

**Dr Aris XENAKIS**  
**Research Director NHRF/IBRB**

**ADDRESS:**

National Hellenic Research Foundation  
48, Vassileos Constantinou Ave., 11635 Athens

**TELEPHONE:** +302107273762

**FAX:** 302107273758

**e-mail:** [arisx@eie.gr](mailto:arisx@eie.gr)

**EDUCATION**

Doctorat d'Etat, Physical Chemistry, Université de Nancy I, France, 1985  
PhD (Doctorat) Molecular Chemistry I, Université de Nancy I, France, 1983  
D.E.A. (Masters) Industrial Engineering, Ecole National Polytechnique de Lorraine,  
1983  
D.E.A. (Masters) Molecular Chemistry I, Université de Nancy I, France, 1981  
Chemistry Degree, University of Athens, 1978

**SCIENTIFIC INTERESTS - ACTIVITIES**

Nano-biotechnology: enzymatic Biotransformations in non conventional media  
Physical Chemistry of microemulsion and surfactant dispersed systems  
Spectroscopy EPR, fluorescence – Structural studies  
Micellar enzymology

**PUBLICATIONS**

**RESEARCH PROJECTS**

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## **A. PUBLICATIONS**

1. C.Tondre & A.Xenakis (1982) "Transport of solubilized pyrene by w/o micro-emulsions", *Colloid Polym.Sci.*, **260**, 232-3.
2. A.Xenakis & C.Tondre (1983) "Oil in water microemulsion globules as carriers of lipophilic substances across liquid membranes", *J.Phys.Chem.*, **87**, 4737-43.
3. A.Xenakis & C.Tondre (1983) "A simple method for determining the anionic surfactant content in microemulsion phases", *J.Colloid Interface Sci.*, **95**, 589-91.
4. C.Tondre & A.Xenakis (1984) "Transport of solubilized substances by microemulsion droplets", "Surfactants in Solution" Ed.K.Mittal & B.Lindman, **3**, 1881-96, Plenum Pub.Co., N.Y.
5. A.Xenakis & M.Karayannis (1984) "Kinetic assay of sulfonamides by use of the Griess reaction and a stopped-flow procedure", *Anal.Chim.Acta*, **159**, 343-7.
6. C.Tondre & A.Xenakis (1984) "Use of microemulsions as liquid membranes: improved kinetics of solute transfer at interfaces", *Faraday Disc.Chem.Soc.*, **77**, 115-26.
7. C.Tondre & A.Xenakis (1986) "Microemulsion droplets as mobile carriers for ion transport through liquid-liquid interfaces. Coupled action with lipophilic crown-ether carriers", *J. Electrochem. Soc.*, **133**, C134.
8. C.Tondre, A.Xenakis, A.Robert & G.Serratrice (1986) "Evidence of structural changes in reverse microemulsion systems formulated with nonionic surfactants", *Surfactants in Solution*", Ed.K. Mittal & P.Bothorel, **6**, 1345-55, Plenum Pub. Co., N.Y.
9. C.Tondre, A.Xenakis & M.Boumezioud (1986) "Transport of metallic ions by (microemulsion plus complexing agent) systems. Kinetics of complexation in microemulsion phases". *L'Actualité Chimique*, sup. N 10, 78-9.
10. A.Xenakis & C.Tondre (1987) "Transport of alkali metal picrate ions by micro-emulsions used as liquid membranes: influence of the nature of the surfactant and co-surfactant", *J.Colloid Interface Sci.*, **117**, 442-7.
11. A.Xenakis, C.Selve & C.Tondre (1987) "Transport of alkali-metal ions by a lipophilic crown-ether anchored in a w/o microemulsion droplet", *Talanta*, **34**, 509-11.
12. C.Cazianis, A.Xenakis & A.Evangelopoulos (1987) "Spin-label studies of glycogen phosphorylase hosted in microemulsion droplets" *Biochem.Bio-phys.Res.Commun.* **148**, 1151-7.
13. A.Xenakis, T.Valis & F.Kolisis (1988) "Bioconversion of hydrophilic and hydrophobic compounds by enzyme systems I". "Biotechnology Action Program", Ed. E.Magnien, Commission of the European Communities, **2**, 303-7.
14. A.Xenakis, T.Valis, G.Kondelia & F.Kolisis (1988) "Bioconversion of hydrophilic and hydrophobic compounds by enzyme systems II". "Biotechnology Action Program", Ed. E.Magnien, Commission of the European Communities, **2**, 445-50.
15. A.Xenakis & C.T.Cazianis (1988) "Solubilization of Phosphorylase into microemulsion droplets. An ESR study. *Progr.Colloid Polym.Sci.*, **76**, 159-64.
16. A.Xenakis, T.P.Valis & F.Kolisis (1989) "Use of microemulsion systems as media in heterogeneous enzymic catalysis". *Progr.Colloid Polym. Sci.*, **79**, 88-93.
17. C.T.Cazianis & A.Xenakis (1989) "Different spin probe positions related to structural changes of nonionic microemulsions". *Progr.Colloid Polym.Sci.*, **79**, 214-217.
18. A.Xenakis (1989) "Enzymatic transesterification of fats and oils in microemulsions". *Proc. 2d Panhellenic congress of Food Science & Technology*, 343-351, Athens.

19. A.Xenakis, T.Valis & F.Kolisis (1990) "Reverse micellar enzymology. Lipase catalyzed hydrolysis of triglycerides and synthesis of specific esters". *Biochem.Biophys.Newslett.*, 30, 23-25
20. A.Xenakis (1990) "Microemulsions I. Brief presentation". *Rev.Clin. Pharmacol. Pharmacokin.*, 9, 15-24.
21. A.Xenakis (1990) "Microemulsions II. A novel environment for enzymatic studies". *Rev. Clin. Pharmacol. Pharmacokin.*, 9, 25-40.
22. A.Xenakis, C.T.Cazianis & A. Malliaris (1990) "Nonionic microemulsions as model of biosystems studied by probing techniques". *Progr.Colloid Polym.Sci.*, 81, 295.
23. D.Leonidas, N.G.Oikonomakos, A.C. Papageorgiou, A.Xenakis, C.T.Cazianis & F.Bem. (1990) "The ammonium sulfate activation of Phosphorylase b". *FEBS Lett.*, 261, 23-27.
24. F.Kolisis, T.Valis & A.Xenakis (1990) "Lipase catalyzed esterification of fatty acids in nonionic microemulsions". *An. New York Acad. Sci.*, 613, 674-680.
25. S.Modes, P.Lianos & A.Xenakis (1990) "Relation of the fractal behavior of luminescence quenching with electric percolation in water-in-oil microemulsions" *J.Phys.Chem.* 94, 3363-5
26. T.G.Sotiroudis & A.Xenakis (1990) "PEST sequences present in phosphorylase kinase". *Biochem.Int.*, 21, 941-947.
27. V.Papadimitriou, A.Xenakis & A.E. Evangelopoulos (1991) "Activity studies of chymotrypsin in microemulsions". *Biochem.Biophys.Newslett.*, 32, 84-86.
28. A.Xenakis, T.P.Valis & F.Kolisis (1991) "Microemulsions as a tool for enzymatic studies. The case of Lipase". *Progr.Colloid Polym. Sci.*, 84, 508-512.
29. V.Papadimitriou, A.Xenakis & A.Evangelopoulos (1991) "Enzymatic studies in microemulsions. Effect of reverse micelles on the activity of trypsin". *Biochem. Biophys. Newslett.*, 34, 29-31.
30. H.Stamatis, T.P.Valis, A.Xenakis & F.N.Kolisis (1991) "Lipase catalyzed esterifications in microemulsions". *Biochem.Biophys.Newslett.*, 34, 32-34.
31. T.Valis, A.Xenakis & F.N.Kolisis (1992) "Comparative studies of Lipase from *Rhizopus delemar* in various microemulsion systems" *Biocatalysis*, 6, 267-279.
32. A.Xenakis, C.Cazianis & A.Malliaris (1992) "Study of the transition between different structures of some nonionic microemulsion systems". *Colloids Surf.* 62, 315-9.
33. G.Nika, C.M.Paleos, P.Dais, A.Xenakis & A.Malliaris (1992) "Aggregational behavior of polymeric micelles of methylacrylate functionalized quaternary ammonium salts". *Progr. Colloid Polym.Sci.*, 89, 122-124.
34. H.Stamatis, A.Xenakis, F.N.Kolisis, H.Sztajer & U.Menge (1992) "Studies on the specificity of *Penicillium simplicissimum* lipase catalyzed esterification reactions in microemulsions", in *Biocatalysis in Non-Conventional Media*, J.Tramper et al.(eds) Elsevier, Amsterdam, 733-8.
35. V.Papadimitriou, A.Xenakis & P.Lianos (1993) "Electric percolation of enzyme containing microemulsions", *Langmuir*, 9, 912-915.
36. H.Stamatis, A.Xenakis, M.Provelegiou & F.N.Kolisis (1993) "Esterification reactions catalyzed by lipases in microemulsions. The role of enzyme localization in relation to its selectivity" *Biotechnol. Bioeng.*, 42, 103-110.
37. A.Xenakis, V.Papadimitriou & P.Lianos (1993) "Enzyme induced percolation of w/o microemulsions", *Progr.Colloid Polym.Sci.*, 93, 370-372.
38. H.Stamatis, A.Xenakis & F.N.Kolisis (1993) "Enantiomeric specificity of a lipase from *Penicillium simplicissimum* in the esterification of menthol in microemulsions", *Biotechnol. Lett.* 15, 471-476.
39. H.Stamatis, A.Xenakis, U.Menge & F.N.Kolisis (1993) "Kinetic study of lipase catalyzed esterification reactions in microemulsions", *Biotechnol. Bioeng.*, 42, 931-937.
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41. V.Papadimitriou, A.Xenakis & A.E.Evangelopoulos (1993) "Proteolytic activity in various w/o microemulsions as related to the polarity of the reaction medium", *Colloids Surf. B. Biointerfaces*, 1, 295-303.
42. H.Stamatis, A.Xenakis, U.Bornscheuer, T.Sheper, U.Menge & F.N.Kolisis (1993) "Pseudomonas cepacia lipase: esterification reactions in AOT microemulsion systems" *Biotechnol. Lett.* 15, 703-708.
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46. V.Papadimitriou, C.Petit, A.Xenakis & M.P.Pileni (1994) "Structural modifications of reverse micelles due to enzyme incorporation studied by SAXS" *Progr.Colloid Polym. Sci.* 97, 226-228.
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48. H.Stamatis, A.Xenakis, E.Dimitriadis and F.N.Kolisis (1995) "Catalytic behavior of Pseudomonas cepacia lipase in w/o microemulsions" *Biotechnol.Bioeng.* 45, 33-41.
49. V.Papadimitriou, C.Petit, G.Cassin, A.Xenakis and M.P.Pileni (1995) "Lipase catalyzed esterification in AOT reverse micelles: a structural studies" *Adv.Colloid Interface Sci.*, 54, 1-16.
50. S.Avraniotis & A.Xenakis (1995) "Lecithin based w/o microemulsion systems. A non toxic microenvironment for enzyme studies". *Biochem.Biophys.Newslett.*, 38, 132-3.
51. H.Stamatis, A.Xenakis and F.Kolisis (1995) "Studies on enzyme reuse and product recovery in lipase-catalyzed reactions in microemulsions" *An.N.Y.Acad.Sci.* 750,237-41
52. A.Ballesteros, U.Bornscheuer, A.Capewell, D.Combes, J.S.Condoret, K.Koenig, F.N. Kolisis, A.Marty, U.Menge, T.Scheper, H.Stamatis & A.Xenakis (1995) "Enzymes in non-conventional phases" *Biocatalysis Biotransformations*, 13, 1-42.
53. S.Avraniotis, A.Xenakis, & P.Lianos (1996) "Lecithin w/o microemulsions as a host for trypsin. Enzyme activity and luminescence decay studies" *Progr.Colloid Polym.Sci.* 100, 286-289.
54. S.Avraniotis, H.Stamatis, F.N.Kolisis, P.Lianos & A.Xenakis (1996) "Structural studies of lecithin and AOT based w/o microemulsions, in the presence of lipase" *Langmuir*, 12, 6320-6
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56. V. Papadimitriou, A. Xenakis, C.T. Cazianis & F.N. Kolisis (1997) "Structural and catalytic aspects of cutinase in w/o microemulsions" *Colloid Polym.Sci.*, 275, 609-616.
57. S. Avraniotis, H. Stamatis, F.N. Kolisis & A. Xenakis. (1997) "Pseudomonas cepacia lipase localization in lecithin and AOT w/o microemulsions. A fluorescence energy transfer study" *Progr.Colloid Polym.Sci.* 105, 180-183.
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59. S.Avraniotis, P.Lianos & A.Xenakis (1997) "Trypsin in lecithin based w/o microemulsions. Fluorescence and enzyme activity studies" *Biocatalysis Biotransformations*, 14, 299-316
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63. S.Avraniotis, V.Papadimitriou, C.T.Cazianis & A.Xenakis (1998) "EPR studies of proteolytic enzymes in microemulsions" *Colloids Surfaces.A: Physicochemical & Engineering Aspects.* 144, 295-304.
64. M.D.Georgalaki, T.G.Sotiroudis & A.Xenakis (1998) "Lipoxygenase is associated with oil body membranes in mature olive endosperms" *Biochem.Biophys.Newslett.*, 43, 19-20.
65. M.D.Georgalaki, A. Bachmann, T.G.Sotiroudis, A.Xenakis, A. Porzel and I. Feussner (1998) "Characterization of a 13-lipoxygenase from olive oil and oil bodies of olive endosperms" *FETT/Lipid*, 100, 554-560.
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68. H.Stamatis, A.Xenakis & F.N.Kolisis (1999) "Biorganic reactions in microemulsions: the case of lipase" *Biotechnol. Advances.* 17, 293-318.
69. H.Stamatis, & A.Xenakis (1999) "Biocatalysis using microemulsion-based polymer gels containing lipase" *J. Mol.Catalysis B: Enzymatic*, 6, 399-406.
70. S.Avraniotis, C.Cazianis & A.Xenakis (1999) "Interfacial properties of lecithin microemulsions in the presence of lipase. A membrane spin-probe study" *Langmuir*, 15, 2375-9
71. A.Xenakis & H. Stamatis (1999) "Lipase immobilization on microemulsion-based polymer gels" *Progr.Colloid Polym. Sci.*, 112, 132-5.
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74. E. Protopapa, H. Geissert, A. Xenakis, S. Avraniotis, N. Stavrianeas, C.E. Sekeris, J. Schenkel & A. Alonso (1999) "The effect of proteolytic enzymes on skin hair follicles of transgenic mice expressing the lac z-protein in cells of the bulge region", *J.Europ.Acad. Dermatol. Venerol.* 13, 28-35.
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84. E. Tzika, V. Papadimitriou, T.G. Sotiroudis, A. Xenakis (2004) "Chemical and enzymatic oxidation of oleuropein: an EPR study" *Chem.Phys.Lipids.* 130, 61.
85. M. Mastorakis, T.G. Sotiroudis, A. Xenakis, & S. Miniadis-Meimaroglou, (2004) "Spectrophotometric analysis of enzymic and non-enzymic oxidation of oleuropein" *Chem.Phys.Lipids.* **130**, 58.
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88. P. Domínguez de María, H. Stamatis A. Xenakis J. V. Sinisterra (2004) "Lipase Factor (LF) as a characterization parameter to explain the catalytic activity of crude lipases from *Candida rugosa*, ATCC 14830, free or immobilized in microemulsion based organogels" *Enzym. Microb. Technol.* in press.

## **B. PATENTS**

1. E. Πρωτόπαπα, A. Xenakis, Σ. Αβραμιώτης & Κ.Ε. Σέκερης (1996) "Μικρογαλακτώματα λεκιθίνης περιέχοντα πρωτεολυτικά ένζυμα α-χυμοθριψίνη ή θρυψίνη και μέθοδος μόνιμης ενζυμικής αποτρίχωσης" No 1002706/1997
2. Xenakis A., Sotiroudis T.G. & Karapitta C. (2000) "Development of a homogenous immunoenzymatic method for the production of clinical laboratory kits for the determination of thyroxine and triiodothyronine in human sera, using glycogen phosphorylase b conjugated with polyiodothyronines. Greek Patent Office. OBI 20000100255
3. Protopapa, E.; Xenakis, A.; Avramiotis, S., Sekeris, C. (2001) "Lecithin-based microemulsions containing proteolytic enzymes and method for permanent enzymic depilation" United States Patent, 6,203,791
4. Protopapa, E.; Xenakis, A.; Avramiotis, S., Sekeris, C. (2003) "Lecithin-based microemulsions containing proteolytic enzymes and method for permanent enzymic depilation". European Patent 0955991/05-03-2003, PCT Int. Appl. WO 9744005 A1. Designated states: W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HU, IL, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG.

## **Γ. DOCTORAL THESES**

1. A.Xenakis (1983) "Transport de solutés par des microémulsions utilisées comme membranes liquides". Διδακτορική Διατριβή, Παν/μιο Ναυσού Ι.
2. A.Xenakis (1985) "Utilisation de microémulsions comme membranes liquides. Cinétiques de transport de solutés par la phase dispersée et application à l'extraction liquide- liquide". Thèse de Docteur ès Sciences, Παν/μιο Ναυσού Ι.

## **Α. MASTER THESES**

1. A.Xenakis (1981) "Propriétés de transport des microémulsions", D.E.A. Μοριακής Χημείας, Παν/μιο Ναυσού Ι.
2. A.Xenakis (1983) « L'innovation produit dans le secteur agroalimentaire. Application aux produits alimentaires nouveaux exposés au 10<sup>ème</sup> salon international de l'alimentation ». D.E.A. Βιομηχανικής Διαχείρισης, Εθνικού Πολυτεχνείου Λωρραίνης INPL.

## RESEARCH PROJECTS

1. Biotechnology Action Program (BAP) of the European Community Commission (1986-89). (Contract No BAP 0051-GR). Budget: 12.500.000 Grd.  
Collaboration within the project Bioreactors with the research groups of:
  1. Prof. M.Rossi, Organic & Biological Chemistry lab., Univ. of Napoli, Italy
  2. Dr M.Legoy, Enzymatic Technology lab., Technol.Univ. of Compiegne, France
  3. Prof. K.Schugerl, Inst. of Chemical Technology, Univ. Hannover, Germany.
  4. Prof. A.Ballesteros, Biocatalysis lab. Univ. of Madrid, Spain.
2. Program SCIENCE of the European Community Commission (1988) (Contract No.SC1-0084). Collaboration with the research groups of:
  1. Dr C.Tondre, Organic Physical Chemistry lab, LESOC, Univ. Nancy I, France
  2. Dr J.C.Ravey, Colloidal Physical Chemistry lab, LESOC, Univ. Nancy I, France.
3. Program BRIDGE of the European Community Commission (1991-94): New ways of Biotransformation in non-aqueous systems for the synthesis of pharmaceuticals. Application of supercritical gases, organic solvents, liquid membranes and microemulsions. (Contract N BIOT - CT90 - 0176 (TSTS)). Budget: 900.000 ECU. Collaboration with the research groups of:
  1. Dr T.Scheper, Inst. of Chemical Technology, Univ. Hannover, Germany.
  2. Prof. A.Ballesteros, Biocatalysis lab. Univ. of Madrid, Spain..
  3. Dr U.Menge, Enzymatic Technology lab, GBF, Braunschweig, Germany.
  4. Dr D.Combes, Biochemical Engineering lab., INSA Toulouse, France.
4. Program PLATON 1992. "Enzymic studies in microemulsions. Structural aspects"(Contract N 02001910092- 15th Collaboration protocol). Budget: 2.000.000Grd. Collaboration with the research groups:
  1. Prof.M.P.Pileni Structure and Activity on interfaces lab., Univ. Paris VI, France.
  2. Dr C.Petit CEA Saclay, Paris, France.
5. Program PLATON 1993. "Enzymic studies in microemulsions. Structural aspects " (16th Collaboration protocol). Budget: 2.000.000 Grd. Collaboration with the research groups of:
  1. Prof.M.P.Pileni Structure and Activity on interfaces lab., Univ. Paris VI, France.
  2. Dr C.Petit CEA Saclay, Paris, France.
6. Program BIOTECH of the European Union (1994-6) (in collaboration with Prof. Kolisis): "Structure-function lipase relationships in low water media". Budget: 55.000 ECU. Collaboration with the research groups of:
  1. Prof.C.Cambillau, Lab. Cristallographie des Macromolecules Biolog., CNRS, Marseille, France.
  2. Dr. M.R.Egmond, Unilever Research Laboratory, Vlaardingen, The Netherlands.
  3. Prof. S.B.Petersen, SINTEF, MR-Center, Trondheim, Norway.
  4. Prof. M.D.Legoy, Lab. de Génie Protéique, Université de La Rochelle, France.
  5. Prof.P.Halling, Dept.Bioscience & Biotechnology, Univer.of Strathclyde, Glasgow, UK.
  6. Prof. J.M.S.Cabral, Lab. de Engenharia Bioquímica, IST, Lisboa, Portugal.
7. Program ΕΠΕΤ II, subprogram 1, EKBAN-691, (1994-7): "Greek Virgin Olive Oil: Origin Productio Technology & Quality". Budget NHRF: 60.000.000 Grd. Coordinator NHRF: A. Xenakis. Collaboration with the research groups of:
  1. ELAIS SA. Oleaginous Company
  2. Dr.E.Chamalidis, Food Department, General State Lab.
  3. Prof. D. Boskou, Food Chem. & Technol. Lab., Univ. of Thessaloniki
  4. Prof. M. Komaitis, Dept of Agricultural Industries, Athens Agricultural Univ.
  5. Dr.A. Koutsaftakis, Inst. of subtropics & olives, Chania, NAGREF.

8. Program ΕΠΕΤ II- subprogram 1, ΥΠΕΡ- 55 (1996-9) "Development of a new enzymatic immunoassay for the production of clinical laboratory kits". Budget: 13.500.000 Grd. Coordinator NHRF: A. Xenakis
9. Program ΕΠΕΤ II - subprogram 1, ΠΕΝΕΔ -185 (1996-8) "Study of the enzymatic activity of hydrolytic enzymes hosted in water in oil microemulsions" Budget: 10.000.000 Grd. Coordinator NHRF: A. Xenakis
10. Program ΕΠΕΤ II - subprogram 2, Action 2.3. Liaison Offices of Universities and Research Centers. (1996-9) "Development of a Liaison office at the NHRF". Budget: 72.000.000 Grd. Coordinator NHRF: A. Xenakis
11. Program financed by Pharmathen Ltd. ΕΠΕ (1997) " Microemulsions for face cleansers" Budget: 1.000.000 Grd. Coordinator NHRF: A. Xenakis
12. Program ΕΠΕΤ II - Subprogram 2, Action 2.1, ΠΑΒΕ-97ΒΕ93 (1998-2000) "New technology for transdermal drug delivery. Application of microemulsions and organogels", Contract with Pharmathen Ltd. ΕΠΕ. Budget: 67.649.087 Grd. (NHRF 14.000.000 Grd.) Coordinator NHRF: A. Xenakis
13. Program ΕΠΕΤ II - Action 2.4 R & D Networks, Data Bases, (1998-2000) "Enzymes in clinical diagnosis and therapy", Coordinator: T.Sotiroudis. Budget: 26.000.000 Grd Collaboration with National Drug Organization and the Medical school of the Univ.of Athens
14. Program ΕΠΕΤ II - Subprogram 2, Action 2.1, ΠΑΒΕ-99ΒΕ5 (1999-2001) "Virgin olive oil: Characterization of the effect of pigments and tocopherols on the oxidative stability and development of a method for the estimation of the oxidative condition", Contract with: ELAIS SA. Budget: 62.105.000 Grd (NHRF 8.200.000 Grd.) Coordinator NHRF: A. Xenakis
15. Program ΕΠΕΤ II - Subprogram 1, Action 2.3, Nutrition Program 97ΔΙΑΤΡΟ-29 (1999-2001) "Study of the presence and bioavailability of phenolic antioxidants in foods of the Mediterranean diet" Contract with: Univ. of Thessaloniki Budget: 95.000.000 Grd (NHRF 17.450.000 Grd.) Coordinator NHRF: A. Xenakis
  - Collaboration with the research groups of:
    1. ELAIS SA. Oleaginous Company
    2. Prof.A.Kaffatos, Clinic of preventive medicine & nutrition, Medical School, Univ.of Crete
    3. Prof. D. Boskou, Food Chem. & Technol. Lab., Univ. of Thessaloniki
    4. Prof. I.Gerothanassis, Org.Chem & Biochem. Lab., Chemistry dept., Univ.of Ioannina
16. Program ΕΠΕΤ II - Subprogram 4, Action 4.1, ΠΕΝΕΔ 99ΕΔ74 (1999-2001) "Biotechnological applications of lipolytic enzymes for the synthesis of high added value products" Contract with: NTUA. Budget: 52.000.000 Grd (NHRF 15.800.000 Grd) Coordinator NHRF: C.Cazianis Collaboration with the research groups of:
  1. Assoc.Prof.D.Kekos, Biotechnology lab., Chem.Eng. dept. NTUA
  2. Assis.Prof. J.Smonou, Organ.Chem. lab. Chemistry dept., Univ.of Crete.
17. Program ΕΠΕΤ II - Subprogram 4, Action 4.1, ΠΕΝΕΔ 99ΕΔ98 (1999-2001)"New materials based on hydrosoluble polymers as carriers of biologically active substances". Budget: 57.000.000 Grd (NHRF 18.500.000 Grd) Coordinator: A. Xenakis
  - Collaboration with the research groups of:
    1. Assoc.Prof. G.Staikos, Inst.Chem.Eng/FORTH, Patras
    2. Dr. A.Malliaris Inst of Physical Chemistry NRC "Demokritos"
18. Program TEI Athens, Cosmetology Dept. School of health professions (1999-2001) "Lipolytic substances in microemulsions". Coordinator: Prof.E. Protopapa. Budget: 5.000.000 Grd Coordinator NHRF: A. Xenakis

19. Program of Greek-Spanish Collaboration (2000-2001) "Application of new immobilized enzymic systems for the synthesis of pharmaceuticals" Coordinator NHRF: A. Xenakis. Collaboration with the research group of Prof. J.V. Sinistera Cago, Dept Organic & Pharmaceutical Chemistry, Faculty of Pharmacy Universidad Complutense de Madrid» Budget: 4.200.000 Grd Coordinator NHRF: A. Xenakis.
20. Program ΕΠΑΝ ΠΑΒΕΤ 2000 00ΒΕ58 (2001-3) "New systems for delivery of drugs and biologically active substances with repetitive and controlled release" Contract with: Pharmathen SA. Budget: 83.436.000Grd. (NHRF 3.350.000 Grd.) Coordinator NHRF: A. Xenakis.
21. Program ΕΠΑΝ "Supporting research groups for exploiting research results. Finding and valorizing results through spin off company creation. PhaseA'. Preparation of the investment" (2002-3) Κωδ. 01 ΠΡΑΞΕ 18. Budget: 44.000,00 €
22. Program ΙΚΥΔΑ (2002-4) "Enzyme immobilization in microemulsion organogels – Study in supercritical fluids". Collaboration με Prof. Werner Kuntz Institute of Physical and Theoretical Chemistry, Regensburg University, Regensburg, Germany Budget 10.000,00 €
23. Program «ΣΥΝΕΡΓΑΣΙΑ» of the Dir.1334/02 – ΕΛΑΙΟΥΡΓΙΚΙ - ΟΠΕΚΕΠΕ (2003-4) "Determination of the most significant and usual quality problems encountered in greek olive oils. Evaluation and therapeutic actions" Budget 20.000,00 €  
Collaboration with the research groups of:
  1. ΕΛΑΙΟΥΡΓΙΚΙ SA.
  2. Assos.Prof.M.Tsimidou, Food Chem. & Technol. Lab., Univ. of Thessaloniki
  3. As.Prof.E.Psomiadou, Food Chem lab., Chemistry dept., Univ.of Ioannina

## **COLLABORATIONS WITH INDUSTRIES**

### *Collaboration with Food Industries*

ELAIS SA.

- Common Program ΕΠΕΤ ΙΙ ΕΚΒΑΝ 691" Greek Virgin Olive Oil: Origin Production Technology & Quality ".
- Submission ΥΠΕΡ 95 "Enzymatic biotransformation of free fatty acids to oligoglycerids"
- Common Program ΠΑΒΕ 99 " Virgin olive oil: Characterization of the effect of pigments and tocopherols on the oxidative stability and development of a method for the estimation of the oxidative condition "
- Nutrition Program. " Study of the presence and bio-availability of phenolic antioxidants in foods of the Mediterranean diet "
- Submission ΠΕΝΕΔ 2003 "Virgin Olive Oil: stability and minor components. Application to the production of improved quality products".

ΓΙΩΤΗΣ Α.Ε.

- Submission ΕΠΕΤ ΙΙ ΕΚΒΑΝ "Effect of high pressure on biological substances and application to the food industry"

UNILEVER

- Common Program BIOTECH of the EU (1994-1996) "Structure-function lipase relationships in low water media".

### *Collaboration with Chemical Industries*

MERCK

- Common Program BRIDGE of the European Community Commission (1991-94) New ways of Biotransformation in non-aqueous systems for the synthesis of pharmaceuticals. Application of supercritical gases, organic solvents, liquid membranes and microemulsions

### *Collaboration with Pharmaceutical Industries*

MEDICON AE

- Common Program ΥΠΕΡ "Development of a new enzymatic immunoassay for the production of clinical laboratory kits"
- Submission ΕΠΕΤ ΙΙ ΕΚΒΑΝ- 97

PHARMATHEN SA.

- Licensing of a Patent
- Common Program for the development of cosmetics
- Common Program ΠΑΒΕ "New technology for transdermal drug delivery. Application of microemulsions and organogels"
- Common Program ΠΑΒΕΤ "New systems for delivery of drugs and biologically active substances with repetitive and controlled release"

RESCO SA

- Submission ΠΕΝΕΔ 2003 "Development of nanodispersions of biologically or pharmaceutically active substances with antioxidant or anticancerogenic activity"