## Professor António M. d'A. Rocha Gonsalves

## **A** Tribute



A Tribute on the occasion of his 70th anniversary

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This special issue of Arkivoc is dedicated to Professor António M. d'A. Rocha Gonsalves, to commemorate his 70<sup>th</sup> birthday and to acknowledge his achievements as an organic chemist.

António Rocha Gonsalves was born in Coimbra, Portugal, on January 14th, 1939. He graduated in Chemistry at the University of Coimbra in 1964 and immediately started his academic career as Assistant-Lecturer in Organic Chemistry. Soon after, however, his academic career was interrupted between 1966 and 1969, by compulsory army service. During this period he was placed at the University of Lourenço Marques, Mozambique ("Estudos Gerais Universitários") where he lectured as second assistant.

Having finished his army service in October 1969, he went to the University of Liverpool, U.K., where under the supervision of Prof. G. W. Kenner and with the guidance and advice of Dr. K. M. Smith, he started working on his Ph.D. He completed his Ph.D. in July, 1972 with a thesis entitled "Synthetic Porphyrins for Haemoprotein Studies". This research topic remained with him throughout his academic career.

In 1973, on returning from Liverpool, he was appointed Auxiliary Professor at the University of Coimbra. In 1975 he obtained his Habilitation in Chemistry and in 1981 he was promoted to

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the position of Full Professor in Organic Chemistry (Professor Catedrático de Química Orgânica).

Always ready to undertake academic responsibilities, he was Head of the Chemistry Department from 1986-1988 and from 1995-1999, President of the Scientific Committee of the Chemistry Department from 1995-1997 and Scientific Coordinator of the Chemistry Centre from 1983-1999. He also represented the Chemistry Group in the Coordinating Committee of the Scientific Council of the Faculty of Sciences and Technology of the University of Coimbra from 1978-1981.

The research interests of Prof. António Rocha Gonsalves have always focused on organic synthesis. In particular, he has always been interested in the synthesis of tetrapyrrolic macrocycles, their metal complexes and their application as catalysts, photodynamic therapy agents and molecular films. Other interests include the synthesis of heterocyclic compounds, asymmetric catalysis, industrial chemistry and quality control.

Throughout his career, he has supervised 12 Ph D. theses with 2 more underway and 13 MSc theses. He has published over 130 papers in scientific journals (ISI Web of Science, h-index = 18) and several patents. As a consequence of his productivity and of his contribution to Chemistry in Portugal, Prof. António Rocha Gonsalves was awarded the "Estimulo à Excelência" Prize by the Portuguese Research Council (Fundação para a Ciência e a Tecnologia, FCT).

He has always been interested in collaborating with chemical and pharmaceutical companies and throughout the years, he has supervised numerous joint research projects aimed at the synthesis of new compounds with therapeutic potential or the development of new synthetic routes for pharmaceuticals. Collaborations with industry have also included projects related to resins, paints, paper, and others.

In view of a lifetime dedicated to Chemistry, a tribute to Prof. António Rocha Gonsalves with the publication of this special issue of ARKIVOC is fully deserved.

Teresa M. V. D. Pinho e Melo

## Selected Publications and Patents of Professor António M. d'A. Rocha Gonsalves

- 1. Rocha Gonsalves, A. M. d'A.; Kenner, G.W.; Smith, K. M. Novel synthesis of deuteriated derivatives of protoporpyrin-IX. *Chem. Comm.* **1971**, 1304.
- 2. Rocha Gonsalves, A. M. d'A.; Smith, K. M.; Kenner, G. W. Pyrromethane (Dipyrrylmethane) and tripyrrane synthesis. *Tetrahedron Lett.* **1972**, *13*, 2203.
- 3. Rocha Gonsalves, A. M. d'A.; Pereira, M. M. J. A new look into the Rothemund mesotetraalkyl and tetraarylporphyrin synthesis. *Heterocyclic Chem.* **1985**, 22, 931.

- 4. Rocha Gonsalves, A. M. d'A.; Johnstone, R. A.W.; Pereira, M. M.; Shaw, J. Metal-assisted reactions. Part 21. Epoxidation of alkenes catalysed by manganese-porphyrins: the effect of various oxidatively-stable ligands and bases. *J. Chem. Soc.*, *Perkin Trans. I* **1991**, 645.
- 5. Rocha Gonsalves, A. M. d'A.; Pereira, M. M.; Serra, A. C.; Johnstone, R. A.W.; Nunes, M. L. P. G. 5,10,15,20-Tetrakisaryl and 2,3,7,8,12,13,17,18-octahalogen-5,10,15,20-tetrakisarylporphyrins and their metal-complexes as catalysts in hypochlorite epoxidations. *J. Chem. Soc., Perkin Trans I* **1994**, 2053.
- 6. Johnstone, R. A.W.; Nunes, M. L. P. G.; Pereira, M. M.; Rocha Gonsalves, A. M. d'A.; Serra, A. C. Improved synthesis of 5,10,15,20-tetrakisaryl- and tetrakis-alkylporphyrins. *Heterocycles* **1996**, *43*, 1423.
- 7. Rocha Gonsalves, A. M. d'A.; Johnstone, R. A.W.; Pereira, M. M.; Santana, A. M. P.; Serra, A. C.; Sobral, A. J. F. N.; Stocks, P. A. New procedures for synthesis and analysis of 5,10,15,20-tetrakis(sulphophenyl) porphyrins and derivatives through chlorosulphonation. *Heterocycles* **1996**, *43*, 829.
- 8. Rocha Gonsalves, A. M. d'A.; Pereira, M. M.; Serra, A. C. Sulphonamide porphyrins in the biometic oxidation by H<sub>2</sub>O<sub>2</sub>. An efficient two phase system. *Annales de Quimica, Intern. Edit.* **1996**, *92*, 375.
- 9. Rocha Gonsalves, A. M. d'A.; Cabral, A. M. T. D. P. V.; Pinho e Melo, T. M. V. D.; Gilchrist, T. L. The reaction of an α-oxophosphonium ylide with halogens: 2,3-disubstituted diethyl butenedioates from diethyl 2-oxo-3-triphenylphosphoranylidene-butadioate. *Synthesis* **1997**, 673.
- 10. Rocha Gonsalves, A. M. d'A.; Serra, A. C. On the mechanism of carboxylic acid co-catalyst assisted metalloporphyrin oxidations. *J. Molec. Cat. A, Chemical* **2001**, *168*, 25.
- 11. Rocha Gonsalves, A. M. d'A.; Serra, A. C Observations on the origin of phenylacetaldehyde in styrene epoxidation and the mechanism of oxidations catalysed by manganese complexes of porphyrins. *J. Chem. Soc.*, *Perkin Trans.* 2 **2002**, 715.
- 12. Rocha Gonsalves, A. M. d'A.; Serra, A. C.; Pineiro M. Tetrapyrrolic macrocycles as photodynamic agents. WO 03/064427, PCT/EP03/00829.
- 13. Serra, A. C.; Marçalo, E. C.; Rocha Gonsalves, A. M. d'A. A View on the Mechanism of Metalloporphyrin Degradation in Hydrogen Peroxide Epoxidation Reactions. *J. Molec. Cat. A, Chemical* **2004**, *215*, 17.
- 14. Serra, A. C.; Docal, C.; Rocha Gonsalves, A. M. d'A. Efficient azo dye degradation by hydrogen peroxide oxidation with metalloporphyrins as catalysts. *J. Molec. Cat. A, Chemical* **2005**, 238, 192.
- 15. Nascimento, B. F. O.; Pineiro, Rocha Gonsalves, A. M. d'A.; Ramos Silva, M.; Beja, A. M.; Paixão, J. A. Microwave-assisted synthesis of porphyrins and metalloporphyrins: a rapid and efficient synthetic method. *J. Porph. Phthal.* **2007**,11,77.
- 16. Ribeiro, S. M.; Serra, A. C.; Rocha Gonsalves, A. M. d'A. Covalently immobilized porphyrins as photooxidation catalysts. *Tetrahedron* **2007**, *63*, 7885.

- 17. Serra, A. C.; Pineiro, M.; Rocha Gonsalves, A. M. d'A.; Abrantes, M.; Laranjo, M.; Santos, A. C.; Botelho, M. F. Halogen atom effect on photophysical and photodynamic characteristics of derivatives of 5,10,15,20-tetrakis(3-hydroxyphenyl)porphyrin. *J. Photochem. Photobiol. B: Biol.* **2008**, *92*, 59.
- 18. Serra, A. C.; Pineiro, M.; Pereira, N.; Rocha Gonsalves, A. M. d'A.; Laranjo, M.; Abrantes, M.; Botelho, F. A look at clinical applications and developments of photodinamic therapy. *Oncol. Rev.* **2008**, *2*, 235.
- 19. Rocha Gonsalves, A. M. d'A.; Serra, A. C.; Pineiro, M. The Small Stones of Coimbra in the Huge Tetrapyrrolic Chemistry Building. *J. Porph. Phthal.* **2009**, *4*, in press.