

The title of course: Bioplastics

The number of lessons: 3

The goals of teaching:

- First lesson: learning the basic knowledge about biopolymers - their types, methods of their production and their applying in human life
- Second lesson: presentation of basic knowledge about one of the biopolymers groups - polyhydroxyalkanoates (PHAs) (presentation of their structure, division, features and applications). To familiarize students with the methods of cultivating of microorganisms towards the synthesis of PHAs (types of culture, required conditions) and microorganisms applied for this purpose
- Third lesson: presentation of the classic and latest methods of PHAs' extraction from microorganisms (solvent extraction, enzymatic digestion, mechanical disruption, Gamma irradiation). Presentation of gas chromatography analysis performed in order to know the monomer composition of the obtained polymers

Student after this course:

- can give a definition of biopolymers, their division and application
- knows the definition of polyhydroxyalkanoates, knows the basic structure of PHAs, knows what they are used for
- is able to present the most common PHAs producers, list the types of cultivation methods and required conditions during cultivation
- can tell about extract and purify of PHAs from microorganisms
- is able to list the principles of performing gas chromatography analysis (how it works etc.)
- can say why it is so important to replace synthetic plastics by biodegradable biopolymers.