

Eugenia Karabika
Curriculum Vitae

Personal information:

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Education

September 1996-July 2001: Degree in Chemistry at the Chemistry Department, University of Ioannina Greece. Grade 6.85 (very good).

My degree in Chemistry involved courses which covered all the fundamental aspects of chemistry such as analytical, inorganic, organic, physical, food chemistry, biochemistry and chemical engineering, theory and practice, as well as physics, mathematics and computer programming (fortran 77). During the last semester (8th semester) of my studies I specialized in biochemistry which including courses in enzymology, molecular biology of nucleic acids, chemistry of peptides, immunochemistry and clinical chemistry. My overall degree was 6.85 (= very good).

Academic Research training

November 2010-June 2011: M.Sc. research at the Laboratory of Nucleic Acids, Department of Chemistry, University of Ioannina, Ioannina, Greece.

September 2007- September 2010: Post doctoral research fellow at the School of Biology, University of St. Andrews, Scotland, UK.

I have been working on a 12 Tm nitrate transporter, NrtA, of *Aspergillus nidulans*. I have participated in the three lines of NrtA investigation.

1. Cysteine-scanning: My work involves the generation of unique NrtA single mutants replacing each amino acid with cysteine in Tms 1,2,4,5,7,8,10 and 11. All mutants were made by PCR overlap extension and single copies were selected using the argB gene and Southern Blotting. Expression of the mutant protein was checked with a C-terminal V5 tag in Western blotting. Currently, all cysteine mutants are screened for thiol accessibility (NEM labelling).

2. Alanine scanning: Both nitrate signature (i.e. NS1 and NS2) amino acids were changed to alanine. Following *in-vitro* mutagenesis of the wild type protein, Southern blots were carried out and the resulting single copy transformant strain characterised. Expression of the mutant protein was checked with a C-terminal V5 tag in Western blotting.

3. Probing the substrate binding site for residue proximity by thiol cross-linking.

To analyse proximity, four double mutant constructs, R87C-N459C, F47C-Y323C, R87C-R368C and N168C-R368C were synthesised by combining appropriate restriction endonuclease fragments containing single cysteine mutations and mutant

strains generated as in Section 1 above. These constructs also contained two Factor Xa protease recognition sites in the large cytoplasmic loop between Tms 6 and 7. If cross-linking occurs, a wild type band will be obtained in western blots following Factor Xa treatment of membrane preparations.

September 2001- July 2007:

Postgraduate studies-PhD research at the Chemistry Department, University of Ioannina, Greece.

The title of my PhD thesis was: "Biochemical analysis and environmental applications of bacteria capable of degrading oil residues". During my PhD, I was involved in biochemistry, molecular biology and the genetics of microorganisms of industrial and environmental interest. My work required the isolation of bacteria capable of degrading oil from oil polluted soil (enrichment cultures) and taxonomic characterization based on cell morphology and Gram staining, biochemical tests, 16S rDNA gene and GC content (%), phospholipid and FAME analysis as well as isoprenoid quinones characterization. New immobilization techniques were developed for wastewater clean-up and soil bioremediation.

Publications

Laboratory scale bioremediation of petroleum-polluted soil by indigenous microorganisms and added *Pseudomonas aeruginosa* strain Spet.

A.K. Karamalidis, A.C. Evangelou, E. Karabika, C. Drainas, A.I. Koukkou, E.A. Voudrias. *Bioresource Technology*, 101 (2010) 6545-6552

Taxonomic identification and use of free and entrapped cells of a new *Mycobacterium* sp., strain Spyr1 for degradation of polycyclic aromatic hydrocarbons (PAHs).

Karabika E, Kallimanis A, Dados A, Pilidis G, Drainas C, Koukkou A.I. *Appl Biochem Biotechnol*. 2009 Oct;159(1):155-167

Patent

A new immobilization method of crude oil degrading microorganisms for processing liquid wastes and soil bioremediation. **Karabika E**, Kallimanis A, Dados A, Pilidis G, Drainas C, Koukkou A.I Patent application No 1006254, Industrial Property Organisation, Greece, 2009

Congresses

15-17/10/2010: Alanine-scanning mutagenesis of the signature motifs of a nitrate transporter. E. Karabika, V. Symington, I. Da Silva, J.R Kinghorn and S.E. Unkles. 61st Conference of Greek Society of Biochemistry and Molecular Biology, Alexandroupoli, Greece

3-7/7/2006: Bioremediation of petroleum-contaminated soil by indigenous, free and encapsulated cells of *Pseudomonas aeruginosa*., Karamalidis A.K., Evangelou A., Voudrias E.A., Karabika E., Pilidis G. Protection and Restoration of the Environment VIII, Chania, Crete, Greece

18-20/5/2006: Isolation and immobilization of *Pseudomonas* sp. for the bioremediation of petrol contaminated soils., Karabika E., Dados A., Kallimanis A., Pilidis G., Drainas C., Koukkou A.I., 28th Scientific Conference of Greek Society of Biological Applications, Book of Abstracts p. 127-128, Ioannina, Greece

13-15/4/2006: Isolation and immobilization of *Pseudomonas* sp. for the bioremediation of petrol contaminated soils., Karabika E., Dados

- A., Kallimanis A., Pilidis G., Drainas C., Koukkou A.I., Panhellenic Conference with international participations: Biosciences in the 21st century (Panhellenic Society of Bioscience), 2006, Book of abstracts p 105, Athens, Greece
- 9-11/12/2005: Biodegradation of petroleum in liquid cultures and soil using free end entrapped cells of *Pseudomonas aeruginosa*., Karabika E., Dados A., Kallimanis A., Pilidis G., Drainas C., Koukkou A.I., 57th Conference of Greek Society of Biochemistry and Molecular Biology, Book of Abstracts, vol. 52, p. 98, Athens, Greece
- 20-24/9/2005: Biodegradation of crude oil in liquid cultures and soil using free end entrapped cells of *Pseudomonas* sp. Karabika E., Dados A., Kallimanis A., Pilidis G., Drainas C., Koukkou A.I., 20th Conference of Greek Chemical Society, Book of abstracts p. 77, Ioannina, Greece
- 8-12/10/2005: Isolation and characterization of a soil bacterium isolated from a Greek creosote polluted site: Biodegradation of PAHs by free and entrapped cells. Kallimanis A., Karabika E., Dados A., Pramateftaki P., Perisynakis A., Pilidis G., Drainas C., Koukkou A.I., 13th International Symposium on environmental pollution and its impact on life in the Mediterranean region. p. 152, Thessaloniki, Greece
- 4-9/9/2005: Isolation and characterization of a soil bacterium isolated from a Greek creosote polluted site: Biodegradation of PAHs by free and entrapped cells. Kallimanis A., Karabika E., Dados A., Pramateftaki P., Perisynakis A., Pilidis G., Drainas C., Koukkou A.I., 13th IBBS Madrid, Spain
- 25-27/11/2004: Biodegradation of polycyclic aromatic hydrocarbons (PAHs) by free and entrapped cells of soil bacteria, Karabika E., Dados A., Kallimanis A., Pilidis G., Drainas C., Koukkou A.I., 55th Conference of Greek Society of Biochemistry and Molecular Biology, Larisa, Greece
- 15-21/9/2004: Isolation of two cryptic plasmids from a new fluoranthene degrading soil bacterial strain., Kallimanis A., Karabika E., Drainas C., Koukkou A.I., Plasmid Biology 2004 Program and Abstracts p. 97, Corfu, Greece
- 30-4/7/2003: Biodegradation of phenanthrene by free and entrapped cells of *Paenibacillus* sp., Kallimanis A., Karabika E., Perisynakis A., Aivasidis A., Drainas C., Koukkou A.I., Second European Bioremediation Conference, Proceedings p. 119-120, Chania, Crete, Greece

Foreign Languages

- English:* Certificate of Proficiency in English, University of Cambridge
Certificate of Proficiency in English, University of Michigan
- French:* Diplome d'Etudes en Langue Francaise Delf 2nd degre
- Spanish:* Diploma de Espanol como Lengua Extranjera (Nivel Intermedio), Instituto Cervantes