

# *CURRICULUM VITÆ* | Hélio M. T. Albuquerque

## I. Personal data

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**Full name:** HÉLIO MIGUEL TEIXEIRA ALBUQUERQUE

**Birth date:** 11/09/1985

**Birth place:** Figueiró-Santiago, Amarante


**Nationality:** Portuguese


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## II. Academic education

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- 2017

**Doctoral Program in Chemistry** (3<sup>rd</sup> cycle), University of Aveiro.

PhD thesis: “Cycloaddition and conjugate addition reactions of C-2 substituted chromones with unsaturated systems”, supervised by Prof. Dr. Artur Silva, QOPNA, Department of Chemistry, University of Aveiro.

- 2009

**Master’s degree in chemistry** (2<sup>nd</sup> cycle), Faculty of Sciences, University of Porto, final grade 16 out of 20.

Master’s thesis: “Location and antioxidant activity of olive oil polyphenols in model food emulsions”, 18 out of 20, supervised by Dr. Fátima Paiva-Martins, CIQ – UP, Department of Chemistry, Faculty of Sciences, University of Porto and Dr. Carlos Bravo-Díaz, Department of Physical Chemistry, University of Vigo.

- 2007

**First degree in Chemistry** (1<sup>st</sup> cycle), Faculty of Sciences, University of Porto, final grade 12 out of 20.

### III. Professional activities

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September 2017 - present	Post-Doc fellow within the “ <i>pAGE: Protein aggregation across the lifespan</i> ” project (CENTRO-01-0145-FEDER-000003); University of Aveiro, Department of Chemistry/QOPNA.
July 2013 - June 2017	FCT PhD Grant (Ref. SFRH/BD/86277/2012); University of Aveiro, Department of Chemistry/QOPNA.
August 2011 – June 2013	Research grant within the project: “ <i>New synthetic routes of polyphenolic compounds with antioxidant activity</i> ”; University of Aveiro, Department of Chemistry/QOPNA.
February 2010 - July 2011	Research grant within the project: “ <i>Catalytic oxidation using transition metal complexes grafted in nano-structured solids</i> ” (PTDC/QUI/64770/2006); University of Aveiro, Department of Chemistry/CICECO – Aveiro Institute of Materials.
September 2009 – December 2009	Three-month internship at University of Vigo within my master’s thesis project on the development of a new method for determination of antioxidants in model food emulsions. Supervised by Prof. Carlos Barvo-Diaz, Department of Physical Chemistry.

### IV. Supervising experience

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- 2018  
Supervised an undergraduate biochemistry student in her final project “New fluorescent DNA biomarkers” – Daniela Malafaia.

### V. Awards

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- 2017  
IUPAC attendance grant for the TRAMECH IX – TRANSMEDITERRANEAN COLLOQUIUM ON HETEROCYCLIC CHEMISTRY awarded by IUPAC – International Union of Pure and Applied Chemistry.
- 2018  
IUPAC attendance grant for the 28<sup>th</sup> ECHC congress – EUROPEAN COLLOQUIUM ON HETEROCYCLIC CHEMISTRY awarded by IUPAC – International Union of Pure and Applied Chemistry.

## VI. Publications

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### Papers in SCI international journals:

- 1) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "First intramolecular Diels-Alder reactions using chromone derivatives: synthesis of chromeno-[3,4-*b*]xanthenes and 2-(benzo[*c*]chromenyl)-chromones", *New J. Chem.*, 2018, 42, 4251-4260.
- 2) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, Mannix P. Balanay, José A. S. Cavaleiro, Artur M. S. Silva, "1,6-Conjugate addition of carbon nucleophiles to 2-[(1*E*,3*E*)-4-arylbuta-1,3-dien-1-yl]-4*H*-chromen-4-ones", *Eur. J. Org. Chem.*, 2017, 5293-5305.
- 3) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, Carlos F. R. A. C. Lima, Luís M. N. B. F. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "2-[(1*E*,3*E*)-4-Arylbuta-1,3-dien-1-yl]-4*H*-chromen-4-ones as dienes in Diels-Alder reactions – Experimental and computational studies", *Eur. J. Org. Chem.* 2017, 87-101.
- 4) Carina Proença,<sup>‡</sup> **Hélio M. T. Albuquerque**,<sup>‡</sup> Daniela Ribeiro, Marisa Freitas, Clementina M. M. Santos, Artur M. S. Silva, Eduarda Fernandes, "Novel chromone and xanthone derivatives: Synthesis and ROS/RNS scavenging activities", *Eur. J. Med. Chem.* 2016, 115, 381-392. <sup>‡</sup>Equal contribution to this work.
- 5) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "(*E*)-2-(4-Arylbut-1-en-3-yn-1-yl)chromones as synthons for the synthesis of xanthone-1,2,3-triazole dyads", *Eur. J. Org. Chem.* 2015, 4732-4743.
- 6) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Chalcones as versatile synthons for the synthesis of 5- and 6-membered nitrogen heterocycles", *Curr. Org. Chem.* 2014, 18, 2750-2775.
- 7) **Hélio Albuquerque**, Liliana Carneiro, Ana P. Carvalho, João Pires, Ana R. Silva, "Enantioselective cyclopropanation and aziridination catalyzed by copper(II) bis(oxazoline) anchored onto mesoporous materials", *Polyhedron* 2014, 79, 315-323.
- 8) Patrícia Lisete-Torres, Sonia Losada-Barreiro, **Hélio Albuquerque**, Verónica Sánchez-Paz, Fátima Paiva-Martins, Carlos Bravo-Díaz, "Distribution of hydroxytyrosol and hydroxytyrosol acetate in olive oil emulsions and their antioxidant efficiency", *J. Agric. Food Chem.* 2012, 60, 7318-7325.

- 9) Ana R. Silva, **Hélio Albuquerque**, Susana Borges, Renée Siegel, Luís Mafra, Ana P. Carvalho, João Pires, "Strategies for copper bis(oxazoline) immobilization onto porous silica based materials", *Microporous Mesoporous Mater.* 2012, 158, 26-38.
- 10) Ana R. Silva, **Hélio Albuquerque**, André Fontes, Susana Borges, Ângela Martins, Ana P. Carvalho, João Pires, "Copper bis(oxazoline) encapsulated in zeolites and its application as heterogeneous catalysts for the cyclopropanation of styrene", *Ind. Eng. Chem. Res.* 2011, 50, 11495-11501.

#### Proceedings in SCI international journals:

- 1) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Recent developments in the synthesis of novel xanthone-1,2,3-triazole dyads", *Pharmaceuticals* 2016, 9, 15.

## VII. Comunications

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#### Oral communications:

- 1) **Hélio M. T. Albuquerque**, C. M. M. Santos, M. P. Balanay, J. A. S. Cavaleiro, A.M.S. Silva, "Conjugate additions of carbon nucleophiles to chromones substituted with extended  $\pi$ -systems at C-2", XXIII Encontro Galego-Portugués de Química, Ferrol, Spain, 2017.
- 2) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Microwaves: An important tool to overcome the low reactivity of dienes in cycloaddition reactions", CEM advanced microwave technology for industry, research and education seminar, Aveiro, Portugal, 2017.
- 3) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, Carlos F. R. A. C. Lima, Luís M. N. B. F. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Chromone derivatives as novel dienes in Diels-Alder reactions", XXII Encontro Luso-Galego de Química, Bragança, Portugal, 2016, QO2, p. 282.
- 4) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Recent developments in the synthesis of novel xanthone-1,2,3-triazole dyads", Congresso de Química Orgânica e Química Terapêutica, Porto, Portugal, 2015, OC-2, p. 38.
- 5) **Hélio M. T. Albuquerque**, Carina Proença, Daniela Ribeiro, Marisa Freitas, Clementina M. M. Santos, Eduarda Fernandes, Artur M. S. Silva, "Design, synthesis and preliminary antioxidant evaluation of new hydroxy-chromone and xanthone derivatives", 28<sup>th</sup> ECHC congress, Lecce, Italy, 2018, SOC9, p. 46.

### Poster communications:

- 1) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Microwave-assisted synthesis of chromeno[3,4-*b*]xanthenes and (benzo[*c*]chromenyl)chromones", TRAMECH IX, Fez, Morocco, 2017.
- 2) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Chromones as versatile building blocks in cycloaddition reaction", 26<sup>th</sup> ISHC Congress, Regensburg, Germany, 2017.
- 3) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Nitromethane conjugate addition to 2-[(1*E*,3*E*)-4-arylbuta-1,3-dien-1-yl]-4*H*-chromen-4-ones"; XXV Encontro Nacional SPQ, Lisboa, Portugal, 2017.
- 4) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Functionalization of chromone derivatives through conjugate addition – synthesis of novel nitrogen heterocycles"; Encontro Ciência 2017, Lisboa, Portugal, 2017.
- 5) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Conjugate additions of carbon nucleophiles to chromone derivatives towards nitrogen heterocycles"; Research Day UA, Aveiro, Portugal, 2017.
- 6) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, Carlos F. R. A. C. Lima, Luís M. N. B. F. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "2-[(1*E*,3*E*)-4-Arylbuta-1,3-dien-1-yl]-4*H*-chromen-4-ones as dienes in Diels-Alder reactions: Experimental and computational studies"; Terceiro Simpósio Ibero-Americano de Química Orgânica, Porto, Portugal, 2016, PO-3, p. 67.
- 7) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Microwaves: A powerful tool for the synthesis of new structure complex oxygen heterocyclic compounds"; Research Day UA, Aveiro, Portugal, 2016.
- 8) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Synthesis of xanthone-1,2,3-triazole dyads"; 19<sup>th</sup> ESOC - European Symposium of Organic Chemistry, Lisboa, Portugal, 2015, P125, p. 287.
- 9) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, Artur M. S. Silva, José A. S. Cavaleiro, "2-(4-Arylbuta-1,3-dien- or 1-en-3-yn-1-yl)chromones as synthons for the synthesis of other nitrogen and oxygen heterocyclic compounds"; Research Day UA, Aveiro, Portugal, 2013.
- 10) Carina Proença, **Hélio M. T. Albuquerque**, Clementina M. M. Santos, Artur M. S. Silva, José A. S. Cavaleiro, Eduarda Fernandes, "Síntese de novas cromonas e xantonas com atividade captadora de espécies reativas de oxigénio"; XX Encontro Luso-Galego de Química, Porto, Portugal, 2014.
- 11) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, José A. S. Cavaleiro, Artur M. S. Silva, "Synthesis of 2-{2-[5(4)-aryl-2*H*-[1,2,3]-triazol-4(5)-yl]vinyl}chromen-4-ones"; 10<sup>o</sup> Encontro Nacional de Química Orgânica, Lisboa, Portugal, 2013, PC4, p. 103.

- 12) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, Artur M. S. Silva, José A. S. Cavaleiro, "Synthesis of (*E*)-2-(4-arylbut-1-en-3-ynyl)-4*H*-chromen-4-ones"; XXIII Encontro Nacional da SPQ, Aveiro, Portugal, 2013, P1.1.
- 13) **Hélio M. T. Albuquerque**, Clementina M. M. Santos, Cátia I. C. Esteves, Artur M. S. Silva, José A. S. Cavaleiro, "Synthesis of novel hydroxylated 2-butadienylchromone derivatives"; 3.º Encontro Nacional de Química Terapêutica, Aveiro, Portugal, 2012, P52, p. 104.
- 14) João Pires, Susana Borges, Ana P. Carvalho, **Hélio Albuquerque**, Ana R. Silva, "Sílicas mesoporosas e correspondentes réplicas de carbono como suportes de catalisadores de ciclopropanação"; Simpósio Ibero-Americano de Adsorção, Recife, Brasil, 2012.
- 15) **Hélio Albuquerque**, Susana Borges, Ana P. Carvalho, João Pires, Ana R. Silva, "Strategies for copper bis(oxazoline) immobilisation onto porous silica-based materials"; ISHHC XV, Berlin, Germany, 2011, p. 49.
- 16) **Hélio Albuquerque**, Susana Borges, Ana P. Carvalho, João Pires, Ana R. Silva, "Bis(oxazoline) anchored onto a hexagonal mesoporous silica as asymmetric heterogeneous catalyst in the cyclopropanation of styrene"; X Jornadas do CICECO, Aveiro, Portugal, 2011.
- 17) **Hélio Albuquerque**, A. Fontes, Susana Borges, A. Nunes, Ana P. Carvalho, João Pires, Ana R. Silva, "Ciclopropanação de estireno por bis(oxazolina) de cobre(II) encapsulada em zeólitos"; XXXV Reunião Ibérica de Adsorção (RIA), Lisboa, Portugal, 2010, P-12, p. 83.
- 18) Fátima Paiva-Martins, P. Torres, **Hélio Albuquerque**, Sonia Losada-Barreiro, V. Sánchez-Paz, C. Bravo-Díaz, "Quantitative determination of olive oil phenols distribution in O/W food emulsions and their correlation with the antioxidant capacity"; 8<sup>th</sup> Euro Fed Lipid Congress, Munich, Germany, 2010.
- 19) Ana R. Silva, **Hélio Albuquerque**; "Strategies for the immobilisation of privileged ligands onto solid supports: bis(oxazoline) case study"; 3<sup>rd</sup> EuCheMS Chemistry Congress, Nuremberg, Germany, 2010.
- 20) **Hélio Albuquerque**, Ana Rosa Silva; "Bis(oxazoline) anchored onto a hexagonal mesoporous silica as asymmetric heterogeneous catalyst in the cyclopropanation of styrene"; 3<sup>rd</sup> EuCheMS Chemistry Congress, Nuremberg, Germany, 2010.
- 21) Fátima Paiva-Martins, **Hélio Albuquerque**, Carlos Bravo-Díaz; "Quantitative determination of oleuropein and 3,4-DHPEA-EDA distribution in olive oil/tween 80:span80/water food emulsion", 7<sup>th</sup> Euro Fed Lipid Congress, Graz, Austria, 2009.

## VIII. Participation in courses/meetings/workshops

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- Conference Cycles: “Transversalidade da Química Farmacêutica Medicinal”, FFUP/ICBAS, Portugal, 2017.
- Seminar “CEM Advanced Microwave Technology for Industry, Research and Education”, University of Aveiro, Portugal, 2017.
- Summer course: “Pharmaceutical drugs: How to obtain, how do they work and why (a perspective in pharmaceutical medicinal chemistry)”, Faculty of Pharmacy, University of Porto, Portugal, 2016.
- Seminar: “HR-LCMS/HR-GCMS na análise de moléculas conhecidas e desconhecidas e síntese por micro-ondas”, Faculty of Sciences, University of Porto, Portugal, 2016.
- 2<sup>nd</sup> RedCat Meeting “Natural Products and related Redox Catalysts: Basic Research and Applications in Medicine and Agriculture”, University of Aveiro, Portugal, 2012.
- Analytical Chemistry Symposium: “Environmental Occurrence, Persistence and Fate of Pharmaceuticals”, University of Aveiro, Portugal, 2012.
- Workshop “Química Analítica Forense”, Faculty of Sciences, University of Porto, Portugal, 2005.

## IX. Languages

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**Native language** – Portuguese

**Other languages** – English: fluent level.

Aveiro, 23<sup>th</sup> August 2018

*Hélio Miguel Teixeira Albuquerque*