

# CARLOS ALBERTO GOMES DE SOUZA

14/02/2024



**Nationality:** Brazilian **Gender:** Male  
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## 1. EDUCATION AND CAREER INFORMATION

### A. EDUCATION

Doctorate in Chemistry	
PhD Thesis Title	Phenol removal from aqueous effluents over iron oxide catalysts supported on activated carbons
PhD Supervisor	Maria do Carmo Rangel Santos Varela
University/Institution	Federal University of Bahia
Country	Brazil
Date of award	23/01/2019

Master's degree in Natural Resources	
Title	Microencapsulação do ácido ascórbico pela técnica Spray Drying a partir da galactomanana obtida da espécie <i>Delonix regia</i> (Bojer ex Hook.) Raf.
Master Supervisor	Sônia Maria Costa Siqueira
University/Institution	State university of Ceará
Country	Brazil
Date of award	10/12/2014

Bachelor's degree in Chemistry	
Title	Physicochemical, phytochemical studies and antioxidant activity of honey from Oiticica flowers produced by <i>Apis mellifera</i> from the town of Choró, Sertão Central do Ceará
Advisor	Maria da Conceição Tavares Cavalcanti Liberato.
University/Institution	State university of Ceará
Country	Brazil
Date of award	12/12/2008

## B. CAREER INFORMATION

Position/ Professional Category	Postdoctoral Researcher	
Keywords		
University/Institution	Insitut Català de Nanociència i Nanotecnologia (ICN2)	
	Department/Centre/Institute	Supramolecular NanoChemistry & Materials
	Address	Edifici ICN2, Campus UAB - 08193 Bellaterra (Barcelona) Spain
Start date - End date	13/02/2024	

Position/ Professional Category	Chemistry Teacher	
Keywords	High School	
University/Institution	Ceará State Government	
	Department/Centre/Institute	Ceará Departement of Education
	Address	Av. E, 471 - Pref. José Walter, Fortaleza - CE, 60750-040, Brasil
Start date - End date	26/10/2006 to 07/08/2023	

Position/ Professional Category	Predoctoral researcher	
Keywords		
University/Institution	Coordenação de Aperfeiçoamento de Pessoal de Nível Superior-CAPES	
	Department/Centre/Institute	Chemistry Institute of Federal University of Bahia
	Address	R. Barão de Jeremoabo, 147 - Ondina, Salvador - BA, 40170-115, Brasil
Start date - End date	01/03/2015 to 01/03/2019	

## 2. VOLUNTEERING

### A. VOLUNTEER CASAL DELS INFANTS [26/09/2023 – 08/01/2024]

**Address:** C/ Junta de Comerç 16, 08001, Barcelona-Spain Volunteer Day: Wednesday (Tuesday)

**Hours:** 4:15 p.m. to 8:30 p.m.

*Young people from 16 to 21 years old*

**Type of tasks:** welcoming and welcoming young people, snacks, dynamization of educational activities, support in school reinforcement and study habits (especially in the field of science, such as chemistry), bond with young people, etc.

## 3. SCIENTIFIC JOURNAL REFEREE

### A. 2017 - 2018

Scientific Journal: International Journal of Food Science and Technology

### B. 2019-2021

Scientific Journal: Food Chemistry

#### 4. HONOURS AND AWARDS

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- A. *Best Posters from the VIII Ibero-American Symposium on Medicinal Plants and III Ibero-American Symposium on Cancer Research.*

Place: University of Vale do Itajaí. [24/10/2016]

Authors: FARIAS, S. S.; SIQUEIRA, S. M. C.; SOUZA, C.A.G.; RIBEIRO, A. C. B. B.; MENEZES, J.E.S.A.; RICARDO, N. M. P. S. Microencapsulation of riboflavin with galactomannan obtained from Flamboyant (*Delonix regia*) seeds. In: VIII Ibero-American Symposium on Medicinal Plants and III Ibero-American Symposium on Cancer Research, 2016, Itajaí-SC.

- B. *2nd Place in the 1st Thesis and Dissertation Competition at the State University of Ceará State University of Ceará* [01/07/2015]

#### 5. LANGUAGES

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- A. Mother tongue(s): Portuguese  
B. Other language(s): English: C1 and Spanish: C1

#### 6. DIGITAL SKILLS

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- A. Microsoft Office (Word, Excel and Power Point)  
B. Origin  
C. High Score Plus  
D. Paint.net

#### 7. QUALITIES

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- A. Excellent Writing and Communication Skills  
B. High Independence  
C. Critical Thinking

#### 8. SCIENTIFIC AND TECHNOLOGICAL EXPERIENCE

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A. PROJECTS

- I. **Name of the project:** Drug encapsulation using the Spray Drying technique through galactomannan obtained from the *Delonix regia*

**Entity where project took place:** State University of Ceará

**City of entity:** Fortaleza, Ceará, Brazil

**Name principal investigator:** Prof. Dr. Sônia Maria Costa Siqueira

**Type of participation:** Research (Master Student)

**Partner entities:** Federal University of Ceará (UFC) and Brazilian Agricultural Research Company (EMBRAPA)

- II. **Name of the project:** Bahian industrial effluent treatment research network (REBAPEI)

**Entity where project took place:** Federal University of Bahia

**City of entity:** Salvador, Bahia, Brazil

**Name principal investigator:** Prof. Dr. Maria do Carmo Rangel

**Type of participation:** Predoctoral Research

**Partner entities:** State University of Bahia (UNEB), State University of Southwest Bahia (UESB), State University of Santa Cruz (UESC), Federal Institute of Education, Science and Technology of Bahia (IFBA) and Braskem S.A.

## B. ARTICLES IN SCIENTIFIC JOURNALS

**Microencapsulation of hesperidin with galactomannan biopolymer: Structural, vibrational and thermal analysis.** [2024]

De Amorim, A. F. V., Siqueira, S. M. C., Ricardo, N. M. P. S., Neto, F. W. D. Q. A., De Souza, C. A. G., Costa, K. B. S., ... & Teixeira, A. M. R. (2024). Microencapsulation of hesperidin with galactomannan biopolymer: Structural, vibrational and thermal analysis. *Materials Letters*, 357, 135784. <https://doi.org/10.1016/j.matlet.2023.135784>

**Microencapsulation of riboflavin with galactomannan biopolymer and F127: Physico-chemical characterization, antifungal activity and controlled release.** [2018]

De Farias, S. S.; Siqueira, S. M. C.; Cunha, A. P.; De Souza, C. A. G.; Fontenelle, R. O. D. S.; De Araújo, T. G.; De Amorim, A. F. V.; De Menezes, J. E. S. A.; De Moraes, S. M.; & Ricardo, N. M. P. S. (2018). Microencapsulation of riboflavin with galactomannan biopolymer and F127: Physico-chemical characterization, antifungal activity and controlled release. *Industrial Crops and Products*, 118, 271–281. <https://doi.org/10.1016/j.indcrop.2018.03.039> (Impact Index = **5.9**; Cited **29** times)

**Preparação, caracterização físico-química e liberação controlada de micropartículas de galactomanana contendo alantoína** [2018]

Frota, H. B. M.; De Menezes, J. E. S. A.; Siqueira, S. M. C.; Ricardo, N. M. P. S.; De Araújo, T. G.; De Souza, C. A. G.; Bandeira, P. N.; & Santos, H. S. D. (2018). Preparação, caracterização físico-química e liberação controlada de micropartículas de galactomanana contendo alantoína. *Química Nova*. <https://doi.org/10.21577/0100-4042.20170214> (Impact Index = **0.8**; Cited **12** times)

**Encapsulação do ácido l-ascórbico no biopolímero natural galactomanana por spray-drying: preparação, caracterização e atividade antioxidante** [2015]

*Foreign Title: Encapsulation of L-ascorbic acid within the natural biopolymer galactomannan using the spraydrying method: preparation, characterization, and evaluation of antioxidant activity*

de Souza, C. A. G.; Siqueira, S. M. C.; De Amorim, A. F. V.; De Moraes, S. M.; Gonçalves, T.; Gomes, R. N., Cunha, A.P.; & Ricardo, N. M. P. S. (2015). Encapsulação do ácido l-ascórbico no biopolímero natural galactomanana por spray-drying: preparação, caracterização e atividade antioxidante. *Química Nova*. <https://doi.org/10.5935/0100-4042.20150104> (Impact Index = **0.8**; Cited **24** times)

**Microencapsulação da riboflavina com galactomanana obtida das sementes do flamboyant (*Delonix regia*). [2017]**

Farias, S. S. d.; Siqueira, S. M. C.; Souza, C. A. G. d.; Ribeiro, A. C. B.; Menezes, J. E. S. A. d.; & Ricardo, N. M. P. S. (2017). Microencapsulação da riboflavina com galactomanana obtida das sementes do flamboyant (*Delonix regia*). *Infarma - Ciências Farmacêuticas*, 29(8), 655. <https://doi.org/10.14450/2318-9312.v29.esup3.a2017.pp321-691>

**Desenvolvimento de micropartículas de ácido ascórbico a partir da galactomanana extraída das sementes da *Delonix regia* (Bojer ex Hook) Raf pelo método Spray Drying [2015]**

de Souza, C. A.; Siqueira, S. M.; de Amorim, A. F. V.; da Silva, K. P.; de Oliveira, A. B.; Gomes, M. A. S.; & Ricardo, N. M. P. (2015). Desenvolvimento de micropartículas de ácido ascórbico a partir da galactomanana extraída das sementes da *Delonix regia* (Bojer ex Hook) Raf pelo método Spray Drying. *Revista Iberoamericana de Polímeros*, 16(3), 157-163. <https://reviberpol.files.wordpress.com/2019/07/2015-souza.pdf>

**C. PUBLISHED BOOK CHAPTERS**

**A galactomanana e galactomanana modificada como agente encapsulante polimérico do ácido L-ascórbico**

SOUZA, C. A. G.; COSTA, S. M. O.; AMORIM, F. V.; MORAES, S. M.; GOMES, R. N.; RICARDO, N.M.P.S. A galactomanana e galactomanana modificada como agente encapsulante polimérico do ácido L-ascórbico. In: Edson Noriyuki Ito, Rosangela de Carvalho Balaban. (Org.). *ABPol-NE Ciência e Tecnologia de Polímeros*. 1ed. São Carlos -SP: Associação Brasileira de Polímeros, 2014, v. 1, p. 1-5.

**D. CONFERENCES AND SEMINARS**

**I. 20<sup>TH</sup> BRAZILIAN CATALYSIS CONGRESS [São Paulo, Brazil, 01/09/2019 – 05/09/2019]**

**• Presentation: Poster**

DE SOUZA, C.A.G; MORAIS, J.; CASTEGNARO, M. V.; DO CARMO ALVES, M.; PIZZOLATTO, T. M.; DO CARMO RANGEL, M. Influence of surface functional groups on the properties of iron oxide catalysts supported on activated carbons. In 20th Brazilian Catalysis Congress, 2019, São Paulo. 20th Brazilian Catalysis Congress.

**II. 19<sup>TH</sup> BRAZILIAN CATALYSIS CONGRESS/IX MERCOSUL CATALYSIS CONGRESS [Ouro Preto-Minas Gerais, Brazil, 17/09/2017 – 21/09/2017]**

**• Presentation: Oral**

SOUZA, C. A. G.; GRECCO, S. T. F.; BRAGA, R. M.; MELO, D. M. A.; RANGEL, M. C. Fast pyrolysis of flamboyant biomasses over catalysts based on USY zeolite. 2017.

**III. 18<sup>TH</sup> INTERNACIONAL ZEOLITE CONFERENCE [Rio de Janeiro, Brazil, 19/06/2016 - 24/06/2016]**

**• Presentation: Poster**

GRECCO, S. T. F.; SOUZA, C. A. G.; BRAGA, R. M.; MELO, D. M. A.; RANGEL, M. C. Evaluation of USY-supported gallium in fast pyrolysis of flamboyant pods. In: 18th Internacional Zeolite Conference, 2016, Rio de Janeiro. 18th Internacional Zeolite Conference, 2016.

*IV. VIII Ibero-American Symposium on Medicinal Plants and III Ibero-American Symposium on Cancer Research [Itajaí-Santa Catarina, Brazil, 24/10/2016 – 27/10/2016]*

• **Presentation: Poster**

FARIAS, S. S.; SIQUEIRA, S. M. C.; SOUZA, C.A.G.; RIBEIRO, A. C. B. B.; MENEZES, J.E.S.A.; RICARDO, N. M. P. S. Microencapsulation of riboflavin with galactomannan obtained from Flamboyant (*Delonix regia*) seeds. In: VIII Ibero-American Symposium on Medicinal Plants and III Ibero-American Symposium on Cancer Research, 2016, Itajaí-SC. VIII Ibero-American Symposium on Medicinal Plants and III Ibero-American Symposium on Cancer Research, 2016.

*V. 22<sup>nd</sup> Brazilian Congress of Engineering and Materials Science [Natal-Rio Grande Do Norte, Brazil, 06/11/2016 – 10/11/2016]*

• **Presentation: Poster**

FARIAS, S. S.; SIQUEIRA, S. M. C.; SOUZA, C.A.G.; BRITO, D. H. A.; MENEZES, J.E.S.A.; AMORIM, A. F. V.; CRISTINO, J. H. S.; RICARDO, N. M. P. S. Thermal analysis of riboflavin microparticles encapsulated with galactomannan by spray-drying. In 22nd Brazilian Congress of Engineering and Materials Science, 2016, Natal. 22nd Brazilian Congress of Engineering and Materials Science, 2016.

*VI. 2nd Northeastern Chemistry Symposium [Teresina- Piauí, Brazil, 08/06/2016 – 10/06/2016]*

• **Presentation: Poster**

MENEZES, J. E. S. A.; FROTA, H. B. M.; FARIAS, S. S.; SIQUEIRA, S. M. C.; SOUZA, C.A. G. Evaluation of methods for obtaining galactomannan extracted from *Delonix regia* (flamboyant) by freeze-drying and spray drying. In: 2nd Northeastern Chemistry Symposium, 2016, Teresina. 2nd Northeastern Chemistry Symposium, 2016.

*VII. 54<sup>th</sup> Brazilian Chemistry Congress [Natal- Rio Grande do Norte, Brazil, 03/11/2014 – 07/11/2014]*

• **Presentation: Poster**

SOUZA, C. A. G.; COSTA, S. M. O.; AMORIM, F. V.; GOMES, M. A. S.; OLIVEIRA, A. B. ; SILVA, K. P. ; RICARDO, M. N. S. ; MORAES, S. M. Influence of the encapsulating agent galactomannan on the antioxidative activity of hesperidin against the DPPH radical. In: 54th Brazilian Chemistry Congress, 2014, Natal-RN. 54th Brazilian Chemistry Congress, 2014.

*VIII. XIV Latin American Symposium on Polymers and XII Ibero American Congress on Polymers [Porto de Galinhas- Pernambuco, Brazil, 12/10/2014 – 16/10/2014]*

• **Presentation: Poster**

SOUZA, C. A. G.; COSTA, S. M. O.; AMORIM, F. V.; MORAES, S. M.; GOMES, M. A. S.; SILVA, K. P.; OLIVEIRA, A. B.; RICARDO, N. M.P.S. Development of ascorbic acid microparticles from galactomannan extracted from the seeds of *Delonix regia* (Bojer ex Hook.) Raf by the Spray Drying method. Congress on Polymers, 2014, Ipojuca-Porto de Galinhas-PE. XIV Latin American Symposium on Polymers and XII Ibero American Congress on Polymers, 2014.

*IX. 2<sup>nd</sup> Northeast Meeting of Polymer Science and Technology [Salvador-Bahia, Brazil, 26/11/2014 – 28/11/2014]*

• **Presentation: Poster**

SOUZA, C. A. G.; COSTA, S. M. O.; AMORIM, F. V.; MORAES, S. M.; GOMES, R. N.; RICARDO, N.M.P. S. Galactomannan and modified galactomannan as a polymeric encapsulating agent for L-ascorbic acid. In: Brazilian Polymer Association - Northeast Region, 2014, Salvador-BA. Brazilian Polymer Association - Northeast Region, 2014.

X. 4th Brazilian Conference on Natural Products (BCNP) and the XXX Annual Meeting on Micromolecular Evolution, Systematics and Ecology (RESEM) [ Natal- Rio Grande do Norte, Brazil, 28/10/2013 – 31/10/2013]

• **Presentation: Poster**

SOUZA, C. A. G.; GOMES, R. N.; COSTA, S. M. O.; SOUSA, A. F.; MORAES, S. M.; AMORIM, F. V.; RICARDO, M. N. S.; CUNHA, A. P. Isolation and biological testing of galactomannan and raffinose from the seed of *Delonix regia* (Bojer ex Hook.) Raf. species. In: 4th Brazilian Conference on Natural Products (BCNP) and the XXX Annual Meeting on Micromolecular Evolution, Systematics and Ecology (RESEM), 2013, Natal. 4th Brazilian Conference on Natural Products (BCNP) and the XXX Annual Meeting on Micromolecular Evolution, Systematics and Ecology (RESEM), 2013.

## 9. BOARDS

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### A. PARTICIPATION IN COURSE COMPLETION WORKS EXAMINATION BOARDS: IMPROVEMENT/SPECIALIZATION MONOGRAPHY

I. BRITO, L. S. O.; COSTA, S. M. O.; SOUZA, C. A. G.; TAVARES, C. D. A. Participation In Board of by Luana San de Oliveira Brito. The main learning difficulties, from the perspective of chemistry students in higher education. 2018. Monograph (Improvement/Specialization at Specialization in Teaching Chemistry) – State University of Ceará.

### B. PARTICIPATION IN COURSE COMPLETION WORKS EXAMINATION BOARDS: GRADUATION COURSE CONCLUSION PAPER

I. SIQUEIRA, S. M. C.; SOUZA, C. A. G.; FERREIRA, M. K. A. Participation in Board by Atur Moura Fernandes. Evaluation of the photoprotective and antioxidant activity of *Syngium cumoni* (*l*) *skeels*. 2019. Course Completion Work (Graduation in Chemistry) - State University of Ceará.

II. SILVA, A. M.; FELIX, J. E. M.; SOUZA, C. A. G. Participation In Board of Antônio Francisco Lopes. The training Chemistry teachers. 2014. Course Conclusion Paper (Graduation in Chemistry) - State University of Ceará.

III. SILVA, A. M.; FELIX, J. E. M.; SOUZA, C. A. G. Participation In Board of Marcelo Henrique Freitas Saraiva Guerra. The use of everyday topics as a way to improve Chemistry Teaching in Professional Education Schools - EEEP. 2013. Course Conclusion Paper (Graduation in Chemistry) - State University of Ceará.

IV. SILVA, A. M.; FELIX, J. E. M.; SOUZA, C. A. G. Participation In Board of FÁBIO SAMPAIO FERREIRA. The difficulties of teaching Chemistry to high school students at the State School of Elementary and Secondary Education in the State of Alagoas 2013. Course Conclusion Paper (Graduation in Chemistry) - State University of Ceará.