

Prof.dr.ing. DAN CAȘCAVAL



- **Absolvent al Facultatii de Tehnologie Chimica**, Institutul Politehnic Iasi, specializarea Tehnologia Substantelor Organice, in anul 1989
- **Doctor inginer** in Domeniul Stiinte ingineresti - Inginerie chimica, din anul 1997
- **Titular al disciplinelor:**
 - Inginerie biochimica (anul IV, specializarea Inginerie Biochimica)
 - Bioreactoare (anul IV, specializarea Inginerie Biochimica)
 - Biotehnologie generala (anul III, domeniul Inginerie Chimica)
 - Procese moderne de separare (masterat, specializarile Produse farmaceutice si cosmetice, Produse naturale)
 - Ingineria proceselor alimentare si utilaje specifice (anul IV, specializarea Chimie alimentara si tehnologii biochimice)
- **Domenii de cercetare:** - **Inginerie biochimica si chimica, Biotehnologie** (reologia lichidelor de fermentatie, eficienta si distributia amestecarii din bioreactoare, procese de transfer din bioreactoare, imbunatatirea performantelor bioreactoarelor, oxigen-vectori, bioreactoare cu straturi mobile de celule imobilizate, procese de bioseparare prin extractie reactiva, pertractie, extractia directa din lichidele de fermentatie)
 - **Director centru de cercetare „Ingineria proceselor chimice si biochimice si materiale avansate”**
- **Conducere de doctorat** in domeniul Inginerie chimica (8 teze finalizate, 4 doctoranzi in stagiul, 5 postdoctoranzi coordonati)
- **Lucrari reprezentative in domeniile de cercetare abordate:**
 - 12 carti si manuale, 10 capitole in volume de editor**
 - D. Cascaval, A.I. Galaction, D. Boldureanu, *Applications of pertraction in biotechnology, in Enciclopedia of Membrane Science and Technology (E.M.V. Hoek, V.V. Tarabara Eds.), vol. 3, Wiley, 2013*
 - A.I. Galaction, D. CaScaval, *Separation of biosynthetic products by pertraction, in Progress in Molecular and Environmental Bioengineering - From Analysis and Modeling to Technology Applications* (Editor Angelo Carpi), InTech, Rijeka, 2011 (<http://www.intechopen.com/articles/show/title/separation-of-biosynthetic-products-by-pertraction>)
 - D. Cascaval, A.I. Galaction (coordonatori) - *Biotehnologia, intre arta si stiinta*, Ed. Venus, Iasi, 2007.
 - A.I. Galaction, D. Cascaval - *Metaboliti secundari cu aplicatii farmaceutice, cosmetice si alimentare*, Ed. Venus, Iasi, 2006.
 - D. Cascaval, C. Oniscu, A.I. Galaction - *Inginerie biochimica si biotehnologie. 3.Procese de separare, Performantica*, Iasi, 2004.
 - D. Cascaval, C. Oniscu, A.I. Galaction - *Inginerie biochimica si biotehnologie. 2.Bioreactoare*, InterGlobal, Iasi, 2002.
 - C. Oniscu, D. Cascaval - *Inginerie biochimica si biotehnologie. 1.Ingineria proceselor biotehnologice*, InterGlobal, Iasi, 2002.

2011

- Dan Cascaval, Anca-Irina Galaction, Stefanica Camarut, Scale-up of aerobic stirred bioreactors using the mixing time criteria 1. Simulated broths, Chem. Biochem. Eng. Quart. 2011, 25(1), 43-54.
- Anca-Irina Galaction, Alexandra Cristina Blaga, Dan Cascaval, Study on facilitated pertraction of folic acid in pseudosteady-state regime, Separation Science and Technology 2011, 46(6), 912-919.
- Dan Cașcaval, Lenuta Kloetzer, Anca-Irina Galaction, Influence of organic phase polarity on interfacial mechanism and efficiency of reactive extraction of acetic acid with tri-*n*-octylamine, J. of Chemical & Engineering Data 2011, 56(5), 2521-2526.
- Dan Cașcaval, Anca-Irina Galaction, Roxana Rotaru, Marius Turnea, Study on the mixing efficiency in a basket bioreactor with immobilized yeasts cells, Environmental Engineering and Management Journal 2011, 10(5), 711-716.
- Dan Cașcaval, Anca-Irina Galaction, Roxana Rotaru, Effect of glucose internal diffusion on alcoholic fermentation in a stationary basket bioreactor with immobilized yeast cells, Romanian Biotechnological Letters 2011, 16(3), 6200-6208.
- Anca-Irina Galaction, Lenuta Kloetzer, Dan Cașcaval, Influence of solvent polarity on the mechanism and efficiency of formic acid reactive extraction with tri-*n*-octylamine from aqueous solutions, Chemical Engineering & Technology 2011, 34(8), 1341-1346.
- Elena-Niculina Drăgoi, Silvia Curteanu, Florin Leon, Anca-Irina Galaction, Dan Cașcaval, Modeling of oxygen mass transfer in the presence of oxygen-vectors using neural networks developed by differential evolution algorithm, Engineering Applications of Artificial Intelligence 2011, 24, 1214-1226.
- Dan Cascaval, Anca-Irina Galaction, Marius Turnea, Comparative analysis of oxygen transfer rate distribution in stirred bioreactor for simulated and real fermentation broths, J. of Industrial Microbiology and Biotechnology 2011, 38(9), 1449-1466.
- Anca-Irina Galaction, Roxana Baltaru, Marius Turnea, Dan Cașcaval, Ethanol production in a basket bioreactor with immobilized yeasts cells 2. Study on the mixing efficiency in the outer region of basket for a double Rushton turbine impeller, Romanian Biotechnological Letters 2011, 16(4), 6344-6353.
- Anca-Irina Galaction, Roxana Baltaru, Lenuta Kloetzer, Anestis Vlysidis, Colin Webb, Marius Turnea, Dan Cașcaval, External and Internal Glucose Mass Transfers in Succinic Acid Fermentation with Stirred Bed of Immobilized *Actinobacillus succinogenes* under Substrate and Product Inhibitions, Journal of Microbiology and Biotechnology 2011, 21(12), 1257-1263.

2012

- Dan Cascaval, Anca-Irina Galaction, Comparative analysis of the influences of solute type on facilitated pertraction of cinnamic and *p*-methoxycinnamic acids in pseudo-steady-state conditions, Chemical Engineering Communications 2012, 199(1), 94-108.
- Anca-Irina Galaction, Roxana Baltaru, Dan Cașcaval, Glucose Mass Transfer Under Substrate Inhibition Conditions in a Stationary Basket Bioreactor with Immobilized Yeast Cells, International Journal of Chemical Reactor Engineering 2012, 10, A1.
- Dan Cascaval, Anca-Irina Galaction, Marius Turnea, Anca Marcela Lupașteanu, Biodegradation of lipids from olive oil mill wastewaters in a stationary basket bioreactor with immobilized *Bacillus* spp. cells – Influence of internal diffusion, Water Science and Technology 2012, 65(5), 920-926.
- Dan Cașcaval, Anca-Irina Galaction, Lenuta Kloetzer, Synergic extraction of folic acid with di(2-ethylhexyl) phosphoric acid and Amberlite LA-2, Separation Science and Technology 2012, 47(6), 834-841.
- Anca-Irina Galaction, Lenuta Kloetzer, Marius Turnea, Colin Webb, Anestis Vlysidis, Dan Cașcaval, Succinic acid fermentation in a stationary-basket bioreactor with a packed bed of immobilized *Actinobacillus succinogenes*: 1. Influence of internal diffusion on substrate mass transfer and consumption rate, J. of Industrial Microbiology and Biotechnology 2012, 39(6), 877-888.
- Mădălina Poștaru, Alexandra Cârlescu, Anca-Irina Galaction, Dan Cașcaval, Direct separation of propionic acid from *Propionibacterium acidipropionici* broths by reactive extraction 1. Interfacial mechanism and influencing factors, Environmental Engineering and Management Journal 2012, 11(4), 709-716.
- Alexandra Cârlescu, Mădălina Poștaru, Anca-Irina Galaction, Dan Cașcaval, Direct separation of propionic acid from *Propionibacterium acidipropionici* broths by reactive extraction 2. Extraction from simulated broths, Environmental Engineering and Management Journal 2012, 11(5), 1029-1036.

- Anca-Irina Galaction, Alexandra Carlescu, Marius Turnea, Dan Cașcaval, Direct extraction of propionic acid from *Propionibacterium acidipropionici* broths with tri-*n*-octylamine, Chemical Engineering & Technology 2012, 35(9), 1657-1663.
- Anca-Irina Galaction, Madalina Postaru, Dan Cașcaval, Kinetic study on reactive extraction of propionic acid with tri-*n*-octylamine, Romanian Biotechnological Letters 2012, 17(4), 7430-7440.
- Dan Cașcaval, Marius Turnea, Anca-Irina Galaction, Alexandra Cristina Blaga, 6-Aminopenicillanic acid production in stationary basket bioreactor with packed bed of immobilized penicillin amidase - Penicillin G mass transfer and consumption rate under internal diffusion limitation, Biochemical Engineering Journal 2012, 69, 113-122.
- Mădălina Poștaru, Marius Turnea, Anca-Irina Galaction, Lenuta Kloetzer, Alexandra Cristina Blaga, Anestis Vlysidis, Colin Webb, Alexandra Cârlescu, Dan Cașcaval, Modeling of selective pertraction of carboxylic acids produced by *Actinobacillus succinogenes* fermentation, Environmental Engineering and Management Journal 2012, 11(11), 1901-1906.

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- Elena-Niculina Drăgoi, Silvia Curteanu, Anca-Irina Galaction, Dan Cașcaval, Optimization methodology based on neural networks and self-adaptive differential evolution algorithm applied to an aerobic fermentation process, Applied Soft Computing 2013, 13, 222-238.
- Lenuta Kloetzer, Dan Cașcaval, Anca-Irina Galaction, Influence of solvent polarity on interfacial mechanism and efficiency of succinic acid reactive extraction with tri-*n*-octylamine, Chemical Engineering Communications 2013, 200(5), 701-717.
- Dan Cașcaval, Lenuta Kloetzer, Anca-Irina Galaction, Anestis Vlysidis, Colin Webb, Fractionation of carboxylic acids mixtures obtained by succinic fermentation using reactive extraction, Separation Science and Technology 2013, 48(4), 634-643.
- Anca-Irina Galaction, Madalina Poștaru, Dan Cașcaval, Lenuta Kloetzer, Selective separation of carboxylic acids obtained by succinic acid fermentation using facilitated pertraction, Solvent Extraction and Ion Exchange 2013, 31(2), 171-183.
- Dan Cașcaval, Madalina Poștaru, Anca-Irina Galaction, Lenuta Kloetzer, Alexandra Cristina Blaga, Fractionation of carboxylic acids mixture obtained by *P. acidipropionici* fermentation using pertraction with tri-*n*-octylamine and 1-octanol, Industrial & Engineering Chemistry Research 2013, 52(7), 2685-2692.
- Dan Cașcaval, Madalina Poștaru, Anca-Irina Galaction, Lenuta Kloetzer, Comparative study on facilitated pertraction of succinic acid using tri-*n*-octylamine without and with 1-octanol, Canadian J. Chemical Engineering 2013, 91, 936-943.
- Dan Cașcaval, Alexandra Cârlescu, Anca-Irina Galaction, Marius Turnea, Study on biomass impact on the reactive extraction of succinic acid from *Actinobacillus succinogenes* suspensions, Industrial & Engineering Chemistry Research 2013, 52(30), 10261-10268.

➤ **Brevete: 7 Brevete + 3 cereri brevetare depuse OSIM**

➤ **Proiecte de cercetare: 49 granturi / 15 director de grant**, dintre care in derulare:

- Advanced separation of biosynthetic compounds by facilitated and synergetic pertraction, grant PCE - IDEI PN-II-ID-PCE-2011-3-0088, contract nr. 207/5.10.2011 (valoare totala: 1.419.100 lei) (2011-2014)
- Dezvoltarea unor biocatalizatori noi pentru obtinerea economica a unor sintoni chirali (SYNBIOCAT), grant Parteneriate PN-II-PT-PCCA-2011-3.1-1268, contract nr. 124/2012, (valoare totala TUIasi: 550.000 lei) (2012-2015)
- Microscale downstream processing toolbox for screening and process development (*MICROTOOLS*), grant ERA-NET, ERA-IB, contract nr. 6-002/2013 (valoare totala TUIasi: 200.000 Euro) (2013-2015)

- **Premii, distincții:** Medalie de aur Eureka Brussels 1996, Medalie de bronz Inventica Iasi 1996, Medalie Onorifica a Univ. de Medicina si Farmacie "Gr.T. Popa" Iasi, 1999, Medalie de argint Inventica Iasi 2000, Medalie de aur cu Mentiunea Speciala a Juriului Eureka Brussels 2001, Medalie de aur Eureka Brussels 2001, Medalie de argint Eureka Brussels 2001, Diploma *Preprint Pioneer ChemWeb* 2001, Medalie de aur cu Mentiunea Speciala a Juriului Salonul de Inventica Iasi 2002, Medalie de aur Salonul de Inventica Iasi 2002, Medalie de Argint Salonul de Inventica Novisad 2002, Diploma *InfoInvent* Chisinau 2003, Medalie de aur cu

Mentiunea Speciala a Juriului Salonul de Inventica Iași 2004, Medalie de aur Salonul de Inventica Iași 2004, 2 Medalii de Argint Salonul de Inventica CHIM-INVENT 2005, Marele Premiu Euroinvent 2009, Medalia de Aur cu Mentiunea Juriului Euroinvent 2009, 2 Medalii de Aur Euroinvent 2009, Medalia de Argint a Delegatiei Ucrainei Euroinvent 2009, Diploma de Onoare a Societatii de Chimie din Romania, 2009, 4 Medalii de Aur Euroinvent 2010, 1 Medalie de Bronz Euroinvent 2010, Medalia de Aur a Delegatiei Ucrainei Euroinvent 2010, Medalia de Aur a Delegatiei Croatiei Euroinvent 2010, Medalia de Argint AGEPI Euroinvent 2010, Medalie de Bronz Salonul INVENTIKA Bucuresti 2010, 3 Medalii de Aur Euroinvent 2011, Diploma de Excelenta Euroinvent 2013, Medalia de Aur "The Hamangia Thinker" Inventica 2013, 2 Medalii de Aur Inventica 2013, 2 Medalii CHIM-INVENT 2013, Medalia P. Poni, CHIM-INVENT 2013

➤ **Membru în societăți științifice:** European Federation of Biotechnology, European Association of Pharma Biotechnology, Biochemical Engineering Society Belgrade, European Federation of Chemical Engineering, SepTech Experts, European Science Foundation, Societatea Romana a Chimistilor Cosmetologi

➤ **Profesor invitat:**

- The University of Manchester, aprilie - mai 2007
- Technology University of Vienna, iunie 2009
- Karlsruhe University of Technology, martie 2011

➤ **Alte mentiuni:**

- **Managing Editor** al Buletinului Institutului Politehnic din Iasi, Sectiunea Chimie si Inginerie Chimica (2004-2008)
- **Editor** al Scientific Study & Research - Chemistry & Chemical Engineering, Biotechnology, Food Industry
- **Membru in Editorial Board** al:
 - Journal of Industrial Microbiology & Biotechnology (Springer)
 - Roumanian Biotechnological Letters
 - Scientific Journals International
 - The Open Systems Biology Journal
 - Revista Societății Române a Chimiștilor Cosmetologi (RSCC Magazine)
 - Environmental Engineering and Management Journal
 - Single Cell Genomics & Proteomics (OMICS Publishing Group)
 - Current Biochemical Engineering
- **Membru in colectivele de referenti stiintifici:** Biotechnology Progress, Separation Science and Technology, Biochemical Engineering Journal, Enzyme and Microbial Technology, Chemical Industry & Chemical Engineering Quarterly, Chemical and Biochemical Engineering Quarterly, Chemical Engineering Communications, Journal of Chemical & Engineering Data, Separation and Purification Technology, Journal of Membrane Science, Revista de Chimie, Bioresource Technology, Chemical Engineering Science, Journal of Environmental Management, NED University Journal of Research, Chemical Engineering Journal, International Journal of Chemical Reactor Engineering, Chemical Engineering & Technology, Desalination, Desalination and Water Treatment, Journal of Chemical Technology & Biotechnology, Chemical Papers, Industrial & Engineering Chemistry Research
- **Decan** al Facultatii de Inginerie Chimica si Protectia Mediului (din 2008)
- **Secretar Stiintific** al Facultatii de Inginerie Chimica (1.03.2004 - 15.11.2005)
- **Sef Catedra** Inginerie Organica si Biochimica (2005-2008)
- **Director** Scoala Doctorala de Inginerie Chimica (2005-2012)
- Coordonator Scoala de vara (in lb. engleza) "**Biotechnologies for the Third Millenium Health**" (15-29 iulie 2007), pentru studentii straini din tarile Uniunii Europene