

**CURRICULUM VITAE**  
**of**  
**José Abrunheiro da Silva Cavaleiro**  
(*Professor, University of Aveiro, Aveiro / Portugal*)

Educational Qualifications

B. Sc., University of Coimbra, 1965;  
Ph. D. in Organic Chemistry, University of Liverpool, 1973;  
Habilitation (Agregação) in Chemistry, University of Aveiro, 1984.

Prizes

1973: Parke-Davis Prize for best research in Organic Chemistry in the Robert Robinson Laboratories, University of Liverpool, UK.  
2004: “Ferreira da Silva” Prize, Portuguese Chemical Society, 16<sup>th</sup> April.  
2004: “Estímulo à Excelência—Stimulus to Excelency” Prize, Portuguese Ministry of Science and Technology, 25<sup>th</sup> November.  
2005: Scientific Prize Celestino da Costa /Jean Perrin, Lisbon French Embassy /APDF.  
2010: Spanish-Portuguese (Madinaveitia-Lourenço) Prize, Spanish Royal Society of Chemistry.

Academic Societies

JAS Cavaleiro was elected, respectively in December 15th and 22nd, 2009 for the Lisbon Academy of Sciences (Academia das Ciências de Lisboa) and for the Brazilian Academy of Sciences (Academia Brasileira de Ciências).

Particular Responsibilities

Responsible for the organic chemistry research group in the University of Aveiro since 1976.  
Supervisor of University Assistants, Ph. D. and M. Sc. Postgraduate Research Students. Projects’ coordinator of several postdoctoral fellows.  
Head of the Department of Chemistry, University of Aveiro during 8 years.  
Partner of european projects working groups. Coordinator or partner of national projects.  
National representative in the IUPAC Commission on Physical Organic Chemistry (1992-1997). Coordinator of research agreements between the Organic Chemistry group/Aveiro University and Brazilian University groups.

Chairman of the XIXth European Colloquium on Heterocyclic Chemistry (Aveiro, July, 2000).

Referee for the following publications: Journal of Organic Chemistry, Inorganic Chemistry, Journal of Porphyrins and Phthalocyanines, European Journal of Organic Chemistry, Natural Products Letters, Natural Product Research, Tetrahedron, Mendeleev Communications, Jordan Journal of Chemistry, Heterocyclic Communications, Journal of Heterocyclic Chemistry, Tetrahedron Letters, Journal of Catalysis, Journal of the American Chemical Society, Organic Letters.

Editorial Board member of the *European Journal of Organic Chemistry* from January /99 to December /2008 and also of *Asian Journal of Chemistry* since September /2008, of *Mini Reviews in Organic Chemistry* since November /09 and also of *Letters in Organic Chemistry* since January /2010.

Member of the international scientific committee of the *European Colloquium on Heterocyclic Chemistry* meeting series since September /2008.

Research Interests:

His research interests are centred on searching new synthetic methodologies leading to porphyrin and polyphenolic derivatives. Medicinal, catalytical and other potential applications for the new products are also considered.

His working lines are then the following:

Synthesis of Porphyrins and related compounds; studies on the potential medicinal applications of such heterocycles (e.g., in photodynamic therapy of cancer cells, also as antibacterial and antifungal photoinactivation agents). Metalloporphyrins as oxidative catalysts. Biomimetic oxidations and the synthesis of possible metabolites. Catalytical oxidative transformations of natural compounds into other value-added products and assessment of the biocidal and antioxidant features of such compounds.

Synthesis, isolation and structural characterization of natural compounds (mainly terpenoids and flavonoids).

**PATENTS:**

3 Patents on potential applications of porphyrins as antimicrobial agents.

**PUBLICATIONS:**

*h Index*: 41 (8 by searching JA Cavaleiro –1967-1974 and 33 by searching JAS Cavaleiro – 1976-2013).

Author of 408 publications in organic chemistry scientific journals.

Recent publications (2012→2013) are shown below.

“Flavone--Nitrogen Heterocycle Conjugate Formation by 1,3-Dipolar Cycloadditions”, R. M. S. Sousa, D. C. G. A. Pinto, A. M. S. Silva, V. V. Serra, A. I. R. N. A. Barros, M. A. F. Faustino, M. G. P. M. S. Neves and J. A. S. Cavaleiro, *Eur. J. Org. Chem.*, 2012, 132-143

“Ligand design for functional metal–organic frameworks”, F. A. A. Paz, J. Klinowski, S. M. F. Vilela, J. P. C. Tomé, J. A. S. Cavaleiro and J. Rocha, *Chem. Soc. Rev.*, 2012, **41**, 1088-1110

“A New Synthesis of 5-Arylbenzo[*c*]xanthenes from Photoinduced Electrocyclisation and Oxidation of (*E*)-3-Styrylflavones”, D. H. A. Rocha, D. C. G. A. Pinto, A. M. S. Silva, T. Patonay and J. A. S. Cavaleiro, *Synlett*, 2012, **23**, 559-564

“Synthesis and Photophysical Properties of Fullerene-Phthalocyanine-Porphyrin Triads and Pentads”, R. F. Enes, J. J. Cid, A. Hausmann, O. Trukhina, A. Gouloumis, P. Vazquez, J. A. S. Cavaleiro, A. C. Tomé, D. M. Guldi and T. Torres, *Chem. Eur. J.*, 2012, **18**, 1727-1736 DOI: 10.1002/chem.201102819

“Porphyrin-Phthalocyanine/Pyridylfullerene Supramolecular Assembled Systems”, A. M. V. M. Pereira, A. Hausmann, J. P. C. Tomé, O. Trukhina, M. Urbani, M. G. P. M. S. Neves, J. A. S. Cavaleiro, D. M. Guldi and T. Torres, *Chem. Eur. J.*, 2012, **18**, 3210-3219 DOI: 10.1002/chem.201103776

“Diels–Alder Reactions of (*E*)-2-Styrylquinolin-4(1*H*)-ones with *N*-Methylmaleimide: New Syntheses of Acridin-9(10*H*)-ones”, A. I. S. Almeida, V. L. M. Silva, A. M. S. Silva, D. C. G. A. Pinto and J. A. S. Cavaleiro, *Synlett*, 2012, **23**, 889-892

“Porphyrin and phthalocyanine glycodendritic conjugates: synthesis, photophysical and photochemical properties”, S. Silva, P. M. R. Pereira, P. Silva, F. A. Almeida Paz, M. A. F. Faustino, J. A. S. Cavaleiro and J. P. C. Tomé, *Chem. Commun.*, 2012, **48**, 3608-3610 DOI: 10.1039/c2cc17561d

“Reorganization of Self-Assembled Dipeptide Porphyrin *J*-Aggregates in Water-Ethanol Mixtures”, R. Teixeira, S. M. Andrade, V. V. Serra, P. M. R. Paulo, A. Sánchez-Coronilla, M. G. P. M. S. Neves, J. A. S. Cavaleiro and S. M. B. Costa, *J. Phys. Chem. B.*, 2012, **116**, 2396-2404

“Tetrahydroquinazoline-substituted chromones from Diels–Alder reaction of (E)-2-styrylchromones and pyrimidine *ortho*-quinodimethane”, D. T. Patoilo, A. M. S. Silva, D. C. G. A. Pinto, C. M. M. Santos, A. C. Tomé and J. A. S. Cavaleiro, *Tetrahedron Lett.*, 2012, **53**, 2722-2725

“A new synthesis of novel alkenylated flavones by palladiumcatalyzed cross-coupling reactions”, S. Fekete, T. Patonay, A. M. S. Silva and José A. S. Cavaleiro, *Arkivoc*, 2012, 210-225

“Facile synthesis of hydrogenated reduced graphene oxide via hydrogen spillover mechanism”, R. Krishna, E. Titus, L. C. Costa, J. C. J.M. D. S. Menezes, M. R. P. Correia, S. Pinto, J. Ventura, J. P. Araújo, J. A. S. Cavaleiro and J. J. A. Grácio, *J. Mater. Chem.*, 2012, **22**, 10457-10459 DOI: 10.1039/c2jm30945a

“A new synthetic approach to benzoporphyrins and Krohnke type porphyrin-2-ylpyridines”, N. M. M. Moura, M. A. F. Faustino, M. G. P. M. S. Neves, F. A. Almeida Paz, A. M. S. Silva, A. C. Tomé and J. A. S. Cavaleiro, *Chem. Commun.*, 2012, **48**, 6142-6144

“O Uso de Porfirinas em Terapia Fotodinâmica no Tratamento da Leishmaniose Cutânea”, M. M. Bastos, N. Boechat, A. T. P. C. Gomes, M. G. P. M. S. Neves, J. A. S. Cavaleiro, *Rev. Virtual Quím.*, 2012, **4**, 257-267

“Synthesis of porphyrin indolin-2-one conjugates *via* palladium-catalyzed amination reactions”, J. C. J. M. D. S. Menezes, A. M. V. M. Pereira, M. G. P. M. S. Neves, A. M. S. Silva, S. M. Santos, S. T. Martinez, B. V. Silva, A. C. Pinto, J. A. S. Cavaleiro, *Tetrahedron*, 2012, **68**, 8330-8339 DOI: 10.1016/j.tet.2012.07.024

“Biomimetic Oxidation of Carbamazepine with Hydrogen Peroxide Catalyzed by a Manganese Porphyrin”, C. M. B. Neves, M. M. Q. Simões, F. M. J. Domingues, M. G. P. M. S. Neves and J. A. S. Cavaleiro, *Quim. Nova*, 2012, **35**, 1477-1481

“Corroles as anion chemosensors: exploiting their fluorescence behaviour from solution to solid-supported devices”, C. I. M. Santos, E. Oliveira, J. F. B. Barata, M. A. F. Faustino, J. A. S. Cavaleiro, M. G. P. M. S. Neves and C. Lodeiro, *J. Mater. Chem.*, 2012, **22**, 13811-13819 DOI: 10.1039/c2jm31281f

“Photodynamic oxidation of membrane phospholipids of *Escherichia coli*: new insights based on lipidomics”, T. Melo, N. Santos, C. Simões, M. A. F. Faustino, J. P.

Tomé, M. G. P. M. S. Neves, J. A. S. Cavaleiro, M. Cunha, M. R. M. Domingues, M. Almeida and P. Domingues, *Rapid Commun. Mass Spectrom.*, 2012, in press

“Oxidation of diclofenac catalyzed by manganese porphyrins: synthesis of novel diclofenac derivatives”, C.M. B. Neves, M. M. Q. Simões, M. R. M. Domingues, I. C. M. S. Santos, M. G. P. M. S. Neves, F. A. A. Paz, A. M. S. Silva and José A. S. Cavaleiro, *RSC Advances*, 2012, **2**, 7427-7438 DOI: 10.1039/C2RA20801F

“New Syntheses of 3-Aroylflavone Derivatives; Knoevenagel Condensation and Oxidation versus One-Pot Synthesis”, P. A. A. M. Vaz, D. C. G. A. Pinto, D. H. A. Rocha, A. M. S. Silva and J. A. S. Cavaleiro, *Synlett*, 2012, **23**, 2353-2356 DOI: 10.1055/s-0032-1317159

“Photo-inactivation of *Bacillus* endospores: inter-specific variability of inactivation efficiency”, R. N. Silva, A. C. Tomé, J. P. C. Tomé, M. G. P. M. S. Neves, M. A. F. Faustino, J. A. S. Cavaleiro, A. Gouveia, A. Almeida and Â. Cunha, *Microbiol. Immunol.*, 2012, **56**, 692-699 DOI: 10.1111/j.1348-0421.2012.00493.x

“Pentafluorophenylcorrole-D-galactose conjugates”, T. A. F. Cardote, J. F. B. Barata, M. A. F. Faustino, A. Preuß, M. G. P. M. S. Neves, J. A. S. Cavaleiro, C. I. V. Ramos, M. G. O. S. Marques and B. Röder, *Tetrahedron Lett.*, 2012, **53**, 6388-6393.

“Alkylation and 1,3-Dipolar Cycloaddition of 6-Styryl-4,5-Dihydro-2H-Pyridazin-3-One: Synthesis of Novel N-Substituted Pyridazinones and Triazolo[4,3-b]Pyridazinones”, S. Mojahidi, H. Sekkak, El M. Rakib, M. G. P. M. S. Neves, M. A. F. Faustino, J. A. S. Cavaleiro and H. Zouihri, *J. Chem.*, 2013, 1-7 DOI: 10.1155

“Corrole-silica hybrid particles: synthesis and effects on singlet oxygen generation”, J. F. B. Barata, A. L. D. Silva, M. G. P. M. S. Neves, J. A. S. Cavaleiro and T. Trindade, *RSC Advances*, 2013, **3**, 274-280 DOI: 10.1039/c2ra22133k

“Consecutive Tandem Cycloaddition Between Nitriles and Azides; Synthesis of 5-Amino-1*H*-[1,2,3]-triazoles”, A. T. P. C. Gomes, P. R. C. Martins, D. R. Rocha, M. G. P. M. S. Neves, V. F. Ferreira, A. M. S. Silva, J. A. S. Cavaleiro and F. C. Silva, *Synlett*, 2013, **24**, 41-44 DOI: 10.1055/s-0032-1317712

“Cationic galactoporphyrin photosensitisers against UV-B resistant bacteria: oxidation of lipids and proteins by  $^1\text{O}_2$ ”, M. C. Gomes, S. Silva, M. A. F. Faustino, M. G. P. M. S. Neves, A. Almeida, J. A. S. Cavaleiro, J. P. C. Tomé and Â. Cunha, *Photochem. Photobiol. Sci.*, 2013, **12**, 262.

“Involvement of type I and type II mechanisms on the photoinactivation of non-enveloped DNA and RNA bacteriophages”, L. Costa, M. A. F. Faustino, J. P. C. Tomé, M. G. P. M. S. Neves, A. C. Tomé, J. A. S. Cavaleiro, Â. Cunha and A. Almeida, *J. Photochem. Photobiol. B: Biology*, 2013, **120**, 10-16.

“Synthesis of beta-Substituted Porphyrin Derivatives Containing Heterocyclic Moieties as Potential Photosensitizers Against Cutaneous Leishmaniasis”, M. M.

Bastos, A. T. P. C. Gomes, M. G. P. M. S. Neves, A. M. S. Silva, O. A. Santos-Filho, N. Boechat and J. A. S. Cavaleiro, *Eur. J. Org. Chem.*, 2013, 1485-1493  
DOI: 10.1002/ejoc.201201501

“Ohmic heating as a new efficient process for organic synthesis in water”, J. Pinto, V. L. M. Silva, A. M. G. Silva, A. M. S. Silva, J. C. S. Costa, L. M. N. B. F. Santos, R. Enes, J. A. S. Cavaleiro, A. A. M. O. S. Vicente and J. A. C. Teixeira, *Green Chem.*, 2013, **15**, 970-975  
DOI: 10.1039/c3gc36881e

“Catalytic performance of a boron peroxotungstate complex under homogeneous and heterogeneous conditions”, I. C. M. S. Santos, S. S. Balula, M. M. Q. Simões, L. Cunha-Silva, M. G. P. M. S. Neves, B. Castro, A. M. V. Cavaleiro and J. A. S. Cavaleiro, *Catalysis Today*, 2013, **203**, 87-94. DOI:10.1016/j.cattod.2012.03.071

“Phosphotungstates as catalysts for monoterpenes oxidation: Homo- and heterogeneous performance”, S. S. Balula, I. C. M. S. Santos, L. Cunha-Silva, A. : Carvalho, J. Pires, C. Freire, J. A. S. Cavaleiro, B. Castro and A. M. V. Cavaleiro, *Catalysis Today*, 2013, **203**, 95-102. DOI: 10.1016/j.cattod.2012.02.020

“Nucleic acid changes during photodynamic inactivation of bacteria by cationic porphyrins”, E. Alves, M. A. F. Faustino, J. P. C. Tomé, A. C. Tomé, J. A. S. Cavaleiro, Â. Cunha, N. C. M. Gomes and A. Almeida, *Bioorg. Med. Chem.*, 2013, **21**, 4311-4318 DOI.ORG/10.1016/j.bmc.2013.04.065

“Mimicking P<sub>450</sub> processes and the use of metalloporphyrins”, M. M. Q. Simões, C. M. B. Neves, S. M. G. Pires, M. G. P. M. S. Neves and J. A. S. Cavaleiro, *Pure Appl. Chem.*, 2013, **85**, 1671-1681 DOI: 10.1351/PAC-CON-12-11-15

“meso-Tetraphenylbenzoporphyrin-2<sup>2</sup>,2<sup>3</sup>-dicarboxylic Anhydride: A Platform to Benzoporphyrin Derivatives”, C. M. B. Carvalho, S. M. Santos, M. G. P. M. S. Neves, A. C. Tomé, A. M. S. Silva, J. Rocha and J. A. S. Cavaleiro, *J. Org. Chem.*, 2013, **78**, 6622-6631 DOI.ORG/10.1021/jo400948s