

CURRICULUM VITAE

Personal data

Name: EFROSE
First name: Rodica Catalina
Data and place of birth: 7.07.1968, Tecuci, Galati, Romania
Nationality: Romanian
Marital status: Single
Present employment address: University of Agricultural Sciences and Veterinary Medicine, Iași

Education

- B.Sc. in Organic Chemistry. Technical University "Gh. Asachi", Iasi, Faculty of Industrial Chemistry (July 1993)
- Ph.D. in Chemical Engineering. Technical University "Gh. Asachi", Iasi Faculty of Industrial Chemistry. Thesis title: "Identification and partial characterization of enzymes involved in nitrogen metabolism in *Lotus japonicus*" (February 2004)

Employment

- Assistant II at Terrestrial Ecology Department of Biological Research Institute, Iasi (1994 -1999)
- Research Assistant at Terrestrial Ecology Department of Biological Research Institute, Iasi (1999 - 2001)
- Scientific researcher at Terrestrial Ecology Department of Biological Research Institute, Iasi (2001)
- Marie Curie Fellow Researcher at the Agricultural University of Athens, Department of Agricultural Biotechnology, Laboratory of Molecular Biology, Athens (2001-2004)
- Postdoctoral research fellow at the Agricultural University of Athens, Department of Agricultural Biotechnology, Laboratory of Molecular Biology, Athens (2004)
- Postdoctoral research collaborator at the National Centre for Scientific Research "Demokritos", Institute of Biology, Laboratory of Molecular Genetics and Biotechnology, Athens (2004 - 2010)
- Scientific Researcher at the "Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine the Faculty of Horticulture, Iasi (2010-Present)

Professional experience (Programs/Projects)

- Marie Curie RTN project LOTUS “Research Training using *Lotus japonicus*: A Model Legume for Functional Genomics” with the following theme: “Structure and expression of genes involved in nitrogen metabolism during *Lotus japonicus* nodule development” (FP5 Project No. HPRN-CT-2000-00086) (2001- 2004)
- “Carbon and nitrogen metabolism of *Lotus japonicus* plant” (2004)
- Marie Curie Research Training Network of the EU Sixth Framework: “Intensifying Training in Europe on Genomic Research Activity in Legumes”; on the following theme “Metabolism of *Lotus* nodules -INTEGRAL” (2004)
- “Baculovirus Artificial Chromosomes (BVACs) and technologies for Gene Therapy and continuous High-Level Expression of therapeutic Proteins in Insect Production System” (2004 -2008)
- “Insect cell-based high throughput screening systems for the identification of compounds with ecdysteroid mimetic and order specific insecticide activities in synthetic libraries” (E -1363) (2008)
- “Internal support of the Laboratory of Insect Genetics and Biotechnology, at the Institute of Biology, NCSR “D”, Athens
- European Network for Advanced Research on Olfaction for Malaria Transmitting Insect Control – ENAROMaTIC - FP7 Framework programme “ (E-1506) (2008-2010)
- “Research concerning the significance of the relationship among genomic response, phenylpropanoid metabolism and photosynthesis for the optimization of biosynthetic potential in raspberry and blackberry cultivars during exposure to stress condition” SOP -IEC project nr. 151/2010 (2010-Present)

Professional training

- Summer French School "Glycoscience: Glycobiologie et Glycotehnologie", Iasi, Romania, 3th – 5th July 1995.
- International Immunology Symposium CEFOR (TEMPUS -PHARE Foundation), Iasi, Romania, 27th -31st of May, 1996.
- 1st European Workshop on Functional Genomics of *Lotus japonicus*: Transcriptome and Metabolome Analysis, Max Planck Institute of Molecular Plant Physiology Golm, Germany 3rd-7th December, 2001
- Workshop: Advanced light microscopy, Institute of Molecular Plant Sciences, Leiden, October 14 - 18, 2002.

- Research training network «Research training using *Lotus japonicus* a model legume for functional genomics" with the following theme: "Structure and expression of genes involved in nitrogen metabolism during *Lotus japonicus* nodule development". Agricultural University of Athens, Department of Agricultural Biotechnology, Athens, Greece. Jan .2001-Aug.2004
- Workshop: “Modern techniques of Light Microscopy and applications in Biomedical Research and Diagnosis”, Hellenic *Pasteur Institute, Athens, Greece*; April 18th -22nd, 2005.

Member of:

Member of Romanian Society of Biochemistry and Molecular Biology

Member of Greek Society of Biochemistry and Molecular Biology

Research expertise

- Soil chemistry, ecopedology, phytochemistry, agrochemistry, biodiversity.
- Molecular biology and biochemistry of plants: isolation, temporal and spatial expression as well as functional characterization of genes coding for enzymes involved in carbon and nitrogen metabolism. Cytochemical localization of plant enzymes. Techniques on various aspects of recombinant DNA technology: plasmid isolation and preparation for DN A sequencing; isolation of DNA and RNA from plants and bacteria; PCR and qRT-PCR; expression vectors; cloning strategies, cytology and *in situ* hybridization technique; embedding/sectioning and microscopy of plant tissues.
- Molecular Biology and Genetic Engineering of Insect Viruses; Baculovirus expression system. Technologies for gene therapy and continuous high -level expression of therapeutic proteins in insect production system. Development of new vectors for efficient and permanent gene transduction in mammalian and lepidopteran insect cells *in vitro* and *in vivo*.

Languages

Romanian native speaker

Foreign languages:

English (reading, writing and conversation skills)

Greek (reading, writing and conversation skills)

French (basic knowledge)

List of publications

1. Lavdas AA, **Efroze R**, Douris V, Gaitanou M, Papastefanaki F, Swevers L, Thomaidou D, Iatrou K, Matsas R. Soluble forms of the cell adhesion molecule L1 produced by insect and baculovirus-transduced mammalian cells enhance Schwann cell motility. *J Neurochem.* 115(5):1137-49 (2010) (equal contribution of first two authors)
2. **Efroze R**, Swevers L, Iatrou K. Baculoviruses deficient in ie1 gene function abrogate viral gene expression in transduced mammalian cells. *Virology.* 25;406(2):293-301 (2010) (equal contribution of first two authors)
3. Soin T, De Geyter E, Mosallanejad H, Iga M, Martín D, Ozaki S, Kitsuda S, Harada T, Miyagawa H, Stefanou D, Kotzia G, **Efroze R**, Labropoulou V, Geelen D, Iatrou K, Nakagawa Y, Janssen CR, Smaghe G, Swevers L. Assessment of species specificity of moulting accelerating compounds in Lepidoptera: comparison of activity between *Bombyx mori* and *Spodoptera littoralis* by in vitro reporter and in vivo toxicity assays. *Pest Manag Sci.* ;66(5):526-35 (2010).
4. **Rodica C. Efroze**, Emmanouil Flemetakis, Liliana Sfichi, Catalina Stedel, Evangelia D. Kouri, Michael K. Udvardi, Kiriakos Kotzabasis, Panagiotis Katinakis Characterization of spermidine and spermine synthases in *Lotus japonicus*: induction and spatial organization of polyamine biosynthesis in nitrogen fixing nodules. *Planta.* ; 228(1):37-49. (2008)
5. Thomas Soin, Luc Swevers, Hadi Mosallanejad, **Rodica Efroze**, Vassiliki Labropoulou, Kostas Iatrou, Guy Smaghe. Juvenile hormone analogs do not affect directly the activity of the ecdysteroid receptor complex in insect culture cell lines. *J Insect Physiol.* ;54(2):429-38 (2008).
6. Flemetakis E, **Efroze RC**, Ott T, Stedel C, Aivalakis G, Udvardi MK, Katinakis P. Spatial and Temporal Organization of Sucrose Metabolism in *Lotus japonicus* Nitrogen-Fixing Nodules Suggests a Role for the Elusive Alkaline/Neutral Invertase. *Plant Mol Biol.* ; 62 (1-2):53-69 (2006)
7. Kenoutis C, **Efroze RC**, Swevers L, Lavdas AA, Gaitanou M, Matsas R, Iatrou K. Baculovirus-mediated gene delivery into Mammalian cells does not alter their transcriptional and differentiating potential but is accompanied by early viral gene expression. *J Virol.* ;80(8):4135-46. (2006) (equal contribution of first two authors)
8. Delis C, Dimou M, **Efroze RC**, Flemetakis E, Aivalakis G, Katinakis P. Ornithine decarboxylase and arginine decarboxylase gene transcripts are co-localized in developing tissues of *Glycine max* etiolated seedlings. *Plant Physiol Biochem.*;43(1):19 -25. (2005)

9. Flemetakis E, **Efroze RC**, Desbrosses G, Dimou M, Delis C, Aivalakis G, Udvardi MK, Katinakis P. Induction and spatial organization of polyamine biosynthesis during nodule development in *Lotus japonicus*. *Mol Plant Microbe Interact.* ;17(12):1283 -93.(2004)
10. Flemetakis E, Dimou M, Cotzur D, Aivalakis G, **Efroze RC**, Kenoutis C, Udvardi MK, Katinakis P. IA *Lotus japonicus* beta-type carbonic anhydrase gene expression pattern suggests distinct physiological roles during nodule development. *Biochim Biophys Acta.* 25;1628(3):186 -94. (2003)
11. Flemetakis E, Dimou M, Cotzur D, **Efroze RC**, Aivalakis G, Colebatch G, Udvardi MK, Katinakis P. A sucrose transporter, LjSUT4, is up-regulated during *Lotus japonicus* nodule development. *J Exp Bot.*;54(388):1789 -91. (2003)

Scientific Presentations – Congresses. Conferences. Workshops.

1. **Efroze RC**, Flemetakis E, Dimou M, Cotzur D, Aivalakis G, Udvardi MK, Katinakis P "Temporal and spatial expression of genes involved in nitrogen metabolism in *Lotus japonicus* root nodules. Lotus meeting, April 2002, Ravello, Italy.
2. Flemetakis E, Dimou M, Kavroulakis N, Aivalakis G, Kenoutis C, Cotzur D, **Efroze RC**, Katinakis P (2002) Carbonic anhydrase in *Lotus japonicus* and soybean nodules. Proceedings of the 13th Congress of the Federation of European Societies of Plant Physiology, Crete, Greece, 2002. Ed. Kalliopi A. Roubelakis-Angelakis. pp 399.
3. **Efroze RC**, Flemetakis E, Dimou M, Udvardi MK, Katinakis P "Expression patterns of genes involved in polyamine and asparagine biosynthesis in developing *Lotus japonicus* nodules". Lotus meeting, May 2003, Athens, Greece
4. Delis C, Aivalakis G, Dimou M, Flemetakis E, **Efroze R**, Venieraki A, Drosopoulos J, Katinakis P (2003) Expression of genes coding for ornithine and arginine decarboxylases in young soybean seedlings. Proceedings of the 25th Annual Conference of Hellenic Society for Biological Sciences. Mytilene, Greece, May 2003. pp 79.
5. Dimou , Aivalakis G, Delis C, Flemetakis , **Efroze R**, Venieraki , Gkani-Spyropoulou K, Katinakis P (2003) Expression of two *Glycine max* invertase isoforms. Proceedings of the 25th Annual Conference of Hellenic Society for Biological Sciences. Mytilene, Greece, May 2003. pp 85.
6. Venieraki A, Flemetakis E, Kirtjalidou A, **Efroze R**, Chatzipavlidis I, Katinakis P (2003) Carbon metabolism in the symbiotic bacterium *esorhizobium loti*. Proceedings of the 25th Annual Conference of Hellenic Society for Biological Sciences. Mytilene, Greece, May 2003. pp 53.

7. **Efroze RC**, Flemetakis E, Aivalakis G, Katinakis P (2003). *Lotus japonicus* Chalcone Isomerase gene is expressed during nodule development. Proceedings of the 55th Annual Conference of Hellenic Society of Biochemistry and Molecular Biology, Athens, Greece, 13th-15th November, 2003.
8. Delis C, Dimou M, Flemetakis E, **Efroze CR.**, Aivalakis G, Katinakis P (2003). Expression of two ornithine decarboxylases and one arginine decarboxylase in soybean etiolated seedlings. Proceedings of the 55th Annual Conference of Hellenic Society of Biochemistry and Molecular Biology, Athens, Greece, 13th-15th November 2003.
9. **Efroze RC.**, Flemetakis E., Sfichi L., Delis C., Kotzabasis K. and Katinakis P (2004). A spermine synthase gene, *LjSPMS*, is up-regulated during *Lotus japonicus* nodule development. Proceedings of the 56th Annual Conference of Hellenic Society of Biochemistry and Molecular Biology, Larissa, Greece, 25th-27^h November 2004.
10. Flemetakis E., **Efroze RC.**, Stedel K., Dimou M., Aivalakis G. and Katinakis P (2004). Expression of alkaline/neutral invertase in *Lotus japonicus* nodules. Proceedings of the 56th Annual Conference of Hellenic Society of Biochemistry and Molecular Biology, Larissa, Greece, 25th-27^h November 2004.
11. Serbezi A., Flemetakis E., **Efroze RC.**, Tjamos S. E. and Katinakis P (2004). Structural and expression analysis of the genes coding for α -type carbonic anhydrase isozymes in *Arabidopsis thaliana*. Proceedings of the 56th Annual Conference of Hellenic Society of Biochemistry and Molecular Biology, Larissa, Greece, 25th-27^h November 2004.
12. C. Kenoutis, **R.C. Efroze**, L. Swevers, K. Iatrou (2005). Transfer vectors based on baculoviruses for gene delivery in mammalian cells: development, use and safety considerations. 27th Meeting of the Hellenic Society for Biological Sciences, 12-14 May 2005, Nafplion, Greece Book of Abstracts Vol. 27, page 205
13. C. Kenoutis, **R. Efroze**, L. Swevers, A. Lavdas, M. Gaitanou, R. Matsas, P.J. Farrell and K. Iatrou (2005). Baculovirus artificial chromosomes and gene delivery and expression in insect and mammalian cells: development, use and safety considerations. 7th Conference on Protein Expression in Animal Cells, September 18-22, 2005, Heraklion, Crete, Greece.
14. **R.C. Efroze**, C. Kenoutis, L. Swevers, A. Lavdas, M. Gaitanou, R. Matsas, K. Iatrou (2005). Gene delivery into mammalian cells using recombinant baculoviruses as transfer vectors. Proceedings, 57th meeting, Hellenic Society of Biochemistry & Molecular Biology, Athens December 9-11, 2005, 52, 66.

15. K. I. Kalliampakou , **R. C. Efrose** , M. Dimou , C. Stedel , H. Boleti , E. Flemetakis and P. Katinakis (2005). Lotus japonicus: Nodule expressed putative polyol transporters. Proceedings, 57th meeting, Hellenic Society of Biochemistry & Molecular Biology, Athens December 9 -11, 2005, 52.
16. C. Kenoutis, **R.C. Efrose**, L. Swevers, A. Lavdas, M. Gaitanou, R. Matsas, and K. Iatrou. Recombinant baculoviruses for transfer of therapeutic genes into Schwann cells and therapy of neurodegenerative diseases and injuries of the nervous system. 8th Panhellenic Virology Conference, Thessaloniki, Greece, May 12-14, 2006.
17. Lavdas A. A. , Gaitanou M. , Kenoutis C. , **Efrose R.** , Swevers L. , Iatrou K. and Matsas R. (2006). Baculovirus infection of Schwann cells results in efficient gene transduction but is accompanied by early viral gene expression., 5th Forum of European Neuroscience, July 8-12, 2006, Vienna, Austria. FENS Abstr., vol.3, A126.11
18. Van Loocke K, **Efrose R**, Labropoulou V, Swevers L, Iatrou K, Smaghe G. Inhibitory effect of the ecdysteroid signaling by the juvenile hormone analogues, pyri proxyfen, kinoprene and fenoxycarb, in a dipteran (S2) and lepidopteran (Bm5) cell line. Proceedings of the 16th International Ecdysone Workshop. Ghent University, Belgium 10 -14 July 2006.
19. D. Tsikou, **R.C. Efrose**, K. Kalliampakou, C. Stedel, M.K. Udvardi, P. Katinakis, and E. Flemetakis (2006) Molecular and biochemical characterization of Lotus japonicus nodule specific - type carbonic anhydrases. 7th European Nitrogen Fixation Conference, July 22 -26, Aarhus, Denmark.
20. **Efrose R.C.**, Kenoutis C., Douris V., Swevers L. and Iatrou K. Towards the development of transcriptionally silent baculovirus -based mammalian gene transduction vectors with improved safety features. The Seventh International Workshop on Molecular Biology and Genetics of the Lepidoptera, August 20-26, 2006, Orthodox Academy of Crete Kolympari, Crete, Greece.
21. Evi Andronopoulou, Daniela Tsikou , Georgia Kotzia, Vassiliki Laspi, **Rodica Efrose**, Vassiliki Labropoulou, Luc Swevers, Zafiroula Georgoussi, Kostas Iatrou. Cell based high throughput screening platforms for identification of odorant mimetics for the malaria mosquito vector, *Anopheles gambiae* Proceedings, 59th meeting, Hellenic Society of Biochemistry & Molecular Biology, Athens December 7-9, 2007, 52.
22. Afroditi Krokida, Maria Dimou, Catalina Stedel, **Rodica C. Efrose**, Panagiotis Krompas, Anastasia Venieraki, Emmanouil Flemetakis, Panagiotis Katinakis. Trehalose degradation during the

symbiosis of *Lotus japonicus* with mesorhizobium loti strain R7A. Proceedings, 59th meeting, Hellenic Society of Biochemistry & Molecular Biology, Athens December 7 -9, 2007, 52.

23. **R. Efrose**, L. Swevers, V. Douris, A. Lavdas, R. Matsas and K. Iatrou. Baculovirus engineering for gene therapy: evaluation of a candidate therapeutic gene for neural disease and trauma and production of vectors devoid of residual viral gene expression. 11th Annual Baculovirus & Insect Cell Culture meeting, Seattle, WA, USA, February 25 -27, 2008.

24. Swevers L., **R. Efrose**, K. Iatrou Baculovirus engineering for development of safer gene therapy vectors and improved protein expression in mammalian cells. The Eighth International Workshop on Molecular Biology and Genetics of the Lepidoptera, August 23 -29, 2009, Orthodox Academy of Crete Kolympari, Crete, Greece.

25. Thomas Soin, Ellen De Geyter, Hadi Mosallanejad, Masatoshi Iga, David Martín, Georgia Kotzia, **Rodica Efrose**, Vassiliki Labropoulou, Kostas Iatrou, Shunsuke Ozaki, Shigeki Kitsuda, Toshiyuki Harada, Yoshiaki Nakagawa, Danny Geelen, Guy Smagghe, and Luc Swevers. Evaluation of the specificity and efficiency of ecdysone agonists in *Bombyx mori* and *Spodoptera littoralis* by in vitro reporter assays and in vivo toxicity assays. The Eighth International Workshop on Molecular Biology and Genetics of the Lepidoptera, August 23 -29, 2009, Orthodox Academy of Crete Kolympari, Crete, Greece.

26. **R. Efrose**, L. Swevers, K. Iatrou. Generation and characterization of BmNPV-based piggyback baculoviruses for efficient and stable gene transduction in mammalian HEK293 cell line. The Eighth International Workshop on Molecular Biology and Genetics of the Lepidoptera, August 23-29, 2009, Orthodox Academy of Crete Kolympari, Crete, Greece.

27. **Efrose, R.**, Swevers, L., Iatrou, K. Stable transformation of mammalian cells using insect viruses encompassing a piggyBac transposition system. 61st Hellenic Society of Biochemistry & Molecular Biology conference, Alexandroupoli, Greece, October 15 -17 2010.