. González-Pajuelo, J.C. Andrade and I. Vasconcelos\*  
Escola Superior de Biotecnologia, Porto, PORTUGAL

**Keywords:** glycerol, 1,3-propanediol, *Cl. butyricum*, cell recycle

The production of biodiesel, a less pollutant fuel, generates glycerol as a by-product. Thus this glycerol can be considered as a cheap renewable resource to obtain a chemical more in demand such as 1,3-propanediol which can be used as a monomer on biodegradable polymers synthesis.

It has been shown that *Clostridium butyricum* is able to ferment glycerol to 1,3-propanediol. Continuous cultures of *Cl. butyricum* VPI 1718 were performed at pH= 6.5 and D= 0.1 h<sup>-1</sup>, using glycerol as sole carbon source. Low-grade glycerol of different purity degrees were also used (without prior purification), with results similar to those observed with commercial glycerol (0.65 mol 1,3-propanediol/ mol glycerol).

A flat-plate membrane ultrafiltration unit is being used in a continuous cultures system to recycle biomass. An improvement in 1,3-propanediol yield and productivity was achieved. Low grade glycerol will also be used in this system.