

Extraction and Analysis of Microbial Lipids

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Oleaginous microorganisms such as yeast, bacteria, and microalgae, are increasingly studied as an alternative source of lipids owing to their productivity and rapid growth. Some species of oleaginous microorganisms are able to accumulate more than 20 % of their dry cell mass in the form of lipids [1]. In a particular and optimized culture conditions, some oleaginous yeast species can accumulate up to 70 % of dry cell weight as lipids, which shows a real potential of these strains [2]. Moreover, microbial oil exhibits a significant proportion of various fatty acids, and thus offers a good potential as possible sources of bio fuel or nutritional supplements from renewable resources.

Usually, various solvents, including hexane, methanol and chloroform are currently employed for conventional lipid extractions from microorganisms. But qualitative and quantitative extraction of intracellular lipids is difficult because of rigidity of the cell which is composed of polysaccharides such as chitin.

The high toxicity of the solvent and the rigidity of the cell walls, have led to search green techniques and solvents using less energy. Microwaves, ultrasound, supercritical fluids and agro-solvents are processes fulfilling these criteria.

A comparative study was made between conventional and innovative processes using analysis methods such as gas chromatography and high performance chromatography on thin layer.

