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Isolation of new cellulolytic clostridia from nature

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Cellulose is very common substance in the nature occurring mainly in cell walls of the plants. It is compact polymer consisting from glucose subunits. Due to its composition cellulose is potentially useful as a source of carbon and energy for bacterial fermentation. Unfortunately, lignocellulosic complex is generally very rigid and only a few microorganisms are able of its direct decomposition to the fermentable monosaccharides (predominantly glucose). Known, possible indirect approaches for the lignocellulosic substrate utilization are mainly their enzymatic hydrolysis to fermentable sugars or their gasification into the synthetic gas, also called syngas. The second option is to use cellulolytic microorganisms for direct utilization of cellulose to valuable product (so-called consolidated bio-processing). Unfortunately, all of these three main ways of lignocellulosic utilization have many drawbacks like too high price of process and very low product yields. Here we described system applicable for fast and specific isolation of cellulolytic mesophilic clostridium bacteria. Cellulolytic bacteria are relatively poor-described group of anaerobic bacteria which have a potential in biotechnology. For example, some of them are able to produce ethanol and some strains are secondary metabolites producers.

Biography

Jan Kolek completed MSc and PhD degree at University of Chemistry and Technology in Prague, Czech Republic. He is a member of Department of Biotechnology and Laboratory of Microbial Processes. He is interested in the molecular biology of anaerobic bacteria, biofuels production and environmental microbiology.

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