

NECULAI-CĂTĂLIN LUNGU

Research themes:

1. **Heterocyclic and macromolecular chemical synthesis**
2. **Yeast cultures monitoring ("Saccharomyces cerevisiae"), under micropilot laboratory conditions.**
3. **Studies of biocatalytic effects of inhibited penicillinases on the penicillin G degradation in the aqueous medium.**

1.a. synthesis and characterization of polymers with heterocyclic structures (parabens);

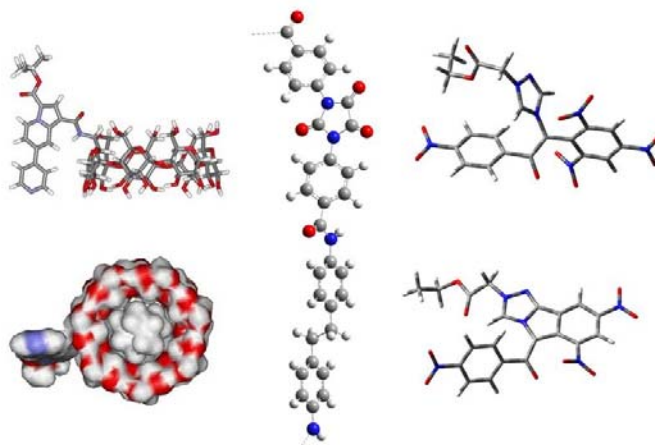
1.b. synthesis and characterization of cicloimoniu ylides (triazolium-ylides);

1.c. synthesis and characterization of sensors and captors of volatile organic compounds (pollutants), based on β -cyclodextrin functionalized with

bipyridylum-ylides and their inclusion in the structure of polymers (polyurethanes);

2.a. "Saccharomyces cerevisiae" optimal conditions for cultivation on various carbohydrate substrates, in order to maximize bio-ethanol productivity;

3.a. modeling the diminished biocatalytic effects of inhibited penicillinase on β -lactam antibiotics, using penicillin G as model.



Publications (selection)

Karzazi, Y., Surpățeanu, Gh., **Lungu, N.C.**, Vergoten, G., A Comparative X-Ray Diffraction Study and «ab initio» MO Calculations on Amidocyanopyridinium Methylide, *J. Mol. Struct.*, 406, 45, **1997**.

Surpățeanu, G.G., **Lungu, N.C.**, An Experimental and Theoretical Study on the Intramolecular Annelation of Disubstituted Carbanion 1,2,4-Triazolium Ylides to Isoindoles, *Rev. Roum. Chim.*, 49(9), 747-752, **2004**.

Lungu, N.C., Dépret, A., Delattre, F., Surpățeanu, G.G., Cazier, F., Woisel, P., Shirali, P., Surpățeanu, Gh., Synthesis of a new fluorinated fluorescent β -cyclodextrin sensor, *J. Fluor. Chem.*, 126, 385-388, **2005**.

Surpățeanu, G.G., Landy, D., **Lungu, N.C.**, Fourmentin, S., Surpățeanu, Gh., Réthoré, C., Avarvari, N., Synthesis and inclusion capability of a β -cyclodextrin-tetrathiafulvalene derivative, *Tetrahedron*, 62, 9701-9704, **2006**.

Surpățeanu, G.G., Landy, D., **Lungu, N.C.**, Fourmentin, S., Surpățeanu, Gh., New Fluorescent Bis- β -Cyclodextrin-Indolizine Sensor. Synthesis and Sensing Ability, *J. Heterocyclic Chem.*, 44(4), 783-786, **2007**.

Surpățeanu, G.G., **Lungu, N.C.**, Fourmentin, S., Landy, D., Surpățeanu, Gh., Avarvari, N., A competitive sensing system based on cyclobis(paraquat-*p*-phenylene) and a new β -cyclodextrin-tetrathiafulvalene derivative, *Supramolecular Chemistry*, 21(5), 372-378, **2009**.

Surpățeanu, G., **Lungu, N.C.**, Chemical Behavior of Methylene in the Presence of Ammonia, Carbon Dioxide and Water, *Rev. Chim. (București)*, 62(11), 1107-1110, **2011**.

Asaței, I. V., Alexandroaei, M., Birsă, M.L., Luca, A. C., Gradinaru, R., **Lungu, N.C.**, The Action of a Penicillinase with Attenuated Activity on a Penicillin G Substrate, *Rev. Chim. (București)*, 65(8), 903-906, **2014**.



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