

# 17<sup>th</sup> EURO BIOTECHNOLOGY CONGRESS

September 25-27, 2017 Berlin, Germany

## Production of biopolymers by bacterial cells

Ilona Jonuškiene

Kaunas University of Technology, Lithuania

In recent years, microorganism-based biopolymers have shown promise as nontoxic, biodegradable and biocompatible nanomaterials. Polysaccharide-based biopolymers have emerged as the most promising drug carriers for achieving prolonged circulation time, reducing drug toxicity and protecting them from enzymatic degradation, enhancing antitumor capacity and controlling drug release. The main objective of the present study is to investigate the different media composition for *Xanthomonas campestris* and *Azotobacter vinelandii* growth and to select optimal conditions for purification of xanthan gum and alginate. Optimal conditions for xanthan gum synthesis using different carbon sources, nitrogen sources were examined. Xanthan gum production is influenced by several factors that include medium composition, cultivation conditions (temperature, pH, stirrer speed), fermentation time, and post-fermentation conditions (heat treatment, recovery, purification). The present work revealed that the growth medium and organic solvents are the main factors impacting the xanthan gum production. The properties that enable the application of xanthan gum in pharmaceutical industries are emulsifying, thickening, stabilizing, film forming and gelling nature. Alginates are group of polysaccharides occurring as structural components or as capsular materials in the cell wall of soil bacteria. *Azotobacter vinelandii* was used to produce alginate. Exopolysaccharide production by *Azotobacter* in media supplemented with carbohydrates and some phenolic compounds was investigated. Bacterial polysaccharides are produced on industrial scales and used as raw materials for food processing and medical and industrial preparations. Alginate is a biomaterial that has found numerous applications in biomedical science and engineering due to its favorable properties, including biocompatibility and ease of gelation.

## Biography

Ilona Jonuškiene has completed her PhD from Kaunas University of Technology, Lithuania. She had training at Swedish University of Agricultural Sciences and Copenhagen University. She is an Associate Professor and Chief of Bachelor and Master study programmes of Industrial Biotechnology at Kaunas University of Technology, Faculty of Chemical technology. She has published more than 15 articles in reputed journals.

ilona.jonuskiene@ktu.lt

## Notes: