

Laboratory of Technological Processes (LPT)



Current research works

- Optimization of L-lactide ring-open-polymerization with the aid of DOE and a miniplant technics.
- Reactions of Mg, Ca, Sn and Zn compounds with octanoic acids; mechanistic and structural investigation, catalytic properties.
- Development, scaling up and designing of the polylactide technology; a pilot plant for the latter.
- Implementation of Dibenzoyltartaric acid at tonnage scale.
- Search for new chiral building blocks; acylated and alkylated tartrates, tartramides, tartaric/tartramic acids and anhydrides.
- Search for new antibacterial rifamycin antibiotics, the reactions of 3-formylrifamycin SV with a range of primary alkylamines and ketones; structural and mechanistic studies.
- Development and manufacture of IKOROL, anticorrosion agent.
- Utilization of Baltic Amber (Succinite) jewelry wastes; structural studies, new cosmetic compositions.
- Scaling up of battery grade Lithium Salts manufacture.

Selected publications

- H. Hajmowicz, L. Synoradzki, J. Wisiański, Direct Hydrolysis as a method of Manufacture of DBTA. Tartaric acid and its O-acyl derivatives. Part 9, *Org. Proc. Res. Dev.* **2011**, *15*, 427–434
- P. Ruśkowski, L. Synoradzki, M. Włostowski, Direct synthesis of novel N-substituted mono- and diacyltartrimidates: unusual reaction course. TAAD. Part 8, *Arkivoc*, **2011**, (*ix*) 142–154
- U. Bernaś, H. Hajmowicz, I. D. Madura, M. Majcher, L. Synoradzki, K. Zawada, Direct synthesis of monoacyltartaric acids and novel mono(benzoyl)tartronic anhydride: unusual cases in tartaric acid acylation, TAAD. Part 5, *Arkivoc* **2010**, (*xi*), 1–12
- L. Synoradzki, H. Hajmowicz, J. Wisiański, A. Mizerski, T. Rowicki, Calcium Pantothenate. Process for the Biologically Active Enantiomer of the Same via Selective Crystallization and Racemization, *Org. Proc. Res. Dev.* **2008**, *12*, 1238–1244
- K. Bujnowski, A. Adamczyk, L. Synoradzki, o-Aminomethyl derivatives of phenols. Part 3. Mechanistic investigation of a Mannich reaction of phenols with N-methylenealkylamines, *Arkivoc* **2008**, (*xiii*), 106–114
- K. Bujnowski, L. Synoradzki, T. Zevaco, E. Dinjus, E. Augustynowicz-Kopeć, Z. Zwolska, Rifamycin Antibiotics. Part II. Study of the Reaction of 3-Formylrifamycin SV with Gaseous Ammonia and Acetone, *Eur. J. Org. Chem.* **2006**, 4155–4163
- Process Designing, L. Synoradzki, J. Wisiański eds., I–III, OWPW, Warszawa 2006–2011
- L. Synoradzki, Laboratory of Technological Processes as an Element of Polytechnical Education, *Przem. Chem.* **2003**, *82*, 1345–47

Head:

Ludwik Synoradzki

Staff:

Jerzy Wisiański
Krzysztof Bujnowski
Paweł Ruśkowski
Anna Jerzak
Halina Hajmowicz
Maciej Molak
Renata Przedpełska

PhD students:

Ula Bernaś
Sylwia Czarnocka-Śniadała
Agnieszka Gadomska

Research profile

Elaboration & designing of chemical processes to implement at industrial scale:
Biodegradable polymers - polylactide
Chiral dicarboxylic acids - tartaric acid
o-Aminomethyl derivatives of phenols

Resolution of racemates

Structural and mechanistic studies:
Mycobacterial Antibiotics
Tartaric Acid Derivatives

Anticorrosion agents

Analysis & analytical methods

Miniplants:
Automatic reactors and equipment
SCADA systems

Design of experiments

Application of Baltic Amber in cosmetics

Process designing & implementation of elaborated chemical processes in the industry