

# *CURRICULUM VITÆ* | Joana L. C. Sousa

## I. Personal information

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**Full name:** JOANA LIA CARDOSO DE SOUSA

**Date of birth:** 01/09/1983

**Place of birth:** Oliveira do Douro, Vila Nova de Gaia

**Nationality:** Portuguese

**Address:** Avenida da Força Aérea Portuguesa, nº 30, 4º L; 3800-355 Aveiro; Portugal

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## II. Academic degrees

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- 2016

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

PhD thesis: "Synthesis of functionalized oxygen heterocyclic compounds. Evaluation of the antioxidant activity of 3-hydroxylated derivatives", scientific guidance of Prof. Artur Silva, QOPNA, Department of Chemistry of the University of Aveiro.

- 2009

**MSc in Materials Derived from Renewable Resources** (2<sup>nd</sup> cycle), University of Aveiro, final grade 17 (out of 20).

MSc thesis: "New materials containing supported polyoxometalates and their application in oxidative catalysis", grade 18 (out of 20), scientific guidance of Prof.<sup>a</sup> Ana Cavaleiro and Dra. Helena Nogueira, CICECO – Aveiro Institute of Materials, Department of Chemistry of the University of Aveiro.

- 2006

**First Degree in Chemistry – Scientific branch** (pre-Bologna), Faculty of Sciences of the University of Porto, final grade 14 (out of 20).

First degree thesis: “Contribution to the synthesis of polyhydroxymethylated pyrrolidine derivatives as precursors of isoazahomonucleosides”, grade 17 (out of 20), scientific guidance of Drs. Enrique Borges and Maria Luísa do Vale, Grupo de Investigação em Síntese Orgânica de Compostos Bioativos, Centro de Investigação em Química da Universidade do Porto (CIQUP).

### III. Employment history and current situation

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Currently	Post-doc researcher at QOPNA and CICECO, Department of Chemistry of the University of Aveiro, Portugal.
From 01/09/2016 to 31/12/2016	Research fellow at REQUIMTE-LAQV, Faculty of Sciences of the University of Porto, Portugal.
From 01/01/2012 to 31/12/2015	PhD Scholarship provided by “Fundação para a Ciência e a Tecnologia” (FCT, Portugal, Ref. SFRH/BD/76407/2011).
From 01/09/2007 to 31/12/2011	Research fellow at CICECO, QOPNA or CESAM, University of Aveiro, Portugal.

### IV. Scientific activities

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#### Referee in international and peer-reviewed journals:

- Journal of Chemistry

#### Participation in scientific projects:

- Post-doc grant (from 01/01/2017 to present): MultiBiorefinery – “Multi-purpose strategies for broadband agroforest and fisheries by-products valorisation: a step forward for a truly integrated biorefinery” (POCI-01-0145-FEDER-016403).
- Research grant (from 01/09/2016 to 31/12/2016): SOLFLAV – “Dye sensitized solar cells based on ionic liquids and synthetic flavylum compounds” (PTDC/QEQ-QFI/1971/2014).
- Research grant (from 01/05/2010 to 30/09/2010): NANOkA – “NANO Particles: standardization of methods for environmental risk assessment” (PTDC/BIA-BEC/103716/2008).
- Research grant (from 01/09/2007 to 31/08/2008): “Polyoxometalates: from discrete clusters to networks and materials” (POCI/QUI/58887/2004).

## V. Experience as scientific adviser

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### Postgraduate students:

- Fatiha Nouali and Nadia Bouhassane, PhD students from the University of Abou Bekr Belkaïd (Tlemcen, Algeria), co-supervised by Prof. Artur Silva (QOPNA, DQUA), 2017/2018.

### Undergraduate (1<sup>st</sup> cycle degree) students:

- Cristiana Gonçalves, “Síntese e avaliação da atividade antioxidante de compostos poli-hidroxilados derivados de 28-oxoallobetulona”, co-supervised by Prof. Artur Silva (QOPNA, DQUA), 2018.

## VI. Prizes and Awards

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- 2018  
Participation grant in ECHC 2018 (350\$) provided by IUPAC.
- 2011  
Best poster award in the “VIII Jornadas do CICECO” with the communication entitled “Polyoxometalates in Silica Nanoparticles: Multifunctional Core/Shell Materials”.
- 2010  
Participation grant in 2PYCheM (85€) provided by Hovione.

## VII. Publications

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### Papers in international and peer-reviewed journals:

- 1) C. Proença, M. Freitas, D. Ribeiro, J.L.C. Sousa, F. Carvalho, A.M.S. Silva, P.A. Fernandes, E. Fernandes, “Inhibition of protein tyrosine phosphatase 1B by flavonoids: a structure-activity relationship study”, *Food Chem. Toxicol.* **2018**, *111*, 474-481.
- 2) C. Proença, M. Freitas, D. Ribeiro, E.F.T. Oliveira, J.L.C. Sousa, S.M. Tomé, M.J. Ramos, A.M.S. Silva, P.A. Fernandes, E. Fernandes, “ $\alpha$ -Glucosidase inhibition by flavonoids: an *in vitro* and *in silico* structure-activity relationship study”, *J. Enzyme Inhib. Med. Chem.* **2017**, *32*, 1216-1228.
- 3) J.L.C. Sousa, V. Gomes, N. Mateus, F. Pina, V. de Freitas, L. Cruz, “Synthesis and equilibrium multistate of new pyrano-3-deoxyanthocyanin-type pigments in aqueous solutions”, *Tetrahedron* **2017**, *73*, 6021-6030.
- 4) J.L.C. Sousa, A.M.S. Silva, “Microwave-assisted tandem reactions towards a new synthesis of cyclohepta[b]chromene-9,11-diones”, *Synlett* **2017**, *28*, 316-322.

- 5) L. Cruz, J.L.C. Sousa, A. Marinho, N. Mateus, V. de Freitas, "Synthesis and Structural Characterization of Novel Pyranoluteolinidin Dyes", *Tetrahedron Lett.* **2017**, *58*, 159-162.
- 6) J.L.C. Sousa, O. Talhi, R.F. Mendes, F.A.A. Paz, K. Bachari, A.M.S. Silva, "Catalytic One-Pot Diastereoselective Michael-Initiated Ring-Closure of Methyl Ketones with 3-Bromochromones: Synthesis of Cyclopropa[*b*]chromanones", *Eur. J. Org. Chem.* **2016**, 3949-3958.
- 7) J.L.C. Sousa, C. Proença, M. Freitas, E. Fernandes, A.M.S. Silva, "New Polyhydroxylated Flavon-3-ols and 3-Hydroxy-2-styrylchromones: Synthesis and ROS/RNS Scavenging Activities", *Eur. J. Med. Chem.* **2016**, *119*, 250-259.
- 8) J.L.C. Sousa, O. Talhi, D.H.A. Rocha, D.C.G.A. Pinto, F.A.A. Paz, K. Bachari, G. Kirsch, A.M.S. Silva, "One-Pot Synthesis of Novel Highly Functionalized Furan-Based Polyphenolics", *Synlett* **2015**, *26*, 2724-2729.
- 9) P.C.R. Soares-Santos, L. Cunha-Silva, F.L. Sousa, J.L.C. Sousa, P.J. Gates, J. Klinowski, T. Trindade, J. Rocha, A.M.V. Cavaleiro, F.A.A. Paz, H.I.S. Nogueira, "A New Supramolecular Organic-Inorganic Adduct: {[Eu(CH<sub>3</sub>OH)(H<sub>2</sub>O)<sub>8</sub>]<sub>2</sub>[Eu(H<sub>2</sub>O)<sub>8</sub>][PW<sub>12</sub>O<sub>40</sub>]<sub>3</sub>}·8(C<sub>14</sub>H<sub>20</sub>O<sub>5</sub>)·2(C<sub>28</sub>H<sub>40</sub>O<sub>10</sub>)·6(CH<sub>3</sub>OH)·6(H<sub>2</sub>O)", *J. Mol. Struct.* **2011**, *989*, 80-85.
- 10) J.L.C. Sousa, I.C.M.S. Santos, M.M.Q. Simões, J.A.S. Cavaleiro, H.I.S. Nogueira, A.M.V. Cavaleiro, "Iron(III)-Substituted Polyoxotungstates Immobilized on Silica Nanoparticles: Novel Oxidative Heterogeneous Catalysts", *Catal. Commun.* **2011**, *12*, 459-463.

#### Conference proceedings in international and peer-reviewed journals:

- 1) J.L.C. Sousa, O. Talhi, F.A.A. Paz, A.M.S. Silva, "3-Bromochromones as Building Blocks of Novel Furan and Cyclopropane Derivatives", *Pharmaceuticals* **2016**, *9*, 15.
- 2) C. Proença, M. Freitas, D. Ribeiro, J.L.C. Sousa, A.M.S. Silva, E. Fernandes, "The Antioxidant Activity of Novel Polyhydroxylated 3-Hydroxy-2-styrylchromones and 3-Hydroxyflavones", *Pharmaceuticals* **2016**, *9*, 15.

### VIII. Communications

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#### Oral communications:

- 1) J.L.C. Sousa, A.M.S. Silva, "MW-assisted synthesis of fused polycyclic compounds", XXIII Encontro Galego-Portugués de Química, Ferrol, Spain, 2017, QO01.

- 2) J.L.C. Sousa, O. Talhi, F.A.A. Paz, A.M.S. Silva, "3-Bromochromones as Building Blocks of Novel Furan and Cyclopropane Derivatives", Congresso de Química Orgânica e Química Terapêutica, Porto, Portugal, 2015, OC-11.
- 3) C.M. Granadeiro, J.L.C. Sousa, A.M.V. Cavaleiro, H.I.S. Nogueira, "Polyoxometalates in Silica Nanoparticles: Multifunctional Core/Shell Materials", XXII Encontro Nacional da Sociedade Portuguesa de Química, Braga, Portugal, 2011, QI-CO 02.

#### Poster communications:

#### International conferences:

- 1) J.L.C. Sousa, C.S.R. Freire, A.J.D. Silvestre, A.M.S. Silva, "Decoration of a triterpene scaffold with different nitrogen heterocycles", 28<sup>th</sup> European Colloquium on Heterocyclic Chemistry (EHC 2018), Lecce, Italy, 2018, PO18.
- 2) J.L.C. Sousa, P.A.B. Ramos, C.S.R. Freire, A.M.S. Silva, A.J.D. Silvestre, "Chemical composition of Portuguese *P. pinaster* and *P. pinea* bark extracts towards an integrated biorefinery concept", 15<sup>th</sup> European Workshop on Lignocellulosics and Pulp (EWLP 2018), Aveiro, Portugal, 2018, pp. 331-334.
- 3) J.L.C. Sousa, C. Proença, M. Freitas, E. Fernandes, A.M.S. Silva, "Synthesis and *in vitro* antioxidant activity of new flavon-3-ols and 3-hydroxy-2-styrylchromones", TRAMECH IX – 9<sup>th</sup> Trans Mediterranean Colloquium on Heterocyclic Chemistry, Fez, Morocco, 2017, PP142.
- 4) J.L.C. Sousa, N. Mateus, V. de Freitas, L. Cruz, "Synthesis and structural characterization of novel pyrano-deoxyanthocyanin dyes", XXII Encontro Luso-Galego de Química, Bragança, Portugal, 2016, QO10.
- 5) J.L.C. Sousa, O. Talhi, F.A.A. Paz, A.M.S. Silva, "A one-pot synthesis of furan-based polyphenolics", 19<sup>th</sup> European Symposium of Organic Chemistry – ESOCXIX, Lisbon, Portugal, 2015, P124.
- 6) J.L.C. Sousa, A.M.S. Silva, "Efficient synthesis of new polyhydroxylated flavon-3-ols", 4<sup>th</sup> EuCheMS Chemistry Congress, Prague, Czech Republic, 2012, P-0450.
- 7) C.M. Granadeiro, J.L.C. Sousa, A.M.V. Cavaleiro, H.I.S. Nogueira, "Polyoxometalates in silica nanoparticles: multifunctional core/shell materials", MOLMAT 2010 – IV<sup>th</sup> International Conference on Molecular Materials, Montpellier, France, 2010, P261.
- 8) J.L.C. Sousa, I.C.M.S. Santos, M.M.Q. Simões, J.A.S. Cavaleiro, H.I.S. Nogueira, A.M.V. Cavaleiro, "Polyoxometalate-supported nanostructured materials as oxidative heterogeneous catalysts", International Polyoxometalate Symposium, Bremen, Germany, 2009.

- 9) J.L.C. Sousa, I.C.M.S. Santos, M.M.Q. Simões, J.A.S. Cavaleiro, H.I.S. Nogueira, A.M.V. Cavaleiro, "Polyoxometalate-supported nanostructured materials as oxidative heterogeneous catalysts", Hybrid Materials 2009 – First International Conference on Multifunctional, Hybrid and Nanomaterials, Tours, France, 2009, B2.1.122.

**National conferences:**

- 1) P.A.B. Ramos, J.L.C. Sousa, C.S.R. Freire, A.M.S. Silva, A.J.D. Silvestre, "Chemical characterization of *Pinus pinaster* bark and needles lipophilic fractions: a valuable resource of diterpene resinic acids", Jornadas CICECO 2018, Aveiro, Portugal, 2018, P#80.
- 2) J.L.C. Sousa, C.S.R. Freire, A.J.D. Silvestre, A.M.S. Silva, "Functionalization of betulinic acid through Heck reactions", XXV Encontro Nacional da Sociedade Portuguesa de Química, Lisbon, Portugal, 2017, HC48.
- 3) P.A.B. Ramos, J.L.C. Sousa, C.S.R. Freire, A.M.S. Silva, A.J.D. Silvestre, "Chemical characterization of *Pinus pinaster* bark and needles lipophilic fractions: a valuable resource of diterpene resinic acids", XXV Encontro Nacional da Sociedade Portuguesa de Química, Lisbon, Portugal, 2017, HC88.
- 4) J.L.C. Sousa, A.M.S. Silva, "Microwave-assisted tandem reactions towards the synthesis of cyclohepta[b]chromene-9,11-diones", Research Day 2016, University of Aveiro, Aveiro, Portugal, 2016, Poster 8.
- 5) C. Proença, M. Freitas, D. Ribeiro, J.L.C. Sousa, A.M.S. Silva, E. Fernandes, "*In vitro* antioxidant activity of novel 3-hydroxy-2-styrylchromones as compared to 3-hydroxyflavones", Congresso de Química Orgânica e Química Terapêutica, Porto, Portugal, 2015, P-8.
- 6) J.L.C. Sousa, A.M.S. Silva, "Hydroxylation of flavon-3-ol derivatives", 10<sup>o</sup> Encontro Nacional de Química Orgânica e 1<sup>o</sup> Simpósio Luso-Brasileiro de Química Orgânica, Lisbon, Portugal, 2013, PC43.
- 7) J.L.C. Sousa, A.M.S. Silva, "Synthesis of novel 3-hydroxy-2-styrylchromone derivatives", XXIII Encontro Nacional da Sociedade Portuguesa de Química, Aveiro, Portugal, 2013, P1.68.
- 8) J.L.C. Sousa, A.M.S. Silva, "Synthesis of new 3-hydroxy-2-styrylchromones with potential antioxidant activity", 3<sup>rd</sup> Portuguese Meeting on Medicinal Chemistry and 1<sup>st</sup> Portuguese-Spanish-Brazilian Meeting on Medicinal Chemistry, Aveiro, Portugal, 2012, P130.
- 9) J.L.C. Sousa, A.M.S. Silva, "Synthesis of new flavon-3-ols with potential antioxidant activity", 3PYChem – 3<sup>rd</sup> Portuguese Young Chemists Meeting, Porto, Portugal, 2012, P61.

- 10) C.M. Granadeiro, J.L.C. Sousa, A.M.V. Cavaleiro, H.I.S. Nogueira, "Polyoxometalates in silica nanoparticles: multifunctional core/shell materials", VIII Jornadas do CICECO, Aveiro, Portugal, 2011, P22.
- 11) J.L.C. Sousa, I.C.M.S. Santos, M.M.Q. Simões, J.A.S. Cavaleiro, H.I.S. Nogueira, A.M.V. Cavaleiro, "Polyoxometalate/silica nanomaterials as heterogeneous catalysts", 2PYCheM – 2<sup>nd</sup> Portuguese Young Chemists Meeting, Aveiro, Portugal, 2010, P67.
- 12) J.L.C. Sousa, I.C.M.S. Santos, M.M.Q. Simões, J.A.S. Cavaleiro, H.I.S. Nogueira, A.M.V. Cavaleiro, "A sandwich-type polyoxotungstophosphate as heterogeneous catalyst", VII Jornadas do CICECO, Aveiro, Portugal, 2010, Session 2: Poster 41.
- 13) J.L.C. Sousa, I.C.M.S. Santos, M.M.Q. Simões, J.A.S. Cavaleiro, H.I.S. Nogueira, A.M.V. Cavaleiro, "A sandwich-type polyoxotungstophosphate as heterogeneous catalyst", 8<sup>a</sup> Conferência de Química Inorgânica, Curia, Portugal, 2009.
- 14) J.L.C. Sousa, I.C.M.S. Santos, M.M.Q. Simões, J.A.S. Cavaleiro, H.I.S. Nogueira, A.M.V. Cavaleiro, "A comparative study between homogeneous and heterogeneous catalysis in the oxidation of geraniol with hydrogen peroxide", 8<sup>o</sup> Encontro Nacional de Química Orgânica, Aveiro, Portugal, 2009, CP29.
- 15) J.L.C. Sousa, I.C.M.S. Santos, M.M.Q. Simões, J.A.S. Cavaleiro, H.I.S. Nogueira, A.M.V. Cavaleiro, "Polyoxometalate-supported nanostructured materials as oxidative heterogeneous catalysts", VI Jornadas do CICECO, Aveiro, Portugal, 2009, P39.

## **IX. Attendances at colloquiums/courses/meetings/workshops**

- Jornadas CICECO 2018 "Living science together", University of Aveiro, Portugal, 2018.
- Workshop "How to write a scientific manuscript: student & early career researcher" presented by Elsevier, University of Aveiro, Portugal, 2018.
- Seminar "CEM Advanced Microwave Technology for Industry, Research and Education" presented by CEM/QLABO, University of Aveiro, Portugal, 2017.
- 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.
- Advanced Course "Practical Approach to Ecotoxicogenomics", University of Aveiro, Portugal, 2010.
- V Jornadas do CICECO "Advanced Characterization of Materials", University of Aveiro, Portugal, 2008.
- Free Course "Medicina Molecular e Cancro", IPATIMUP, Portugal, 2005.
- Colloquium "Ciências na Conservação e Restauro de Arte", Rectory of the University of Porto, Portugal, 2005.

- 7º Encontro Nacional de Química-Física da Sociedade Portuguesa de Química, Porto, Portugal, 2005.
- Workshop “Química Analítica Forense”, Faculty of Sciences of the University of Porto, Portugal, 2005.

## **X. Languages**

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**Native language** – Portuguese

**Other languages** – English: Independent user [Cambridge English: First / First Certificate in English (FCE) – CEFR level B2].

Aveiro, 12<sup>th</sup> September 2018

Joana Lia Cardoso de Sousa