

CURRICULUM VITAE

Rosa Erra Balsells

DATE OF BIRTH: May 18, 1950

NATIONALITY: Argentine (born in Vich, Barcelona, Spain)

CIVIL STATUS: Married

HOME ADDRESS:

Olazabal 3205 - 8 piso "B".
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PROFESSIONAL ADDRESS:

CIHIDECAR-UBA-CONICET and Departamento de Química Orgánica, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires. Pabellón II, 3 piso (1428), Buenos Aires - Argentina. Tel.: 54-11-4576-3346 FAX: 54-11-4576-3346. E-mail: erra@qo.fcen.uba.ar

EDUCATION

- Licenciada en Ciencias Químicas (MSc, Chemistry), University of Buenos Aires, Argentina, 1974.
- Doctor en Ciencias Químicas, (PhD, Chemistry), Departamento de Química Orgánica, Facultad de Ciencias Exactas y Naturales, University of Buenos Aires, Argentina, 1980.

PRESENT POSITIONS

- Full Professor (consulting) of Organic Chemistry (Organic Chemistry, Photochemistry and Mass Spectrometry), School of Sciences, University of Buenos Aires (UBA), Argentina.
- "Investigador Superior", National Research Council (CONICET), Argentina.

PAST POSITIONS

- Director of the Departamento de Graduados (Graduated school), Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires (1989--2008).
- Director of the Departamento de Química Orgánica, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires (2012--2016).
- Vice-President of the Argentine Society for Organic Chemistry Research (SAIQO) (2005-2007).
- President of the Argentine Society for Organic Chemistry Research (SAIQO) (2007-2009).
- Vice-President of the Argentine Society for Mass Spectrometry (SAEM) (2012-2014).
- President of the Argentine Society for Mass Spectrometry (2014-2019).

RESEARCH ACTIVITY

1974-1979

Departamento de Química Orgánica, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires (UBA). Argentina
PhD thesis. Advisor: Adolfo R. Frasca.

1980-1986

Departamento de Química Orgánica, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires (UBA). Argentina
Post-doctoral training. Advisor: Adolfo R. Frasca.

1987-1991

Departamento de Química Orgánica, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires (UBA). Argentina
Independent research fellow of UBA.

1992-

CIHIDECAR-CONICET (National Research Council (CONICET), Argentina) and Departamento de Química Orgánica, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires (UBA). Argentina
Independent research fellow of CONICET and UBA.

1995-1996

Plant Biophysics/Biochemistry Research Laboratory, Faculty of Agriculture, Ehime University (EU), Japan.
Research fellow. Advisor: Hiroshi Nonami.

1997-

Faculty of Agriculture, Ehime University (EU), Japan.
Visiting professor (academic cooperation agreement EU (Japan) and UBA (Argentina))

HONORS AND AWARDS

- = Argentine Chemical Society (AQA), Dr. Pedro A. Berdoy Award (1974).
- = Argentine Chemical Society (AQA), Dr. Luis C. Guglielmelli (1982).
- Institute of Ibero-American Culture (ICI) & Ministry of Education of Spain. V Centenary Award. Spain (1992).
- Japan Society for Promotion of Sciences (JSPS). International Research Scholarship (Invitation fellowship program for research in Japan (1995, 1996, 1997, 2002, 2007, 2009, 2014, 2015, 2019, 2020)).
- Visiting Professor, Ehime University, Matsuyama Japan (1997-).
- Konex Diploma award, Organic Chemistry (2003).
- International Conference of Systems Biology and Bioengineering, WCE 2012. Best Paper Award ("In Situ Pressure Probe Sampling of Single Cell Solution from Living Plants for Metabolite Analyses with UV-MALDI-MS"). Imperial College London, London (2012).
- Member of the International Mass Spectrometry Foundation (IMSF). (Latinoamerican and Caribbean associate-representative (2019-)).
- Fellow of the Latino-american Academy of Sciences (ACAL) (2019-).
- Fellow of the Third World Academy of Sciences (TWAS) (2020-).

MEMBER OF SCIENTIFIC ADVISORY BOARDS

- Fine Chemistry Program. UBACyT, University of Buenos Aires, Argentina (1993-1994).
- Water Resource Program. International Consortium of Montevideo Group Universities (AUGM; Argentina-Brazil-Paraguay-Uruguay). UBACyT, University of Buenos Aires, Argentina (1994-1999).
- Fine Chemistry Program. President. University of Buenos Aires, Argentina (1994-1995).

- Ministry of Culture and Education of the Argentine Republic and Mundial Bank. International FOMEC Program. Argentina, (1994).
- Water Resource Program. President. International Consortium of Montevideo Group Universities (AUGM; Argentina-Brazil-Paraguay-Uruguay). UBACyT, University of Buenos Aires, Argentina (1994-1996).
- International Mass Spectrometry Foundation (IMSF), Holand, (2014-).

EDITORIAL BOARDS

- 1983-1994, Secretaria Editorial (editor), Anales de la Asociación Química Argentina (Journal of the Argentine Chemical Society) (AQA). Argentina.
- 1994-2001, Directora (Editor-in-Chief), Anales de la Asociación Química Argentina (Journal of the Argentine Chemical Society) (AQA). Argentina.
- 1997-2015, Member, International Editorial Advisory Board, Environmental control in Biology. Yokendo, Tokyo, Japan.
- 2017-, Member, Academic Advisory Board. Anales de la Asociación Química Argentina (Journal of the Argentine Chemical Society) (AQA). Argentina.

PhD THESES SUPERVISED (year of approval)

- Sergio M. Bonesi (1995)
- Miriana C. Biondic (1996)
- Daniel H. Murgida (1997)
- Claudia Montes (1998)
- Yuko Fukuyama (2003)
- Olga I. Tarzi (2006)
- Yasuto Sato (2008)
- Mst Kaniz Fatima (2009)
- Yousef Gholipour (2010)
- Silvana Laura Giudicessi (2011)
- Maria Micaela González (2012)
- Eman F.A. Awad Allah (2012)
- Federico A.O. Rasse Suriani (2016)
- Tobias Schmidt De León
- Oscar Enrique Silva Rodriguez
- Ruby Terranova Taborda

PRESENT POSITIONS OF FORMER LAB MEMBERS

- Dr. Miriana C. Biondic, CEO Chemical Industry VETANCO SA, Buenos Aires, Argentina.
- Dr. Sergio M. Bonesi. Investigator CONICET (CIHIDECAR-CONICET) and Associate Prof. DQO, FCEN, University of Buenos Aires. Argentina.
- Dr. Alberto Postigo. Investigator CONICET and Full Prof. FFyB, University of Buenos Aires. Argentina.

- Dr. Daniel H. Murgida. Investigator CONICET (INQUIMAE-CONICET). Associate Prof. DQI, AyQF, FCEN, University of Buenos Aires. Argentina.
- Dr. Claudia Montes. CEO Chemical Industry "FARMACO", Santa Cruz de la Sierra, Bolivia.
- Dr. Yuko Fukuyama. Group lider (Manager). Koichi Tanaka Mass Spectrometry Research Center, Shimadzu Cooperation, Kyoto, Japan
- Dr. Rafael Cabanzo. Full Prof. Laboratorio de Espectroscopía Atómico Molecular, School of Physics, University of Santander. Colombia.
- Dr. Andrés H. Thomas. Investigator CONICET (INIFTA-CONICET) and Full Prof. FCC, University of La Plata. Argentina.
- Dr. Carolina Lorente. Investigator CONICET (INIFTA-CONICET). La Plata, Argentina.
- Dr. Franco M. Cabrerizo. Investigator CONICET ((IIB-INTECH-Chascomús-UNSAM) and Associate Prof. University of San Martín, Chascomús, Argentina.
- Dr. Mst. Kaniz Fatema. Associate Prof., Department of Fisheries Management, Faculty of Fisheries, Bangladesh Agricultural University, Bangladesh.
- Dr. M. Paula Denofrio. Investigator CONICET ((IIB-INTECH-Chascomús-UNSAM) and Associate Prof. University of San Martín, Argentina.
- Dr. Olga I. Tarzi. Professor at University of Buenos Aires High School (CNBA), Argentina.
- Dr. María L. Salum. Investigator CONICET (CIHIDECAR-CONICET) and graduated auxiliar teacher, DQO, FCEN, University of Buenos Aires. Argentina.
- Dr. Gabriela Petroselli. Investigator CONICET (CIHIDECAR-CONICET) and graduated auxiliar teacher, DQI, AyQF, FCEN, University of Buenos Aires. Argentina.
- Dr. Yousef Gholipour. Research Fellow SNC, Canadá.
- Dr. Yasuto Sato. Research Fellow (Japan Council of Japan), Faculty of Agriculture, Ehime University, Matsuyama, Japan.
- Dr. Silvana L. Giudicessi. Investigator CONICET and graduated auxiliar teacher, FFyB, University of Buenos Aires. Argentina.
- Dr. Maria M. Gonzalez. Investigator CONICET ((IIB-INTECH-Chascomús-UNSAM) and Adjunct Prof. University of San Martín, Chascomús, Argentina.
- Dr. Ivana K. Levy. Investigator CONICET (INQUIMAE-CONICET) and graduated auxiliar teacher, DQI, AyQF, FCEN, University of Buenos Aires. Argentina.
- Dr. Maria J. Torres. Investigator CONICET (INQUI-CONICET) and graduated auxiliar teacher, University of Salta. Salta, Argentina.
- Dr. Federico A.O. Rasse Suriani. Research fellow INIFTA (CONICET-UNLP) and graduated auxiliar teacher, University of La Plata, La Plata, Argentina.
- Dr. María L. Alomar. Investigator CONICET ((IIB-INTECH-Chascomús-UNSAM) and Adjunct Prof. University of San Martín, Chascomús, Argentina.

SEMINARS AND CONFERENCES (selected)

- 1996, "A look into MALDI-TOF-MS Matrix-Analyte Interaction". VIII Inter-American Photochemical Conference, Inter-American Photochemical Society (IAPS), Foz de Iguazu, Brazil, May, 1996.

- 2001, "An approach to UV-MALDI MS from the organic photochemistry". XII Inter-American Photochemical Conference, IAPS, Ascochinga, Córdoba, Argentina, May, 2001.
- 2003, "De la fotoquímica de alcaloides y el desarrollo de técnicas analíticas limpias". II Workshop Italo-Argentino para La Química Sustentable, INCA (INCA-UNRC-UNC), Los Cocos, Córdoba, Argentina, June, 2003.
- 2004, "De la fotoquímica de heterocilcos indólicos y piridindólicos en solución y en fase sólida. De la fotoquímica preparativa al UV-MALDI" (Organic Photochemistry and UV-MALDI-MS). Jornadas de Actualización en Estrés Oxidativo. Fotoquímica de Sistemas de Interés en Bioquímica y Biomedicina. Fotoquímica Organica y sus Apliaciones Analíticas. INIFTA-CONICET y Laboratorio de Fotoquímica Orgánica CIHIDECAR-CONICET, FCEyN (UBA). Fundacion Antorchas (Proy. No. 14116-207/03). May, 2004.
- 2007, "Mass spectrometry surface monitoring of plant materials". Workshop Mesurement Techniques in Biology Division, JSABEES (Japanese Society of Agricultural, Biological and Environmental Engineers and Scientists), RIHGA Royal Hotel Sakai, Sakai, Osaka, Japan. June. 24 2007.
- 2007, "Soft-Ionization Mass Spectrometry Techniques in Plant Science". International SCJ-JSABE Joint Symposium: Monitoring of Plant Physiological Information and its Applications to Plant Growth Control (MPPIAPGC), SCJ (Science Council of Japan) - JSABE (Japanese Society of Agricultural, Biological and Environmental Engineers and Scientists), Sakai, Osaka, Japan. June 27, 2007.
- 2009, "Nor-harmane and β -carbolines as UV-MALDI matrices: the story of a bridge between photochemistry and UV-MALDI-MS". 57th Annual Conference on Mass Spectrometry Osaka. The Mass Spectrometry Society of Japan (MSSJ), Osaka, Japan. May, 2009.
- 2010-"Espectrometría de masa UV-MALDI: presente y futuro de una técnica analítica mágica". XXVIII Congreso Argentino de Química, AQA, Universidad Nacional de Lanús, Lanúa, Pcia de Buenos Aires, Argentina. September, 2010.
- 2012, "A new approach to the rational synthesis of MALDI matrix. Keeping functional groups and its location but changing the stereochemistry". 19th International Mass Spectrometry Conference, IMSC2012, International Mass Spectrometry Foundation, Kyoto, Japan. September, 2012.
- 2012, "Espectrometría de masa UV-MALDI: una técnica mágica inducida por luz que permanece muy oscura". I Conferencia Argentina de Espectrometría de Masa (I CAEM), Argentine Society for Mass Spectrometry (SAEM), Los Cocos, Córdoba, Argentina, November, 2012.
- 2013, "Cell metabolite analysis by using a cell pressure probe with ESI Orbitrap and MALDI-MS". Environmental Control in Biology and SCJ, Takamatsu, Japan. September, 2013.
- 2013, "A new approach to the rational synthesis of MALDI matrices. Keeping the functional groups and their locations but changing the stereochemistry". V BrMASS conference, Brazil Society for Mass Spectrometry (BrMS), Campagnas, Brasil, December, 2013.
- 2014, "Mass spectrometry methods to analyze intact plant cells". I Argentine Symposium on Glycobiology (GLYCOAR 2014). Fundación Instituto Leloir, Buenos Aires, Argentina, April, 2014.

-2016, "The interaction analyte - MALDI matrix. A headache for mass spectrometrists". Ist Ibero-American Mass Spectrometry Conference and VI BrMASS conference, Rio de Janeiro, Brazil, December 2016.

-2019, "In situ intact cell/tissue analysis at real time by Mass Spectrometry. Current possibilities". 8th Symposium of the Mexican Proteomics Society, 3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting and II Ibero-American Mass Spectrometry Conference, Acapulco, Mexico, October 2019.

ORGANIZATION OF SCIENTIFIC MEETINGS

-V Annual Symposium of the Argentine Society for Organic Chemistry Research (V SINAQO), Huerta Grande Córdoba, Argentina. November 1987.

-VI Annual Symposium of the Argentine Society for Organic Chemistry Research (VI SINAQO), Huerta Grande Córdoba, Argentina. November 1988.

-VIII Annual Symposium of the Argentine Society for Organic Chemistry Research (VIII SINAQO), Buenos Aires, Argentina. November 1989.

-II Latino-American Symposium "Physical Organic Chemistry" and I Workshop on "Reaction Intermediates and Mechanistic Organic Chemistry", Huerta Grande, Córdoba. Argentina, June 1993.

-XX Argentine Congress of Chemistry, Argentine Chemical Society (AQA), Córdoba, Argentina. November 1994

-I Seminar "Aguas" of the "Comité Académico de Aguas de la Asociación de Universidades del Grupo de Montevideo" (AUGM, Argentina-Brasil-Uruguay-Paraguay), Buenos Aires, Argentina, June 1995.

-II Seminar "Agua: Su Conocimiento Como Base Para el Uso y Manejo Sustentable" of the "Comité Académico de la Asociación de Universidades del Grupo de Montevideo, (AUGM, Argentina-Brasil-Uruguay-Paraguay). Santa María, Brasil, October 1997.

-International Congress "Aguas" and Workshop on "Química Ambiental y Salud : La Contaminación del Agua", Comité Académico de la Asociación de Universidades del Grupo de Montevideo, (AUGM, Argentina-Brasil-Uruguay-Paraguay). Buenos Aires, Argentina, August 1998.

-XIII Symposium of the Argentine Society for Organic Chemistry Research (XIII SINAQO), Rosario, Santa Fe, Argentina, November 2003.

-Workshop on "Oxidative Stress. Photochemistry applied to *Biochemistry and Biomedicine. Photochemistry Applications in Analytical Chemistry*". INIFTA-CONICET and Fundación Antorchas, La Plata, Argentina. May-June 2004.

-XV Symposium of the Argentine Society for Organic Chemistry Research (XV SINAQO), Mar del Plata, Argentina. November 2005.

-XVI Symposium of the Argentine Society for Organic Chemistry Research (XVI SINAQO), Mar del Plata, Argentina. November 2007.

-XVII Symposium of the Argentine Society for Organic Chemistry Research (XVII SINAQO), Mendoza, Argentina. November 2009.

-XVIII Symposium of the Argentine Society for Organic Chemistry Research (XVIII SINAQO), Villa Carlos Paz, Córdoba, Argentina, November 2011.

- II Argentine Congress on Mass Spectrometry (II CAEM), Argentine Society of Mass Spectrometry (SAEM), Los Cocos, Córdoba, Argentina, November 2014.
- III Argentine Congress on Mass Spectrometry (III CAEM), Argentine Society of Mass Spectrometry (SAEM), Rosario, Santa Fe, Argentina, November 2016.

RESEARCH GRANTS AWARDED

- National Research Council of Argentina (CONICET), Argentina.
- University of Buenos Aires, Argentina.
- Ministry of Science and Technology (MINCyT), Argentina
- Fundación "Antorchas" (1991, 1992, 1995, 1996, 2003).
- Institute of Ibero-American Culture & Ministry of Education of Spain. Ibero-american research award (1992).
- Third World Academy of Sciences (TWAS) (1992).
- Agencia Nacional de Promoción de Ciencia y Tecnología (ANPCyT)), MINCyT (Ministry of Science and Technology, Argentina (1998-2019).
- Japan Science Council (JSC) & Photobiology Association of Japan. International Research Scholarship (1992)
- JSPS International Research Scholarship ((1995, 1996, 1997, 2002, 2007, 2009, 2014, 2015, 2019 and 2020).
- Ministry of Education of Japan (Mombusho) International Research Scholarship (1999, 2000, 2001)
- Heiwa-Nakajima Foundation, Japan. International Research Scholarship (2003-2005)
- MINCyT (Ministry of Science and Technology, Argentina-DAAD (Germany) (2011-2013).

PUBLICATIONS

(SCOPUS, Author last name: Erra-Balsells; Author first name: R.; Affiliation: CIHIDECAR)

1982, R. Erra-Balsells and A. R. Frasca, *Tetrahedron*, **38**, 245-255, "Photochemical Reaction of Alcohols. I. Irradiation of Aliphatic Alcohols".

2- 1982, R. Erra-Balsells and A. R. Frasca, *Tetrahedron*, **38**, 2525-2538, "Photochemical Reaction of Alcohols. II. Irradiation of Aromatic Alcohols".

3- 1982, R. Erra-Balsells and A. R. Frasca, *An. Asoc. Quim. Argentina*, **70**, 301-312, "Mass Spectra of α -Glycoles and Benzyl ethers: Usage of MS for Configuration Assignment".

4- 1983, R. Erra-Balsells and A. R. Frasca, *Tetrahedron*, **39**, 33-39, "Photochemical Dimerization of α -Carboline Alkaloids".

5- 1984, R. Erra-Balsells and A. R. Frasca, *Tetrahedron Lett.*, **25**, 5363-5366, "Photochemical Reaction of Carbazole and some Derivatives in Dichloromethane".

- 6- 1985, R. Erra-Balsells and A. R. Frasca, *An. Asoc. Quim. Argentina*, **73**, 207-214, "Photochemistry of Carbazoles in CH₂Cl₂".
- 7- 1986, R. Erra-Balsells and A. R. Frasca, *Rev. Lat. Quim.*, **17**, 43-45, "Irradiation of Piperidine and N-Methylpiperidine in CH₂Cl₂ and CCl₄ solution".
- 8- 1986, R. Erra-Balsells, C. R. Portal and A. R. Frasca, *Z. fur Naturforschung, Sec. B* **41**, 768-771, "A New Dimerization Reaction in Polyphosphoric Acid".
- 9- 1987, R. Erra-Balsells, *Ac. Fis. Quim. Org.*, **6**, 76-83, "Photochemical Reaction of Piperidine and N-Methylpiperidine in 1,2-Dichloroethane solution".
- 10- 1987, R. Erra-Balsells, *J. Heterocycl. Chem.*, **24**, 1117-1120, "Mass Spectral Fragmentation Patterns of 2-Methyl-, 3-Methyl-, 2,3-Dimethyl-, 2-Aryl- and 3-Phenylindole derivatives".
- 11- 1987, R. Erra-Balsells and A. R. Frasca, *An. Asoc. Quim. Argentina*, **75**, 453-460, "Irradiation of Indole Derivatives in CH₂Cl₂ Solution".
- 12- 1987, R. Erra-Balsells, *Ac. Fis. Quim. Org.*, **6**, 87-92, "Photochemical Reactivity vs Mass Spectrometry".
- 13- 1988, R. Erra-Balsells and A. R. Frasca, *Austr. J. Chem.*, **41**, 103-110, "Photochemical Reaction of Aliphatic Amines in Dichloromethane Solution".
- 14- 1988, R. Erra-Balsells and A. R. Frasca, *Austr. J. Chem., Supp. Mat. Sec.*, **41**, 430-433, "Spectroscopic Data of the Photoproducts Obtained by Photochemical Reaction of Aliphatic Amines in Dichloromethane Solution".
- 15-1988, R. Erra-Balsells, *J. Heterocycl. Chem.*, **25**, 221-224, "Mass Spectra Fragmentation Patterns of 2,3-Diphenylindole Derivatives and Dibenzo[a,c]carbazoles".
- 16-1988, R. Erra-Balsells, *Magnetic Res. Chem.*, **26**, 1109-1113, "¹³C NMR Spectra of Substituted Carbazoles and Azacarbazoles (⊙-Carbolines)".
- 17-1988, R. Erra-Balsells, *J. Heterocycl. Chem.*, **25**, 1059-1062, "¹³C NMR Studies of Substituted 2,3-Diphenylindoles, Methyl- and Nitro-derivatives".
- 18- 1988, R. Erra-Balsells, *Phytochemistry*, **27**, 3945-3947, "Photodimerization of Deacetylaspidospermine".
- 19- 1988, R. Erra-Balsells and A. R. Frasca, *An. Asoc. Quim. Argentina*, **76**, 285-296, "Photochemical Reaction of Aliphatic Amines in 1,2-Dichloroethane Solution".

- 20- 1989, R. Erra-Balsells and A. R. Frasca, *Magnetic Res. Chem.*, **27**, 134-137, "¹³C NMR Studies of 2- and 3-Methyl- and 2- and 3-Formyl-Indoles. Nitro- and Phenyl-Derivatives".
- 21- 1989, J. A. Postigo and R. Erra-Balsells, *Ac. Fis. Quim. Org.*, **7**, 18-30, "Photochemical Reaction of (-)-Quebrachamine. Unusual Photoformation of a C₄N-C₅N-C₆-C₆-C₆N Five Ring System".
- 22- 1989, J. A. Postigo and R. Erra-Balsells, *J. Org. Chem.*, **54**, 3174-3176, "Photochemical Reaction of (-)-Quebrachamine. Unusual Photoformation of an Iboga-like Ring System".
- 23- 1989, R. Erra-Balsells, *Org. Mass Spectrom.*, **24**, 956-958, "Mass Spectral Fragmentation Patterns of 2,3-Polymethylenitroindoles".
- 24- 1990, M. C. Biondic and R. Erra-Balsells, *J. Photochem. Photobiol., A: Chem.*, **51**, 341-353, "Photochemical Reaction of \odot -Carbolines in Carbon Tetrachloride-Ethanol mixtures".
- 25- 1990, R. Erra-Balsells, *Org. Mass Spectrom.*, **25**, 21-23, "A Comparative Study on the Behaviour of 2-Amidoketophenones and 1-Aza(3,4:5,6:8,9)tribenzocyclonona-2,7-diones under Electron Impact".
- 26- 1991, S. M. Bonesi and R. Erra-Balsells, *Photochem. Photobiol., A: Chem.*, **56**, 55-72, "Product Study of the Photolysis of N-Acetyl Carbazole in Ethanol and in Dichloromethane Solution. I".
- 27- 1991, R. Erra-Balsells, *Org. Mass Spectrom.*, **26**, 293-297, "Comparative Study of the behaviour of 1H-Indazoles and 1-(*p*-Aminophenyl)-Indazoles under Electron Impact".
- 28- 1991, S. M. Bonesi and R. Erra-Balsells R. Erra-Balsells, *J. Heterocycl. Chem.*, **28**, 1035-1038 "Recent Work on the Synthesis of 3,6-Dibenzoylcarbazole".
- 29- 1991, S. M. Bonesi and R. Erra-Balsells, *An. Asoc. Quim. Argentina*, **79**, 113-120, "Studies of Benzoyl Carbazoles. I. Reinvestigation of Thermal Rearrangement of N-Benzoylcarbazole".
- 30- 1992, M. C. Biondic and R. Erra-Balsells, *J. Chem. Soc., Perkin Trans. 2*, 1049-1058, "Photochemical Reactions of Harmaline. I. Electronic Spectra".
- 31- 1993, M. C. Biondic and R. Erra-Balsells, *J. Chem. Soc., Perkin Trans. 2*, 887-903, "Photochemical Reaction of Harmalol. Part 2. Electronic Spectra".
- 32- 1993, M. C. Biondic and R. Erra-Balsells, *An. Asoc. Quim. Argentina*, **81**, 403-414, "Photochemical Reaction of Dihydro \odot -Carbolines. Part 3. Some Kinetic Aspects".
- 33- 1993, R. Erra-Balsells, M. C. Biondic, S. M. Bonesi, F. Console and D. H. Murgida, *Ac. Fis. Quim. Org.*, **12**, 334-356, "Structure Reactivity Correlation in the Photolysis of Aromatic Nitrogen Organic Compounds".

- 34- 1993, R. Erra-Balsells, *J. Photochem. Photobiol., B: Biology*, **18**, 102-103, "Photobiological Research in Argentina".
- 35- 1994, M. C. Biondic and R. Erra-Balsells, *J. Photochem. Photobiol., A: Chem.*, **77**, 149-159, "Photochemical Reaction of Full Aromatic α -Carbolines in Halomethanes. 2. CHCl_3 : Electronic Spectra and Kinetics".
- 36- 1994, V. Conzono, C. Di Risio, M. Tudino, R. Erra-Balsells and A. Fernandez-Cirelli, *Fresenius Environ. Bull.*, **3**, 1-5, "Cadmium and Chromium Interactions with Aquatic Humic Substances from Argentine Ponds".
- 37-1994, G. M. Bilmes, D. H. Murgida and R. Erra-Balsells, *J. Phys. IV*, **4**, C7-417-420, "Photoacoustic Determination of Energy Content and Quantum Yields of Formation of Transient States".
- 38-1996, M.C. Biondic, S. Giacomello, R. Erra-Balsells, M.V. Encinas and E.A. Lissi, *J. Polym. Sci., A: Chem.*, **34**, 1941-1944, "Polymerization Photoinitiated by Carbonyl Compounds. XI Styrene Polymerization Photoinitiated by Cyclododecanones".
- 39-1996, D. H. Murgida, R. Erra-Balsells and G. M. Bilmes, *Chem. Phys. Lett.*, **250**, 198-202, "New Photocalorimetric References for UV Excitation".
- 40-1996, D. H. Murgida, G. M. Bilmes and R. Erra-Balsells, *Photochem. Photobiol.*, **64**, 777-784, "A Photophysical Study of Purines and Theophylline by Using Laser Induced Optoacoustic Spectroscopy".
- 41-1997, H. Nonami, S. Fukui and R. Erra-Balsells, *J. Mass Spectrom.*, **32**, 287-296, " β -Carboline Alkaloids as Matrices for Matrix-assisted Ultraviolet Laser Desorption Time-of flight Mass Spectrometry of Proteins and Sulfated Oligosaccharides: A Comparative Study Using Phenylcarbonyl Compounds, Carbazoles and Classical Matrices".
- 42-1997, S. M. Bonesi and R. Erra-Balsells, *J. Heterocycl. Chem.*, **34**, 877-889, "On the Synthesis and Isolation of Chlorocarbazoles Obtained by Chlorination of Carbazoles".
- 43-1997, S. M. Bonesi and R. Erra-Balsells, *J. Heterocycl. Chem.*, **34**, 891-900, "On the Synthesis and Isolation of Chlorocarbazoles Obtained by Chlorination of N-Substituted Carbazoles".
- 44-1997, S. M. Bonesi and R. Erra-Balsells, *J. Photochem. Photobiol., A: Chem.*, **110**, 271-284, "Photochemistry of N-acetyl and N-benzoylcarbazoles: photo-Fries rearrangement and photoinduced single electron transfer".
- 45-1997, M. C. Biondic and R. Erra-Balsells, *J. Chem. Soc., Perkin Trans. 2*, 1323-1328, "Photochemical behavior of β -carbolines. Part 4. Acid-base equilibria in the ground and excited states in organic media".

46-1998, M. C. Biondic and R. Erra-Balsells, *J. Chem. Res., (S)*, 114-115, "Photochemical behaviour of β -carboline. Part 5. Ground and excited state interactions between nor-harmane and harmane with alcohols and ethers".

47-1998, H. Nonami, K. Tanaka, Y. Fukuyama and R. Erra-Balsells, *Rapid Commun. Mass Spectrom.*, **12**, 285-296, " β -Carboline Alkaloids as Matrices for UV-Matrix-assisted Laser Desorption/Ionization Time-of-flight Mass Spectrometry in Positive and Negative Ion Modes. Analysis of Proteins of High Molecular Mass, and of Cyclic and Acyclic Oligosaccharides".

48-1998, D. H. Murgida, P. F. Aramendia and R. Erra-Balsells, *Photochem. Photobiol.*, **67**, 487- 494, "Benzophenone-Photosensitized Reactions of Xanthinic Compounds. A Mechanistic Study".

49-1998, D. H. Murgida, P. F. Aramendía and R. Erra-Balsells, *Photochem. Photobiol.*, **68**, 467- 473, "Photosensitized Oxidation of Oxopurines Compounds by Rose Bengal".

50- 1998, H. Nonami, M. Orcoyen, Y. Fukuyama, M.C. Biondic and R. Erra-Balsells, *An. Asoc. Quim. Argentina*, **86**, 81-89, " β -Carbolines as Matrices for UV-MALDI/TOF-MS Analysis of Proteins in Positive and Negative Ion Modes. Comparison of the Properties of β -Carbolines and N-Methyl- β -Carbolines".

51-1998, D. H. Murgida, R. Erra-Balsells, P.R. Crippa and C. Viappiani, *Chem. Phys. Lett.*, **294**, 538-544, "Type I Photosensitized Reactions of Oxopurines. Kinetics and Thermodynamics of the Reaction with Triplet Benzophenone by Time Resolved Photoacoustic Spectroscopy".

52-1998, K. Tanaka, H. Nonami, Y. Fukuyama and R. Erra-Balsells, *Proceedings of the 46th ASMS Conference on Mass Spectrometry and Allied Topics*, Orlando, Florida, May 31 – June 4, 1998; *J. Am. Soc. Mass Spectrom.*, **9(S)**, 1016, " β -Carbolines as Matrices for UV-MALDI -TOF-MS in Positive and Negative Ion Modes".

53-1999, D. H. Murgida and R. Erra-Balsells, *J. Luminesc.*, **85**, 129-136, "Low Temperature Luminescence of Purine Derivatives: Salt Effects".

54- 1999, S. Abbruzzetti, C. Viappiani, D. H. Murgida, R. Erra-Balsells and G. M. Bilmes, *Chem. Phys. Lett.*, **304**, 167-172, "Nontoxic, water soluble photocalorimetric reference compounds for UV and visible excitation".

55- 1999, S. M. Bonesi and R. Erra-Balsells, *An. Asoc. Quim. Argentina.*, **87**, 127-142, "Photochemical Reactions of Carbazole with Chloromethanes in Organic Media ".

56- 1999, "nor-Harmane as a Matrix for Maldi MS in Positive and Negative Modes", in *Maldi Application Brief 5, Kratos Analytical, Shimadzu*, 1-4. Measurements: K. Tanaka (Shimadzu Research Lab. Ltd., Manchester); Project: H. Nonami (College of Agriculture,

Ehime University, Japan) and R. Erra-Balsells (Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Argentina), Electronic version: www.kratos.com/discovery/discApps/Apps5.html

57- 1999, L. F. Iglesias, Y. Fukuyama, H. Nonami, R. Erra-Balsells and A. Baldessari, *Biotech. Tech.*, **13**, 923-926, "A Simple Enzymatic Procedure for the Synthesis of a Hydroxylated Polyester from Glycerol and Adipic Acid". MALDI-MS application.

58- 2000, P. Eisenberg, R. Erra-Balsells, Y. Ishikawa, J. C. Lucas, A. N. Mauri, H. Nonami, C.C. Riccardi and R. J. J. Williams, *Macromolecules.*, **33**, 1940 - 1947 " Cagelike Precursors of High-Molar-Mass Silsesquioxanes Formed by the Hydrolytic Condensation of Trialkoxysilanes". MALDI-MS application.

59- 2000, S. M. Bonesi and R. Erra-Balsells, *J. C. S., Perkin Trans 2.* 1583-1595. "Outer-Sphere Electron Transfer from Carbazoles to Halomethanes. Reduction Potentials of Halomethanes Measured by Fluorescence Quenching Experiments"

60- 2000, R. Erra-Balsells, A. Kolender, M. C. Matulewicz, H. Nonami, and A. S. Cerezo, *Carbohydr. Res.*, **329**, 157 - 167, "Matrix-assisted ultraviolet laser desorption-ionization Time of-flight mass spectrometry of sulfated mannans from the red seaweed *Nothogenia fastigiata*".

61- 2000, M. A. Ponce, J. A. Ramirez, L. R. Galagovsky, E. G. Gros and R. Erra-Balsells, *J. Chem. Soc., Perkin Trans. 2*, 2351-2357, " Singlet-oxygen ene reaction with 3 β -substitute stigmastanes. An alternative pathway for classical Schenck rearrangement". ISSN 0300-9580

62 - 2001, H.A. Orgueira, R. Erra-Balsells, H. Nonami, and O. Varela, *Macromolecules*, **34**, 687-695, "Synthesis of Chiral Polyhydroxy Polyamides Having Chains of Defined Regio and Stereoregularity".

63- 2001, S. M. Bonesi and R. Erra-Balsells, *J. Luminesc.*, **93**, 51-74, "Electronic spectroscopy of carbazole and N- and C-substituted carbazole in homogeneous media and in solid matrix".

64- 2001, S. M. Bonesi and R. Erra-Balsells, *J. Heterocycl. Chem.*, **38**, 77-88, "Synthesis and isolation of iodocarbazoles. Direct iodination of carbazole by N-iodosuccinimide and N-iodosuccinimide silica gel system".

65- 2001, D. P. Fasce, R. J. J. Williams, R. Erra-Balsells, Y. Ishikawa, and H. Nonami, *Macromolecules*, **34**, 3534-3539. "One-Step Synthesis of Polyhedral Silsesquioxanes Bearing Bulky Substituents: UV-MALDI-TOF and ESI-TOF Mass Spectrometry Characterization of Reaction Products".

66- 2001, R. J. J. Williams, R. Erra-Balsells, Y. Ishikawa, H. Nonami, A.N. Mauri and C.C. Riccardi, *Macromolecular Chem. Phys.*, **202**, 2425-2433, "UV-MALDI-TOF and ESI-TOF mass spectrometry characterization of silsesquioxanes obtained by the hydrolytic condensation of (3-glycidoxypropyl) trimethoxysilane". MALDI-MS application.

67- 2001, M.A. Ponce and R. Erra-Balsells, *J. Heterocycl. Chem.*, **38**, 1071-1082, "Synthesis and Isolation of Nitro- β -carbolines Obtained by Nitration of β -Carboline Alkaloids".

68-2001, M.A. Ponce and R. Erra-Balsells, *J. Heterocycl. Chem.*, **38**, 1087-1095, "Synthesis and Isolation of Bromo- β -carbolines. Obtained by Bromination of β -Carboline Alkaloids".

69-2001, H. Nonami, F. Wu, R.P. Thummel, Y. Fukuyama, H. Yamaoka and R. Erra-Balsells, *Rapid Commun. Mass Spectrom.*, **15**, 2354-2373, "Evaluation of Pyridoindoles, Pyridylindoles and Pyridylpyridoindoles as Matrices for UV-Matrix-assisted Laser Desorption/Ionization Time-of-flight Mass Spectrometry".

70- 2002, S. M. Bonesi and R. Erra-Balsells, *J. Luminesc.*, **97**, 83-101 "Electronic spectroscopy of N- and C-substituted chlorocarbazoles in homogeneous media and in solid matrix".

71- 2002, P. Eisenberg, R. Erra-Balsells, J. C. Lucas, A. N. Mauri, H. Nonami, C.C. Riccardi and R. J. J. Williams, *Macromolecules*, **35**, 1160-1174, "Silsesquioxanes Derived from the Bulk polycondensation of (3-methacryloxypropyl) trimethoxysilane with Concentrated Formic Acid: Evolution of Molar Mass Distribution and Fraction of Intramolecular Cycles". MALDI-MS application.

72- 2002, R. Erra-Balsells and H. Nonami, *Environ. Control in Biology*, **40**, 55-73, "Nor-Harmane (9H-Pyrido[3,4-b]indole) as Outstanding Matrix for UV-Matrix-assisted Laser Desorption/Ionization Time-of-flight Mass Spectrometry Analysis of Synthetic and BioPolymers".

73- 2002, M. E. Monge, S. M. Bonesi and R. Erra-Balsells, *J. Heterocycl. Chem.*, **39**, 933-941, "Synthesis and isolation of iodocarbazoles. Direct iodination of N-substituted carbazoles".

74- 2002, M. A. Ponce, J. A. Ramirez, L. R. Galagovsky, E. G. Gros and R. Erra-Balsells, *Photochem. Photobiol. Sci.*, **1**, 749-756, "A new look into the reaction between ergosterol and singlet oxygen *in vitro*".

75- 2002, Y. Fukuyama, M. Ciancia, R. Erra-Balsells, M. C. Matulewicz, H. Nonami, and A. S. Cerezo, *Carbohydr. Res.*, **337**, 1553-1562, "Matrix-assisted ultraviolet laser desorption Ionization Time of-flight mass spectrometry of sulfated carrageenan oligosaccharides".

76- 2003, I. E. dell' Erba, D. P. Fasce, R. J. J. Williams, R. Erra-Balsells, Y. Fukuyama and H. Nonami, *J. Organomet. Chem.*, **686**, 42-51, "Poly(silsesquioxanes) derived from the

hydrolytic condensation of organotrialkoxysilanes containing hydroxyl groups". MALDI-MS application.

77- 2003, M. A. Ponce, O. I. Tarzi and R. Erra-Balsells, *J. Heterocycl. Chem.*, **40**, 419-426, "Synthesis and Isolation of Chloro- β -carbolines Obtained by Chlorination of β -Carboline Alkaloids in Solution and in Solid State".

78- 2003, M. Mesaros, S. M. Bonesi, M. A. Ponce, G. Bilmes and R. Erra-Balsells, *Photochem. Photobiol. Sci.*, **2**, 808-816 "The Photophysics of Nitrocarbazoles studied by Using Photoacoustic and Luminescence Techniques".

79- 2003, R. Erra-Balsells and H. Nonami, *ARKIVOC*, **X**, 517-537, "UV-Matrix assisted Laser Desorption/Ionization Time-of-flight Mass Spectrometry Analysis of Synthetic Polymers by using nor-Harmaline as Matrix".

80- 2004, F. M. Cabrerizo, A. H. Thomas, C. Lorente, M. L. Dántola, G. Petroselli, R. Erra-Balsells and A. L. Capparelli, *Helv. Chim. Acta*, **87**, 349-365, "Generation of reactive oxygen species during the photolysis of 6-hydroxymethylpterin in alkaline aqueous solutions".

81- 2004, I. E. dell' Erba, D. P. Fasce, R. J. J. Williams, R. Erra-Balsells, Y. Fukuyama and H. Nonami, *Macromolecular Mat. Eng.*, **289**, 315-323, "Epoxy Networks Modified by a New Class of Oligomeric Silsesquioxanes Bearing Multiple Intramolecular Rings Formed Through Si-O-C Bonds". MALDI-MS application.

82- 2004, S. M. Bonesi, L. K. Crevatin and R. Erra-Balsells, *Photochem. Photobiol. Sci.*, **3**, 381-388, "Photochemistry of 2-acyloxycarbazole. A key step in the synthesis of carbazole alkaloids".

83- 2004, S. M. Bonesi, M. A. Ponce and R. Erra-Balsells, *J. Heterocycl. Chem.*, **41**, 161-171, "A Study of substituent effect on ^1H and ^{13}C NMR spectra of N- and C-substituted carbazoles".

84- 2004, A. S. Couto, C. Caffaro, M. L. Uhrig, R. Erra-Balsells, M. Nishioka, H. Nonami, E. Kimura, V. J. Peres, A. M. Katzin, *European J. Biochem.*, **271**, 2204-2214, "Glycosphingolipids in *Plasmodium falciparum*. Presence of an active glucylceramide synthase" MALDI-MS-application.

85- 2004, M. A. Ponce, R. Erra-Balsells, J. M. Scervino, A. M. Godeas and J. A. Ocampo, *Phytochemistry*, **65**, 1925-1930, "Flavonoids from shoots and roots of *Trifolium repens* (white clover) grown with or without the arbuscular mycorrhizal fungus *Glomus intraradices*".

86- 2004, M. A. Ponce, J. M. Scervino, R. Erra-Balsells, J. A. Ocampo and A. M. Godeas, *Phytochemistry*, **65**, 3131-3134, "Flavonoids isolated from shoots, roots and roots exudates of *Brassica Alba(r)*".

87- 2004, M. A. Ponce, R. Erra-Balsells, A. Bruttomesso and E. G. Gros, *Helv. Chim. Acta*, **87**, 2987-3003, "Photooxygenation of Pregnanes".

88- 2005, Y. Fukuyama, A. A. Kolender, M. Nishioka, M. C. Matulewicz, R. Erra-Balsells, H. Nonami, A. S. Cerezo, *Rapid Commun. Mass Spectrom.*, **19**, 349-358, "Matrix assisted ultraviolet laser-desorption ionization and electrospray- ionization time-of- flight mass spectrometry of β -(1 \rightarrow 3), β -(1 \rightarrow 4)-xylans from *Nothogenia fastigiata*. Usage of nor-harmane as UV-MALDI matrix".

89- 2005, S. M. Bonesi, M. A. Ponce and R. Erra-Balsells, *J. Heterocycl. Chem.*, **42**, 867-875, "A Study of substituent effect on ^1H and ^{13}C NMR spectra of mono, di and poly substituted carbazoles",

90- 2005, O. I. Tarzi and R. Erra-Balsells, *Photochem. Photobiol B:Biological*, **80**, 29-45, "Photochemistry of the alkaloids eudistomin N (6-bromo-nor-harmane) and eudistomin O (8-bromo-nor-harmane) and other bromo- β -carboline".

91- 2005, M. Barboza, V. G. Duschak, Y. Fukumaya, H. Nonami, R. Erra-Balsells, J. J. Cazzulo and A. S. Couto, *FEBS Journal*, **272**, 3803-3815, "Structural Analysis of the N-glycans present in the C-terminal domain of the major cysteine proteinase of *Trypanosoma cruzi*. Identification of sulfated high-mannose type oligosaccharides". MALDI-MS application.

92-2005, C. L. Romero Zaliz, R. Erra-Balsells, H. Nonami, Y. Sato and O. Varela, *ARKIVOC*, **XII**, 67-78, "Synthesis and polymerization of conveniently substituted 6-amino-6-deoxy-D-galactonic acid derivatives" (número dedicado a la Prof. Dra. R. M. de Lederkremer). MALDI-MS application.

93-2005, M. Ciancia, Y. Sato, H. Nonami, A. S. Cerezo, R. Erra-Balsells and M.C. Matulewicz, *ARKIVOC*, **XII**, 319-331, "Autohydrolysis of a partially cyclized mu/nu carrageenan and Structural elucidation of the oligosaccharides by chemical, ^{13}C NMR and UV-MALDI MS analysis" (número dedicado a la Prof. Dra. R. M. de Lederkremer).

94-2005, O. I. Tarzi, M. A. Ponce, F. M. Cabrerizo, S. M. Bonesi and R. Erra-Balsells, *ARKIVOC*, **XII**, 295-310, "Electronic spectroscopy of the β -carboline derivatives nitronorharmanes, nitroharmanes nitroharmines and chloroharmines in homogeneous media and solid matrix" (número dedicado a la Prof. Dra. R. M. de Lederkremer).

95-2005, J.M. Scervino, M.A. Ponce, R. Erra-Balsells, H. Vierheilig, J.A. Ocampo and A. Godeas, *Journal of Plant Physiology* **162**, 625-633. "Arbuscular mycorrhizal colonization of tomato by *Gigaspora* and *Glomus* species in presence of roots flavonoids".

96-2005, J.M. Scervino, M.A. Ponce, R. Erra-Balsells, H. Vierheilig, J.A. Ocampo and A. Godeas, *Mycol. Res.* **109**, 789-794. "Flavonoids exhibit fungal species and genus specific effects on the presymbiotic growth of *Gigaspora* and *Glomus* species in presence of roots flavonoids".

97-2005, J.M. Scervino, M.A. Ponce, R. Erra-Balsells, H. Vierheilig, J. A. Ocampo and A. Godeas, *J. Plant Interaction*, **1**, 15-22. "Flavonoids exclusively present in mycorrhizal roots of white clover exhibit a different effect on arbuscular mycorrhizal fungi than flavonoids exclusively present in non-mycorrhizal roots of white clover".

98- 2006, O. I. Tarzi and R. Erra-Balsells, *J. Photochem. Photobiol B: Biology*, **82**, 79-93, "Effect of chlorine on the photochemistry and acid-base properties of β -carboline alkaloids".

99- 2006, A. H. Thomas, R. Cabrerizo, M. Vignoni, R. Erra-Balsells, F. M. Cabrerizo and A. L. Capparelli, *Helv. Chim. Acta*, **89**, 1090-1104, "Photoinduced formation of reactive oxygen species by the acid form of 6-(hydroxymethyl)pterin in aqueous solutions".

100- 2006, M. B. Ponce, F. M. Cabrerizo, S. M. Bonesi and R. Erra-Balsells, *Helv. Chim Acta*, **89**, 1123-1139, "Synthesis and Electronic Spectroscopy of Bromo Carbazoles. Direct Bromination of N- and C-Substituted Carbazoles by N-Bromosuccinimide and N-Bromosuccinimide – Silica Gel System".

101- 2006, M. Mesaros, O. I. Tarzi, R. Erra-Balsells, and G. M. Bilmes, *Chem. Phys. Lett.*, **426**, 334-340, "The photophysics of some UV-MALDI matrices studied by using spectroscopic, photoacoustic and luminescence techniques".

102- 2006, A. C. Casabuono, A. D'Antuono, Y.Sato, H. Nonami, R. Ugalde, V. Lepek, R. Erra-Balsells, A. S. Couto, *Rapid. Commun. Mass Spectrom.*, **20**, 2175-2182, "A matrix-assisted Laser desorption/ionization mass spectrometry approach of the Lipid A from *Mesorhizobium loti*".

103- 2006, L. K. Crevatin, S. M. Bonesi and R. Erra-Balsells, *Helv. Chim Acta*, **89**, 1147-1157, "Photochemistry of 2-alkylsulfoniloxycarbazoles. A potential tool for the introduction of sulphur atom in polycyclic aromatic compounds".

104- 2006, J.M. Scervino, M.A. Ponce, R. Erra-Balsells, M.J. Bompadre, H. Vierheilig, J.A. Ocampo and A. Godeas, *Soil Biol. Biochem.*, **38**, 2919-2922. "Glycosidation of apigenin results in a loss of its activity on different growth parameters of arbuscular mycorrhizal fungi from the genus *Glomus* and *Gigaspora*".

105- 2007, J.M.Scervino, M.A. Ponce, R. Erra-Balsells, M. J. Bompadre, H. Vierheilig, J.A. Ocampo and A.M. Godeas, *Can. J. Microbiol.*, **53**, 702-709. "The effect of flavones and flavonols on colonization of tomato plants by arbuscular mycorrhizal fungi of the genera *Gigaspora* and *Glomus*".

106- 2007, E. M. Rustoy, Y. Sato, H. Nonami, R. Erra-Balsells and A. Baldessari, *Polymers*, **48**, 1517-1525, "Lipase-Catalyzed Synthesis and Characterization by UV-MALDI-MS of Copolymers from Ethyl Acrylate as the Only Monomer Starting Material; norHarmane as UV-MALDI matrices".

107- 2007, G. Petroselli, M. L. Dántola, R. Erra-Balsells, F. M. Cabrerizo, A. L. Capparelli, A. M. Braun, C. Lorente, E. Oliveros and A. H. Thomas, *Org. Biomol. Chem.*, **5**, 2792-2799, "Photosensitization of 2'-deoxyadenosine-5'-monophosphate by pterin".

108- 2007, S. M. Bonesi, M. Mesaros, F. M. Cabrerizo, M. A. Ponce, G. M. Bilmes and R. Erra-Balsells, *Chem. Phys. Lett.* **446**, 49-55, "The photophysics of nitrocarbazoles used as UV-MALDI matrices. Comparative spectroscopic and optoacoustic studies of mononitro- and dinitrocarbazoles".

109- 2007, Y. Sato, Y. Fukuyama, H. Nonami, R. Erra-Balsells, C. A. Stortz, A. S. Cerezo and M. C. Matulewicz, *Carbohydr. Res.*, **342**, 2567-2574, "Matrix-assisted ultraviolet laser desorption/ionization time-of-flight (UV-MALDI-TOF) mass spectra of N-acylated and N,O-acylated glycosylamines".

110- 2007, A. S. Cerezo, S. L Giudiccesi, R. Erra-Balsells, H. Nonami, A. C. Marquinez, C. Wolfenstein-Todel, J. M. Scacciati de Cerezo, *Environ. Control in Biol.*, **45**, 267-290, "Direct UV-MALDI-TOF MS analysis of (glyco)proteins of fractions of bovine seminal plasma".

111- 2008, R. Erra-Balsells and H. Nonami, *Environ. Control in Biol.*, **46**, 65-90, "UV-MALDI -TOF MS analysis of carbohydrates. Reviewing comparative studies using nor-harmane and several classical matrices".

112- 2008, A. Cors, S. M. Bonesi and R. Erra-Balsells, *Tetrahedron. Lett.*, **49**, 1555-1558, "Photoreduction of Nitroarenes by Foric Acid in Acetonitrile at Room Temperature".

113- 2008, M. Landoni, V. G. Duschak, R. Erra-Balsells and A. S. Couto, *J. Am. Soc. Mass Spectrom.*, **19**, 923-926, "UV-MALDI Mass Spectrometry Analysis of NBD-Glycosphingolipids without an external matrix".

114- 2008, M. L. Gómez, D. P. Fasce, R. J. J. Williams, R. Erra-Balsells, M. K. Fatema and H. Nonami, *Polymer*, **49**, 3648-3653, "Silsequioxane functionalized with methacrylate and amine groups as a crosslinker/co-initiator for the synthesis of hydrogels by visible-light photopolymerization". MALDI-MS application.

115- 2008, Y. Gholipour, H. Nonami and R. Erra-Balsells, *J. Am. Soc. Mass Spectrom.*, **19**, 1841-1848. Application of Pressure Probe and UV-MALDI TOF MS for direct Analysis of Plant Underivatized Carbohydrates in Sub-picoliter Single-Cell Cytoplasm Extract".

116- 2008, Y. Gholipour, H. Nonami and R. Erra-Balsells, *Anal. Biochem.*, **383**, 159-167, "In Situ Analysis of Plant Tissue Underivatized Carbohydrates and On-Probe Enzymatic Degraded Starch by Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry by using Carbon Nanotubes as Matrix".

117- 2009, M. M. Marani, M. C. Martínez Ceron, S. L. Giudicessi, E. de Oliveira, S. Côté, R. Erra-Balsells, F. Albericio, O. Cascone and S. A. Camperi. *J. Combinat. Chem.*, **11**, 146-150, "Screening of one-bead-one-peptide combinatorial library using red fluorescent dyes. Presence of positive and false positive beads". MALDI-MS application.

118-2009, O. I. Tarzi, H. Nonami and R. Erra-Balsells, *J. Mass Spectrom.*, **44**, 260-277, "Temperatura effect on the stability of compounds used as UV-MALDI-MS matrix: 2,5-Dihydroxybenzoic acid, 2,4,6-Trihydroxyacetophenone, trans- α -Cyano-4-hydroxycinnamic acid, 3,5-Dimethoxy-4-hydroxycinnamic acid, nor-Harmane and Harmane".

119- 2009, M. M. Gonzalez, M. L. Salum, Y. Gholipour, F. M. Cabrerizo and R. Erra-Balsells, *Photochem. Photobiol. Sci.*, **8**, 1139-1149, "Photochemistry of norharmane in aqueous solution".

120- 2009, M. M. Gonzalez, J. Arnbjerg, M. P. Denofrio, R. Erra-Balsells, P. R. Ogilby and F. M. Cabrerizo, *J. Phys Chem. A*, **113**, 6648-6656, "One- and two-photon excitation of β -carbolines in aqueous solution: pH-dependent spectroscopy, photochemistry and photophysics".

121- 2009, Z. Yu, L. C. Chen, H. Suzuki, O. Ariyada, R. Erra-Balsells, H. Nonami and K. Hiraoka, *J. Am. Soc. Mass Spectrom.*, **20**, 2304-2311, "Direct profiling of phytochemicals in tulip tissue and in vivo monitoring of the change of carbohydrate content in tulip bulbs by Probe electrospray ionization mass spectrometry".

122- 2009- S. M. Bonesi and R. Erra-Balsells, *Trends in Heterocyclic Chemistry*, **14**, 39-77, "Photochemistry of carbazoles and its application in organic Síntesis" (review).

123- 2010, M. K. Fatema, H. Nonami, D. R. B. Ducatti, A. G. Gonçalves, M. E. R. Duarte, M. D. Nosedá, A. S. Cerezo, R. Erra-Balsells and M. C. Matulewicz, *Carbohydr. Res.*, **345**, 275-283, "Matrix-assisted ultraviolet laser desorption/ionization time-of-flight (UV-MALDI-TOF) mass spectrometry analysis of oligosaccharides and oligosaccharide alditols obtained by hydrolysis of agaroses and carrageenans, two important types of red seaweed polysaccharides".

124- 2010, M. Vignoni, M. L. Salum, R. Erra-Balsells, A. H. Thomas and F. M. Cabrerizo, *Chem Phys Lett.*, **484**, 330-332, "Identification of the intermediate generated upon UV-A excitation of biopterin, neopterin and 6-hydroxymethylpterin in O₂-free aqueous solutions".

125- 2010, F. M. Cabrerizo, J. Arnbjerg, M. P. Denofrio, R. Erra-Balsells and P. R. Ogilby, *Chem. Phys. Chem.*, **11**, 796-798, "Fluorescence Quenching by Oxygen: "Debunking" a Classic Rule".

126- 2010, M. C. Martínez-Ceron, S. L. Giudicessi, M. M. Marani, F. Albericio, O. Cascone, R. Erra-Balsells and S.A. Camperi, *Anal. Biochem.*, **400**, 295-297, "Sample preparation for sequencing hits from one-bead-one peptide combinatorial libraries by MALDI-TOF-MS".

127- 2010, M. M. Gonzalez, M. Péllon-Maison, M. A. Ales-Gandolfo, M. R. Gonzalez-Baró, R. Erra-Balsells and F. M. Cabrerizo, *Org. Biomol. Chem.*, **8**, 2543 – 2552, "Photosensitized cleavage of plasmidic DNA by norharmane, a naturally occurring β -carboline".

128- 2010, S. L. Giudicessi, M. K. Fatema, H. Nonami and R. Erra-Balsells, *J. Am. Soc. Mass Spectrom.*, **21**, 1526-1529. "Ethylenediaminetetraacetic acid (EDTA) as an auxiliary tool in the electrospray ionization mass spectrometry analysis of native and derivatized β cyclodextrins, maltoses and fructans contaminated with Ca and/or Mg".

129- 2010, C. Samaniego-López, R. Erra-Balsells and S. M. Bonesi, *Tetrahedron. Lett.*, **51**, 4387-4390, "A mild and convenient one-pot photochemical synthesis of 4-chromanone derivatives. The photo Fries rearrangement of (hetero)aryl 3-methyl-2-butanolate esters under basic catalysis".

130- 2010, L. N. Monsalve, M. K. Fatema, H. Nonami, R. Erra-Balsells and A. Baldessari, *Polymer*, **51**, 2998-3005, "Lipase-Catalyzed Synthesis and Spectroscopic Characterization of a Linear Polyamide". MALDI-MS application

131- 2010, Y. Gholipour, S. L. Giudicessi, H. Nonami and R. Erra-Balsells, *Anal. Chem.*, **82**, 5518-5526, "Diamond, Titanium Dioxide, Strontium Titanium Oxide, and Barium Strontium Titanium Oxide Nanoparticles for Direct Matrix Assisted Laser Desorption/Ionization Mass Spectrometry Analysis of Soluble Carbohydrates in Plant Tissues".

132- 2010, S. Asmussen, S. L. Giudicessi, R. Erra-Balsells, C. Vallo, *Europ. Pol. J.*, **46**, 1815-1823, "Synthesis of Silsesquioxanes Based in [3-(Methacryloxy)propyl]trimethoxysilane Using Methacrylate Monomers as Reactive Solvents". MALDI-MS application.

133- 2010, Z. Yu, L. C. Chen, R. Erra-Balsells, H. Nonami and K. Hiraoka, *Rapid Commun. Mass Spectrom.*, **24**, 1507-1513, "Real-time reaction monitoring by probe electrospray ionization mass spectrometry".

134- 2010, M. L. Salum, C. J. Robles, R. Erra-Balsells, *Org. Lett.*, **12**, 4808-4811, "Photoisomerization of Ionic Liquids Ammonium Cinnamates: One-Pot Synthesis-Isolation of Z-Cinnamic Acids".

135- 2011, J. I. Morán, V. P. Cyras, S. L. Giudicessi, R. Erra-Balsells and A. Vázquez, *J. Applied Pol Sciences*, **120**, 3410-3420, "Influence of glycerol content and temperature on the rheology of native and acetylated starch during and after gelatination". MALDI-MS application.

136- 2011, M. K. Mandal, L. C. Chen, Z. Yu, H. Nonami, R. Erra-Balsells, and K. Hiraoka, *J. Mass Spectrom.*, **46**, 967-975. "Detection of Protein from Detergent Solutions by Probe Electrospray Ionization Mass Spectrometry".

137- 2011, M. Minig, L. S. Mazzaferro, R. Erra-Balsells, G. Petroselli and J. D. Breccia, *J. Agr. Food Chem.*, **59**, 11238-11243. "α-Rhamnosyl-β-glucosidase-catalyzed reactions for plant-based food analysis and biotransformations". MALDI-MS application.

138- 2012, L. S. Mazzaferro, L. Piñuel, R. Erra-Balsells, S. L. Giudicessi and J. D. Breccia, *Carbohydr. Res.*, **347**, 69-75, "Synthesis of 4-methylumbelliferyl-rutinoside: a new fluorogenic substrate to seek for diglycosidases". MALDI-MS application.

139- 2012, M. M. González, M. Vignoni, M. Pellon-Maison, M. A. Alés-Gandolfo, M. del R, González-Baró, R. Erra-Balsells, B. Epe and F. M. Cabrerizo, *Org. Biomol. Chem.*, **10**, 1807-1819. "Photosensitization of DNA by β-Carbolines: Kinetic analysis and photoproducts characterization".

140- 2012, M. Vignoni, C. Lorente, F. M. Cabrerizo, R. Erra-Balsells, E. Oliveros and A. H. Thomas, *Photochem. Photobiol. Sci.*, **11**, 979-987. "Photochemistry and reactivity of photodimers of dihydroneopterin and dihydrobiopterin".

141- 2012, G. Petroselli, M. K. Mandal, L. C. Chen, G. T. Ruiz, E. Wolcan, K. Hiraoka, H. Nonami and R. Erra-Balsells, *J. Mass Spectrom.*, **47**, 313-321. "Mass spectrometry of rhenium complexes: A comparative study by using LDI-MS, MALDI-MS, PESI-MS and ESI-MS".

142- 2012, Zhan Yu, L. C. Chen, M. K. Mandal, H. Nonami, R. Erra-Balsells and K. Hiraoka, *J. Am. Soc. Mass Spectrom.*, **23**, 728-735. "Online Electrospray Ionization Mass Spectrometric Monitoring of Protease-Catalyzed reactions in Real Time".

143- 2012, G. Petroselli, P. D. Gara, G. M. Bilmes, R. Erra-Balsells, *Photochem. Photobiol. Sci.*, **11**, 1062-1068. "Photoacoustic and luminescence characterization of nitrogen heterocyclic aromatic UV-MALDI matrices in solution".

144- 2012, Y. Gholipour, R. Erra-Balsells, H. Nonami, *Environ. Control in Biol.*, **50**, 107-116. "Detection of pesticide traces on tomato fruit surface by ultraviolet matrix-assisted laser desorption/ionization mass spectrometry".

145- 2012, Y. Gholipour, R. Erra-Balsells and H. Nonami, *J. Mass Spectrom. Soc. Jp.*, **60**, (4), *Mass Spectrom.*, **1**, A0001-A0005, A003 1-11. "In situ Pressure Probe Sampling and UV-MALDI MS Metabolite Profiling of Living Single Cells", (Review).

146- 2012, F. Ragone, G. T. Ruiz, O. E. Piro, G. A. Echeverría, F. Cabrerizo, G. Petroselli, R. Erra-Balsells, K. Hiraoka, F. García Einschlag and E. Wolcan, *Eur. J. Inorg.Chem.*, 29, 4801-4810. "Rhenium(I)-Pterin water-soluble complex: Synthesis and structural characterization. Two reversible protonation-deprotonation behavior in aqueous solutions". MALDI-MS application

147- 2012, M. M. Gonzalez, F. A. O. Rasse-Suriani, C. A. Franca, R. Pis Diez, Y. Gholipour, H. Nonami, R. Erra-Balsells and F. M. Cabrerizo, *Org. Biomol. Chem.* 10, 9359-9372. "Photosensitized electron transfer within self-assembled norharmane/2'-deoxyadenosine-5'-monophosphate (dAMP) complex".

148- 2012, Y. Gholipour, R. Erra-Balsells, K. Hiraoka and H. Nonami, *Engineering Letters*, 20, 294-300. "Integrative Analysis of Physiological Phenotype of Plant Cells by Turgor Measurement and Metabolomics".

149- 2013, Y. Gholipour, R. Erra-Balsells, K. Hiraoka and H. Nonami, *Anal. Biochem.*, 433, 70-78. "Living Cell Manipulation, Manageable Sampling, and Shotgun Picoliter Electrospray Mass Spectrometry for Profiling Metabolites".

150- 2013, M. L. Salum and R. Erra-Balsells, *Environ. Control in Biol.*, 50, 1-10. "High Purity *cis*-Cinnamic Acid Preparation for Studying Physiological Role of *trans*-Cinnamic and *cis*-Cinnamic Acids in Higher Plants".

151- 2013, M. Vignoni, F.A.O. Rasse-Suriani, K. Butzbach, R. Erra-Balsells, B. Epe and F. M. Cabrerizo, *Org. Biomol. Chem.* 11, 5300-5309. "Mechanisms of DNA damage by photoexcited 9-methyl- β -carabolines".

152- 2013, O.I. Tarzi, L. Di Stefano, J. E. Arguello, G. Oksdath-Mansilla, R. Erra-Balsells. *Photochem Photobiol.*, 89, 1368-1374. "Photochemical and Thermal Stability of some Dihydroxyacetophenones used as UV-MALDI-MS Matrices".

153- 2013, R. Cabanzo Hernández; P. D. Gara, D. Molina Velasco, R. Erra-Balsells and G. M. Bilmes, *Photochem Photobiol Sc.*, 12, 1968-1975. "Photophysical behavior of new acridine(1,8)dione dyes".

154- 2013. H. H. Martinez Saavedra, C. A. Franca, G. Petroselli, R. Erra-Balsells, G. T. Ruiz, E. Wolcan. *J. Organometallic Chem.*, 745/746, 470-478. "A new zwitterionic, water-soluble, rhenium(I) complex: synthesis, spectroscopic and computational characterization". MALDI-MS application

155-2013, S.L. Giudicessi, J.M. Gurevich-Messina, M.C. Martínez-Ceron, R. Erra-Balsells, F. Albericio, O. Cascone, S.A. Camperi. *ACS Comb. Sci.*, 15, 525-529. "Convenient Strategy to Prepare Encoded One bead-One Compound Cyclic Peptide Library". MALDI-MS application.

156- 2013, M. L. Salum, L.M. Itovich and R. Erra-Balsells, *J. Mass Spectrom.*, **48**, 1150-1159, "Z-Sinapinic Acid. The Change of the Stereochemistry of Cinnamic Acids as Rational Synthesis of a New Matrix for Carbohydrate MALDI-MS analysis".

157- 2014, L. N. Monsalve, G. Petroselli, R. Erra-Balsells, A Vázquez and A Baldessari, *Polymer International*, **63**, 1523-1530. "Chemoenzymatic synthesis of novel N-(2-hydroxyethyl)- β -peptoid oligomer derivatives and application to porous polycaprolactone films". MALDI-MS application.

158- 2014, M. Vignoni, F. A. O. Rasse-Suriani, R. Erra-Balsells, B. Epe and F.M. Cabrerizo, *J. Photochem Photoiol B:Biological*, **132**, 66-71. "Intra- and Extra-Cellular DNA Damage by Harmine and 9-Methyl-harmine".

159- 2014, M.L. Alomar, M.M. Gonzalez, R. Erra-Balsells and F.M. Cabrerizo, *J. Photochem. Photobiol. B:Biological*, **136**, 26-28. Comment on "Binding of alkaloid harmalol to DNA: Photophysical and calorimetric approach"

160- 2014, V.B. Arce, J. Scotto, P.E. Allegretti, M.A. Melo Jr., C. Airoidi, M.L Salum, R. Erra-Balsells, R. Pis Diez and D.O. Mártire, *J. Phys. Chem. C*, **118**, 15348-15355. "A Combined Experimental and Computational Investigation of the Fluorescence Quenching of Riboflavin by Cinnamic Alcohol Chemisorbed on Silica Nanoparticles".

161- 2014, M.M. Gonzalez, M.P. Denofrio, F.S. García-Einschlag, C. A. Franca, R. Pis Diez, R. Erra-Balsells, F.M. Cabrerizo, *Phys. Chem. Chem. Phys.*, **16**, 16547-16562. "Determining the Molecular Basis for the pH-dependent Interaction among 2'-deoxynucleotides and 9H-pyrido[3,4-b]indole in its ground and electronic excited states".

162- 2014, D. Iguchi, R. Erra-Balsells, S.M. Bonesi, *Tetrahedron Lett.*, **55**, 4653-4656. "Expeditious photochemical reaction towards the preparation of substituted chroman-4-ones".

163- 2014, H. Wada, C. Masumoto-Kubo, Y. Gholipour, H. Nonami, F. Tanaka, R. Erra-Balsells, K.I. Tsutsumi, K. Hiraoka and S. Morita, *PLoS ONE*, **9**, e110374. "Rice chalky ring formation caused by temporal reduction in starch biosynthesis during osmotic adjustment under foehn-induced dry wind". DOI: 10.1371/journal.pone.0110374

164- 2014, M.F. Basanta, N.M.A. Ponce, M.L. Salum, M.D. Raffo, A. R. Vicente, R. Erra-Balsells and C.A. Stortz, *J. Agr Food Chem.*, **62**, 12418-12427. "Compositional Changes in Cell Wall Polysaccharides from Five Sweet Cherry (*Prunus avium* L.) Cultivars during On-Tree Ripening" MALDI-MS application.

165- 2014, J.M. Gurevich-Messina, S.L. Giudicessi, M.C. Martínez-Ceron, G. Acosta, R. Erra-Balsells, O. Cascone, F. Albericio, S.A. Camperi. *J. Pept. Sci.*, **21**, 40-45. "A simple

protocol for combinatorial cyclic depsipeptide libraries sequencing by matrix-assisted laser desorption/ionization mass Spectrometry”.

166- 2015, H.A. Garro, G. Petroselli, C.R. Pungitore, C.E. Tonn, R. Erra-Balsells, *J. Mater. Environ. Sci.*, **6**, 1137-1141. “Synthesis and characterization of news copolymers from 4-hydroxycoumarin using MALDI-TOF mass spectrometry analysis”.

167- 2015, G. Petroselli, M. K. Mandal, L. C. Chen, K. Hiraoka. H. Nonami and R. Erra-Balsells, *J. Mass Spectrom*, **50**, 676-682. “In situ analysis of soybean and nuts by Probe Electrospray Ionization mass spectrometry”.

168- 2015, M.J. Torres, G. Petroselli, M. Daz, R. Erra-Balsells and M. C. Audisio, *World J. Microbiol. Biotechnol.* **31**, 929–940. “Bacillus subtilis subsp. subtilis CBMDC3f with antimicrobial activity against Gram-positive foodborne pathogenic bacteria. UV-MALDI-TOF MS analysis of its bioactive compounds”. MALDI-MS application.

169- 2015, M.L. Salum, P. Arroyo-Manez, F.J. Luque and R. Erra-Balsells, *J. Photochem Photoiol B: Biology*, **148**, 128-135. “Combined Experimental and Computational Investigation of the Absorption Spectra of E- and Z-Cinnamic Acids in Aqueous Media: The peculiarity of Z-Cinnamics”.

170- 2015, D. Hršak, L. Holmegaard, A.S. Poulsen, N. H. List, J. Kongsted, M.P. Denofrio, R. Erra-Balsells, F.M. Cabrerizo, O. Christiansen, P.R. Ogilby. *Phys. Chem. Chem. Phys.*, **17**, 12090-12099. “Experimental and computational study of solvent effects on one- and two-photon absorption spectra of chlorinated harmines”.

171- 2015, M.L. Alomar, J.G. Yañuk, M.M. Gonzalez, F. Simon, R. Erra-Balsells, M. Rafti, F.M. Cabrerizo, *Phys. Chem. Chem. Phys.*, **17**, 12462-12465. “DNA damage induced by photoexcited bare and loaded Microporous Coordination Polymers”.

172- 2015- A. Bárcena, G. Petroselli, S.M. Velasquez, J.M. Estévez, R. Erra-Balsells, P.A. Balatti and M.C.N. Saparrat. *Mycol. Progress*, **14**, 1-11. “Response of the fungus *Pseudocercospora griseola f. mesoamericana* to Tricyclazole”. MALDI-MS application.

173- 2015. I. Maisuls, E. Wolcan, O.E. Piro, G.A. Echeverría, G. Petroselli, R. Erra-Balsells, F.M. Cabrerizo and G.T. Ruiz. *Dalton Trans.*, **44**, 17064–17074. “Norharmane rhenium(I) polypyridyl complexes: synthesis, structural and spectroscopic characterization”.

174- 2015. M.L. Salum, T. Schmidt De León and R. Erra-Balsells, *Anal. Methods*, **7**, 8478 – 8483. “Easy Protocol for Making a Good E-Sinapinic Acid Matrix for Neutral and Sulfated Carbohydrate MALDI-MS Analysis”.

175- 2016. M.J. Torres, C. Perez Brandan, G. Petroselli, R. Erra-Balsells and M.C. Audisio. *Microbiol. Research*, **182**, 31-39. “Antagonistic effects of Bacillus subtilis subsp. subtilis

and *B. amyloliquefaciens* against *Macrophomina phaseolina*: SEM study of fungal changes and UV-MALDI-TOF MS analysis of their bioactive compounds". MALDI-MS application.

176- 2016. M.C. Martínez-Ceron, S.L. Giudicessi, S.L. Saavedra, J.M. Gurevich-Messina, R. Erra-Balsells, F. Albericio, O. Cascone, S.A. Camperi, **Current Pharmaceutical Biotech.**, **17**, 449-457. doi:10.2174/1389201017666160114095553. "Latest advances in OBOC peptide libraries. Improvements in screening strategies and enlarging the family from linear to cyclic libraries". MALDI-MS application.

177- 2016. F.A.O. Rasse-Suriani, M.P. Denofrio, J.G. Yañuk, M.M. Gonzalez, E. Wolcan, R. Erra-Balsells and F.M. Cabrerizo, **Phys. Chem. Chem. Phys.**, **18**, 886 - 900. "Chemical and photochemical properties of chloroharmine derivatives in aqueous solutions".

178- 2016. D. Iguchi, R. Erra-Balsells and S.M. Bonesi, **Photochem Photobiol Sc.**, **15**, 105-116. "Photo-Fries rearrangement of aryl acetamides: regioselectivity induced by the green environment water/micella".

179- 2016. M.L. Salum J.Z. Dávalos, J. González, C. F.R.A.C. Lima, A.M. S. Silva, L.M.N.B.F. Santos and R. Erra-Balsells, **J. Chem. Thermodynamics**, **95**, 195-201. "Energetics of Neutral and Deprotonated Z-Cinnamic Acid".

180- 2016. T. Nakashima, H. Wada, S. Morita, R. Erra-Balsells, K. Hiraoka and H. Nonami, **Anal. Chem.**, **88**, 3049-3057. "Single-cell metabolite profiling of stalk and glandular cells of intact trichomes with internal electrode capillary pressure probe electrospray ionization mass spectrometry".

181- 2016. S.A. Camperi, S.L. Giudicessi, M.C. Martínez-Ceron, J.M. Gurevich-Messina, S.L. Saavedra, G. Acosta, O. Cascone, R. Erra-Balsells and F. Albericio, **Current Protocols in Chemical Biology** **8**, 109-130. doi: 10.1002/cpch.2. "Combinatorial library screening-mass spectrometry approaches to find valuable cyclic peptides". MALDI-MS application.

182- 2016, D. Iguchi, R. Erra-Balsells and, S.M. Bonesi, **Tetrahedron**, **12**, 1903-1919. "Formation of 2,2-dimethylchroman-4-ones during the photoinduced rearrangement of some aryl 3-methyl-2-butenolate esters. A mechanistic insight".

183- 2016, H.A. Garro, J. Morillas, E.F. Bruna-Haupt, G. Petroselli, C.R. Pungitore, C.E. Tonn and R. Erra-Balsells, **Int. J. Eng. Res. Appl.**, **6**, 84-90. "Physicochemical Properties and Proposed Mechanism in the Obtainment of 4-Hidroxicoumarin Conjugated Polymers Using MALDI-Tof Analysis".

184- 2016, T.L. Parapugna, G. Petroselli, R. Erra-Balsells and M. G. Lagorio, **Photochem Photobiol Sc.**, **15**, 879-888; doi: 10.1039/C6PP00054A. "Biospectroscopy, biospectrometry and imaging of *Ilex paraguariensis*. Basis for non-destructive quality evaluation using artificial vision". MALDI-MS application.

185- 2017, M.J Torres, C. Pérez Brandan, D.C Sabaté, G. Petroselli, R. Erra-Balsells and M.C. Audisio, *Biological Control*, **105**, 93-99, doi: 10.1016/j.biocontrol.2016.12.001. "Biological activity of the lipopeptide-producing 1 *Bacillus amyloliquefaciens* PGPBacCA1 on common bean *Phaseolus vulgaris* L. pathogens, Biological Control". MALDI-MS application.

186- 2017, M.L. Salum, S.L. Giudicessi, T. Schmidt De León, S.A. Camperi and R. Erra-Balsells. *J Mass Spectrom.*, **52**, 182-186, doi: 10.1002/jms.3908. "Application of Z-Sinapinic matrix in peptide MALDI-MS analysis".

187- 2017, Y. Gholipour, R. Erra-Balsells and H. Nonami, *Environ. Control in Biol.*, **55**, 41-51, doi: 10.2525/ecb.55.51. "Blossom End Rot Tomato Fruit Diagnosis for *In Situ* Cell Analyses with Real Time Pico-Pressure Probe Ionization Mass Spectrometry".

188- 2017, S.L. Giudicessi, M.L. Salum, S.L. Saavedra, M.C. Martínez-Ceron, O. Cascone, R. Erra-Balsells and S.A. Camperi. *J. Pep. Science*, **23**, 685-692. doi: 10.1002/psc.3012. "Simple method to assess stability of immobilized peptide ligands against proteases". MALDI-MS application.

189- 2017, D.C. Sabaté, C. Pérez Brandan, G. Petroselli, R. Erra-Balsells and M.C. Audisio, *Biological Control*, **113**, 1-8, doi: 10.1016/j.biocontrol.2017.06.008. "1-8. Decrease in the incidence of charcoal root rot in common bean (*Phaseolus vulgaris* L.) by *Bacillus amyloliquefaciens* with PGPR properties". MALDI-MS application.

190- 2017, H. Wada, C. Masumoto-Kubo, K. Tsutsumi, H. Nonami, F. Tanaka, H. Okada, R. Erra-Balsells, K. Hiraoka, T. Nakashima, M. Hakata and S. Morita, *PLoS ONE*, **12**, 1-12, e110374. doi: 10.1371/journal.pone.0181272. "Turgor-responsive starch phosphorylation in *Oryza sativa* stems: a primary event of starch degradation associated with grain-filling ability".

191- 2017, I. Maisuls, E. Wolcan, O.E. Piro, E.E. Castellano, G. Petroselli, R. Erra-Balsells, F.M. Cabrerizo and G.T. Ruiz, *ChemistrySelect*, **2**, 8666-8672. doi: 10.1002/slct.201701961. "Synthesis, characterization and cytotoxic activity of bis(norharmine)rhenium(I)tricarbonyl complex". MALDI-MS application

192- 2018, F.A.O. Rasse-Suriani, F.S. García-Einschlag, Matías Rafti, T. Schmidt De León, P.M. David Gara, R. Erra-Balsells and F.M. Cabrerizo, *Photochem. Photobiol.*, **94**, 36-51. doi: 10.1111/php.12811. "Chemical and photochemical characterization of normelinonine F, melinonine F and other related *N*-methyl- β -carboline derivatives".

193- 2018, M.L. González Pereyra, M.P. Martínez, G. Petroselli, R. Erra-Balsells and L.R. Cavaglieri, *Food Control*, **85**, 392-399. <https://doi.org/10.1016/j.foodcont.2017.10.020> "Antifungal and aflatoxin-reducing activity of extracellular compounds produced by soil *Bacillus* strains with potential application in agriculture". MALDI-MS application.

- 194- 2018, Y. Daglio, M.L. Salum, M.C. Rodríguez, R. Erra-Balsells and M.C. Matulewicz, *European J. Phycology.*, **53**, 422-432. doi: 10.1080/09670262.2018.1458336. "Rapid characterization and nutrient status *Halamphora luciae* 1 (Bacillariophyceae) using matrix-assisted ultraviolet laser-desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS)".
- 195- 2018, G. Petroselli, M. Raices, L.D. Jungblut, A.G. Pozzi, R. Erra-Balsells, *J. Mass Spectrom.*, **53**, 465-475. doi: 10.1002/jms.4082. "MALDI-MS argininylyl bufadienolide esters fingerprint from parotoid gland secretions of *Rhinella arenarum*: age, gender and seasonal variations"
- 196- 2018, J.G. Yañuk, M.P. Denofrio, F. A. O. Rasse-Suriani, F.D. Villarruel, F. Fassetta, F.S. García Einschlag, R. Erra-Balsells, B. Epe and F.M. Cabrerizo, *Org. Biomol. Chem.*, **16**, 2170-2184. doi: 10.1039/c8ob00162f. "DNA damage photoinduced by chloroharmine isomers: hydrolysis versus oxidation of nucleobases".
- 197- 2018, A. Baldessari, M. Kaniz Fatema, H. Nonami, R. Erra-Balsells, E.M. Rustoy. *Int. J. Innov. Sci. Res. Tech.*, **3**, 896-914. doi: IJISRT18FB265. "Candida Antarctica Lipase-Catalyzed Synthesis and Characterization of Novel Acrylic Teroligomers". MALDI-MS application.
- 198- 2018, S. Saavedra, M. Martínez Ceron, S. Giudicessi, G. Forno, M. Marani, R. Erra-Balsells, F. Albericio, Fernando; O. Cascone, S. Camperi, *Biotech. Progress*, **34**, 999-1005. doi: 10.1002/btpr.2645. "Single step recombinant human growth hormone (rhGH) purification from milk by peptide affinity chromatography". MALDI-MS application.
- 199- 2018, D.C. Sabaté, C. Pérez Brandan, G. Petroselli, R. Erra-Balsells, M. C. Audisio, *Microbiol. Research*, **211**, 21-30. <https://doi.org/10.1016/j.micres.2018.04.003>. "Biocontrol of *Sclerotinia sclerotiorum* (Lib.) de Bary on common bean by native lipopeptide-producing *Bacillus* strains". MALDI-MS application.
- 200- 2018- M.M. Gonzalez, A. Baiker, R. Erra-Balsells, H. Nitschko, F.M. Cabrerizo and M.G. Vizoso-Pinto, *Int. J. Antimicrob. Agents*, **52**, 459-468. doi: 10.1016/j.ijantimicag.2018.06.019. "β-Carboline derivatives as novel antivirals for herpes simplex viruses".
- 201- 2018, H. Wada, Y. Hatakeyama, Y. Onda, H. Nonami, T. Nakashima, R. Erra-Balsells, S. Morita, K. Hiraoka, F. Tanaka and H. Nakano, *J. Experimental Botany*, **70**, 1299-1311. doi: 10.1093/jxb/ery427. "Multiple strategies for heat adaptation to prevent chalkiness in the rice endosperm"
- 202- 2018, R. Medina, C.G. Lucentini, M.E.E. Franco, G. Petroselli, J.A. Rosso, R. Erra-Balsells, P.A. Balatti and M.C.N. Saparrat, *Heliyon*, **4**, e01036, 1-21. "*Fulvia fulva* (syn. *Cladosporium fulvum*) race 2 isolate CIDEFI 300 produces an intermediate of the 1,8-dihydroxynaphthalene-melanin synthesis". MALDI-MS application

203- 2019, G. Petroselli, T.L. Parapugna, M.G. Lagorio and R. Erra-Balsells, *J. Mass Spectrom.*, **54**, 195-203, doi: 10.1002/jms.4324. "MALDI- and LDI-MS saponin fingerprint of leaves and sticks components of commercial yerba mate (*Ilex paraguariensis*)".

204- 2019, G. López Isasmendi, A. Álvarez, G. Petroselli, R. Erra-Balsells and M.C. Audisio, *Microbiological Research*, **226**, 41-47, doi: 10.1016/j.micres.2019.05.006 "Aphicidal activity of *Bacillus amyloliquefaciens* strains in the peach-potato aphid (*Myzus persicae*)". MALDI-MS application

205- 2019, M.V. Rivas, G. Petroselli, R. Erra-Balsells, O. Varela and A.A. Kolender, *RSC Adv.*, **9**, 9860-9869, doi: 10.1039/c9ra00398c, "Synthesis, characterization and chemical degradation of poly(ester-triazole)s derived from D-galactose". MALDI-MS application

206- 2019, T. Schmidt De León, M.L. Salum and R. Erra-Balsells. *J Mass Spectrom.*, **54**, 643-654. doi: 10.1002/jms.4375. "norHarmane containing ionic liquid matrices for low molecular weight MALDI-MS carbohydrate analysis: The perfect couple with α -cyano-4-hydroxycinnamic acid".

207- 2019, F. Villarruel, M.P. Denofrio, Federico A. O. Rasse-Suriani, F.S. García Einschlag, T. Schmidt De León, R. Erra-Balsells and F.M. Cabrerizo. *J Photochem Photobiol B: Biology*, **199**, 111600. doi: <https://doi.org/10.1016/j.jphotobiol.2019.111600>. "Light as a source of full aromatization and hydroxylation of 7-methoxy-1-methyl-3,4-dihydro-2H-pyrido[3,4-b]indole alkaloid: oxygen partial pressure as a key modulator of the photoproducts distribution".

208- 2019, L.O. Reid, M. L. Dántola, G. Petroselli, R. Erra-Balsells, V. Lhiaubet-Vallet and A.H. Thomas. *Chem. Res. Toxicol.*, **32**, 2250-2259. doi: 10.1021/acs.chemrestox.9b00286. "Chemical modifications of globular proteins phototriggered by an endogenous photosensitizer".

209- 2020, G.R. Barredo, S.L. Giudicessi, M.C. Martínez Ceron, S. Saavedra, S. Rodriguez, L. Filgueira Risso, R. Erra-Balsells, G. Mahler, F. Albericio, O. Cascone and S.A. Camperi, *MethodsX*, **7** (in press), doi: <https://doi.org/10.1016/j.mex.2019.12.010>. "Protocol for bevacizumab purification using Ac-PHQGQHIGVSK-agarose". MALDI application.

210- 2020, D.C. Petroselli, G. Sabaté, R. Erra-Balsells, M.C. Audisio and C. Pérez Brandan, *Biological Control*, **141**, 104131. doi: <https://doi.org/10.1016/j.biocontrol.2019.104131>. "Beneficial effect of *Bacillus* sp. P12 on soil biological activities and pathogen control in common bean". MALDI application.

211- 2020, G.R. Barredo, S.L. Giudicessi, M.C. Martínez Ceron, S.L. Saavedra, S. Rodriguez, L. Filgueira Risso, R. Erra-Balsells, O. Cascone and S.A. Camperi. *Protein Expression and Purification*, **165**, 105500. <https://doi.org/10.1016/j.pep.2019.105500>. "A short peptide fragment of the vascular endothelial growth factor as a novel ligand for bevacizumab purification". MALDI application.

REVIEWS IN ARGENTINE SCIENCE ACADEMY JOURNALS

- 2009, A.S. Cerezo, R. Erra-Balsells, H. Nonami and J.M. Scacciati de Cerezo. "Physical Methods in the study of Biopolymers. UV-MALDI-mass spectrometry in the characterization of (glyco)proteins of seminal plasma". *An. Soc. Cien. Arg.*, 238 (1), 15-29.
- 2009, A.S. Cerezo, J.M. Scacciati de Cerezo and R. Erra-Balsells, "Soft-Ionization Mass Spectrometry Techniques in Biosciences". *An. Soc. Cien. Arg.*, 240 (3), 5-22.
- 2015. F.M. Cabrerizo, M.M. Gonzalez, M. Vignoni, M.P. Denofrio and R. Erra-Balsells, "Propiedades fotosensibilizadoras de β -carbolinas: daño al ADN en condiciones intra- y extra-celulares". *Anales Acad. Nac. Cs. Ex., Fís. y Nat. (Argentina)*, 67, 41-62 (review).

CHAPTERS IN BOOKS

- 1986, R. Erra-Balsells, Láseres en medicina, Cap. XIV, "Nociones de Fotoquímica", CEILAP-CITEFA-CONICET (OEA, OMS, OPS), Buenos Aires. Argentina.
- 1986, R. Erra-Balsells, Fundamentos de la Química de los Compuestos de Carbono. Vol 1, "Estructura y Propiedades Físicas". Pro-Ciencia - CONICET, Programa de Perfeccionamiento docente, Buenos Aires. Argentina. Pgs. 12-110.
- 1987, R. Erra-Balsells, Fundamentos de la Química de los Compuestos de Carbono. Vol. 2, "Espectroscopía y Estructura". Pro-Ciencia - CONICET, Programa de Perfeccionamiento docente, Buenos Aires. Argentina. Pgs. 110-208; 210.
- 1995, R. Erra-Balsells (asesora científica), Ludovico en el Museo por Maria E. Lopez, Tercer libro de lectura, Angel Estrada CIA, Buenos Aires, Argentina. Pgs. 143.
- 2004, R. Erra-Balsells en Química Verde en Latinoamérica, Cap. 9. Pg. 295-316. "Química de indoles, benzoindoles y piridoindoles. Uso de reacciones fotoquímicas de bio-moléculas en solución y en medio sólido como herramientas alternativas para disminuir la posible contaminación ambiental", GREEN CHEMISTRY SERIES No 11, P. Tundo and R. Hoyos de Rossi (eds.). INCA (Consorzio Interuniversitario "La Chimica per L'Ambiente" (IUPAC 2002-064-1-300), Viale della Liberta 5/12 Marghera, Venezia, Italia.
- 2004, R. Erra-Balsells, "Del volar de las proteínas y de como lograrlo (Espectrometría de masa UV-MALDI)", *Química Viva*, 3 (2), 56-69 (2004). Pgs 1-13.
www.quimicaviva.qb.fcen.uba.ar
- 2004, R. Erra-Balsells, "Del volar de las proteínas y de como lograrlo (Espectrometría de masa ESI)", *Química Viva*, 3 (3), 96-121 (2004). Pgs 1-25.
www.quimicaviva.qb.fcen.uba.ar

-2005, R. Erra-Balsells in *New Agricultural Environmental Engineering Perspectives of the 21st Century*, Chap. 8. Pg. 158-159. "Identification and Structural Analysis of Biomolecules with Mass Spectrometry. 2. MS/MS Analysis". Japanese Society of Environmental Control in Biology. YOKENDO Ltd. Tokyo, Japan.

-2008, S. M. Bonesi and R. Erra-Balsells in *Photochemistry Research Progress*, Chap. 10, pgs. 325-372. "Benzoindoles and piridoindoles. Rewiewing their Photochemistry and Applications in Comparative way. Part I: Photochemistry of Benzoindoles (Carbazoles)". A. Sanchez and S. J. Gutierrez (eds.). NovaScience. India.

-2009, S. M. Bonesi and R. Erra-Balsells, "Photochemistry of carbazoles and its application in organic synthesis". Research trens series, Trends in Heterocyclic Chemistry, 14 (7) 39-77. India.

-2013, R. Erra-Balsells in *Fundamentals of Mass Spectrometry*. K. Hiraoka (ed.). Chap. 9, pgs 173-197. "MALDI: A very Useful UV Light-Induced Process ...That Still Remains Quite Obscure". Springer-Verlag, Berlin, Germany.

-2015, Y. Gholipour, R. Erra-Balsells and H. Nonami in *Nanotechnology and Plant Sciences*, M.H. Siddiqui et al. (eds.), Chap. 14, pgs. 289-303. "Nanoparticles Applied to Mass Spectrometry Metabolomics and Pesticide Residue Analysis". Springer International Publishing, Berna, Switzerland.

MAIN GOALS

Speciality: Organic Photochemistry; Mass spectrometry; UV-MALDI-MS

Main Goal as scientific researcher:

Photochemistry:

- (i) Hydrogen bond control in photochemical radical dimerization of alcohols.
- (ii) Description of photochemistry and photobiology of β -carbolines (pyridoindole alkaloids)
- (iii) Foto-Fries rearrangement applications in Organic Synthesis
- (iv) Photo-isomerization of organic Ionic Liquids as a tool for "one-pot" synthesis of Z-cinnamic acids
- (v) Photo and thermal stability of classical and new MALDI matrix.
- (vi) Optoacoustic of classical and new MALDI matrix.

Mass Spectrometry:

- (i) Introduction of nor-harmane (member of β -carboline family) as new MALDI matrix quite efficient in negative ion mode (i.e., carbohydrate analysis,, lipopeptides, liposugars, etc.)
- (ii) Application of PESI-MS for organometalics analysis (cooperation with Prof. Hiraoka, Yamanashi University, Japan).
- (iii) Introduction of Z-Sinapinic acid as new MALDI matrix quite efficient in carbohydrates as well as in low molecular weight (LMW) peptides analysis.

- (iv) Introduction of picoPPESI (pico Pressure Probe ElectroSpray Ionization) method for intact tissue single cell analysis (cooperation with prof. Nonami, Ehime University, Japan).
- (v) Introduction of nor-harmane:CHCA ionic liquid as new MALDI matrix quite efficient in low molecular weight (LMW) carbohydrate analysis.

Main Goals as researcher / professor in University of Buenos Aires (UBA) (Argentina):

- (vi) (i) Organization of the organic photochemistry research group focusing specially the attention on MALDI process in Departamento de Química Orgánica (DQO), Facultad de Ciencias Exactas y Naturales (FCEN), University of Buenos Aires UBA (Argentina).
- (vii) (ii) Since 2001 - Organization of a Mass Spectrometry course renewing/refreshing continuously the contents according to the advances in the field with the aim to spread all over Argentina the bases and applications of modern MS. It has been presented, as intensive course (60 h, 2 weeks) several times in DQO, FCEN, UBA, as a special post-graduate course on MS (Tópicos en Espectrometría de Masa) and in other Argentine national universities (i.e., University of Rosario, University of Luján, University of San Martín, University of Mar del Plata).
- (viii) (iii) Since 1974 – With similar aims indicated above, offering an Organic Photochemistry course for undergraduate and doctoral students. It has been presented, as semester course firstly in the DQO, FCEN, UBA and since 1990's as a shared course by the departments of Organic Chemistry (DQO FCEN, UBA) and Physical Chemistry (DQI, AyQF, FCEN, UBA).

Buenos Aires, Argentina, January 2020.