

**Curriculum Vitae**  
**Samir BEGAA**

**Specialized Engineer, CRNB, Algeria**

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Associated Editor in Algerian Journal of Engineering and Technology

## **PERSONAL DATA**

Born 8 July 1984, Married with two children.

### **Address and correspondence**

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## **EDUCATION**

### **Baccalaureate in Chemistry**

GPA : **13.49/20**

Ain Oussera, Algeria  
June 2004

### **Université Amar Telidji**

Engineer in industrial chemistry

Laghouat, Algeria  
June 2010

### **Université Saâd Dahlab**

Master's degree in chemical engineering

Blida, Algeria  
June 2016

## **SUMMARY**

Samir Begaa is Engineer at Nuclear Research Centre of Birine, Ain Oussera, Algeria. His main research activities aim to the implementation and development of new techniques based on neutron activation and application of nuclear analytical techniques for analyzing trace elements in food, nutrition and other fields. His scientific interests include neutron activation analysis, radiation detection and spectrometry gamma. Samir Begaa has published more than 15 papers in the field of neutron activation analysis and radiochemical separation.

## **PROFESSIONAL EXPERIENCE**

### **Specialized Engineer on Nuclear Analytical Techniques**

*Department of Neutron Activation Analysis Department  
Nuclear Techniques and Applications Division,  
Nuclear Research Center of Birine, CRNB*

Jan.2017- present

### **Engineer on Nuclear Analytical Techniques**

*Department of Neutron Activation Analysis Department  
Nuclear Techniques and Applications Division,  
Nuclear Research Center of Birine, CRNB*

Apr.2011- 2017

1. Development of new radiochemical separation of selenium procedures and implementation for the first time in our laboratory.
2. The preparation of samples (geological, biological, blood, miner etc...) for neutron irradiation.
3. Treatment of gamma-ray spectra and Calculating concentrations of chemical elements
4. Interpretation of the results and solving the difficulties and the technical problems
5. Preparing analysis reports for our partners.

## **RESEARCH PROJECTS**

6. DTAN/01/13, CRNB: Development and application of the PGNAA method around the Es-Salam reactor.
7. AFRA (RAF/4/022): Enhancing Research Reactor Utilization and Safety
8. AFRA (RAF/01/005): Strenghtening the Capacity of Research Reactor Safety and Application in Africa.
9. 2163/COMENA/SG/2015: implementation and development of nuclear techniques around nuclear reactors (PGNAA, ENAA, RNAA, neutron imaging).
10. 2163/COMENA / SG / 2015: Applications of nuclear techniques in the agricultural sector.

## **PUBLICATIONS**

1. **Samir Begaa**, Mohammed Messaoudi, Adel Benarfa, (2020) Statistical Approach and Neutron Activation Analysis for Determining Essential and Toxic Elements in Two Kinds of Algerian Artemisia Plant, *Biological Trace Element Research*, <https://DOI:10.1007/s12011-020-02358-7>
2. Benarfa, A., **Begaa, S.**, Messaoudi, M., Hamlat, N., & Sawicka, B. (2020). Elemental composition analysis of Pistacia lentiscus L., leaves collected from Mitidja plain in Algeria using instrumental neutron activation analysis (INAA) technique. *Radiochimica Acta*, DOI: <https://doi.org/10.1515/ract-2020-0011>.
3. Chelalba, I., Benchikha, N., **Begaa, S.**, Messaoudi, M., Debbeche, H., Rebiai, A., & Youssef, F. S. (2020) Phytochemical composition and biological activity of Neurada procumbens L. growing in southern Algeria. *Journal of Food Processing and Preservation*, e14774. <https://doi.org/10.1111/jfpp.14774>.
4. Mohammed Messaoudi, **Samir Begaa**, Adel Benarfa, Hamza Ouakouak, Naima Benchikha, Mohamed Amine Ferhat (2020) Radiochemical separation by liquid-liquid extraction for the determination of selenium in Mentha pulegium L.: Toxicity monitoring and health study. *Applied Radiation and Isotopes* 159, 109099. <https://doi.org/10.1016/j.apradiso.2020.109099>
5. Messaoudi M, **Begaa S** (2020) Radiochemical neutron activation analysis for the determination of selenium in Mentha spicata L. samples collected from Djelfa, Algeria region, *Radiochim Acta* 108,3 p217-222. <https://doi.org/10.1515/ract-2019-3105>
6. Leila Boutemtam, Mohamed Nadjib Boukhatem, Mohammed Messaoudi, **Samir Begaa**, Adel Benarfa, Mohamed Amine Ferhat (2020) Understanding the phenomena of extraction of essential oils by the microwave accelerated distillation process: case of the Washington Navel variety. European Journal of Biological Research 2020, 10, 167-181.
7. Soraya Mazrou, Mohammed Messaoudi, Samir Begaa, Christophe Innocent, Djamaleddine Akretche (2020) Clarification of the Algerian grape juice and their effects on the juice quality. *Bulletin of the Chemical Society of Ethiopia*. 34(1), 1-11.
8. **Begaa S**, Messaoudi M (2019) Toxicological aspect of some selected medicinal plant samples collected from Djelfa, Algeria Region. *Biol Trace Elem Res* 187:301–306
9. Nadja Hamlat, Adel Benarfa, Brahim Beladel, **Samir Begaa**, Mohammed Messaoudi, Aicha Hassani (2019) Assessment of the contents of essential and potentially toxic elements in Pistacia terebinthus L. and Pistacia lentiscus L. by INAA technique. J Radioanal Nucl Chem. <https://doi.org/10.1007/s10967-019-06815-z>

10. Soraya Mazrou, Mohammed Messaoudi, **Samir begaa**, Djamel Eddine Akretche (**2019**) Identification, purification and quantification of Toxins “Ochratoxin A” in Algerian grape juice. Algerian Journal of Engineering and Technology, <http://doi.org/10.5281/zenodo.3473925>
11. **Begaa S**, Messaoudi M, Ouanezar A, et al (**2018**) Chemical elements of Algerian *Mentha spicata L.* used in the treatment of digestive system disorders by employing instrumental neutron activation analysis technique. *J Radioanal Nucl Chem*. <https://doi.org/10.1007/s10967-018-5976-0>
12. **Begaa S**, Messaoudi M (**2018**) Thermal neutron activation analysis of some toxic and trace chemical element contents in *Mentha pulegium L.* *Radiochim Acta* 0: <https://doi.org/10.1515/ract-2018-2942>
13. Messaoudi M, **Begaa S** (**2018**) Dietary Intake and Content of Some Micronutrients and Toxic Elements in Two Algerian Spices (*Coriandrum sativum L.* and *Cuminum cyminum L.*). *Biol Trace Elem Res*. <https://doi.org/10.1007/s12011-018-1417-8>
14. T. Doumaz, L. Hamidatou, B. Beladel, H. Slamene, **S. Begaa**, M. Messaoudi, M. Arezki, S. Amalou, M. Benmahdjoub (**2016**) Determination of Na, K, Fe, and Zn whole blood elements concentration of Algerian Alzheimer patients by k<sub>0</sub>-NAA method. *J Radioanal Nucl Chem* 309: <https://doi.org/10.1007/s10967-016-4760-2>
15. Messaoudi M, **Begaa S**, Hamidatou L, Salhi M (**2017**) Determination of selenium in roasted beans coffee samples consumed in Algeria by radiochemical neutron activation analysis method. *Radiochim Acta* 0: <https://doi.org/10.1515/ract-2017-2782>
16. Messaoudi M, **Begaa S**, Hamidatou L, et al (**2018**) Neutron activation analysis of major and trace elements in Arabica and Robusta coffee beans samples consumed in Algeria. *Radiochim Acta* 0: <https://doi.org/10.1515/ract-2017-2875>
17. Messaoudi M, **Begaa S** (**2018**) Application of INAA technique for analysis of essential trace and toxic elements in medicinal seeds of *Carum carvi L.* & *Foeniculum vulgare Mill.* used in Algeria. *J. Appl. Res. Med. Aromat. Plants*
18. L Hamidatou, H Slamene, T Akhal, **S Begaa**, M Messaoudi, Z Boussaad (**2013**) NAA Algerian Laboratory Evaluation Processed by WEPAL and IAEA during 2011-2012. *J Anal Sci Methods Instrum* 3:184–192. <https://doi.org/10.4236/jasm.2013.34024>

#### Lay summary

19. Begaa S, Messaoudi M. Chemical toxicity study of some Algerian medicinal plants, *Atlas of Science*, July 8, 2019.
20. Messaoudi M, **Begaa S**. Do the contents of mineral elements in Algerian spices useful for digestive diseases?, *Atlas of Science*, September 23, 2019.

#### CONFERENCES

1. M. Messaoudi, Hamza Ouakouak, **Samir Begaa**, N. Benchikha, A. Benarfa, Mokhtar Benmohamed, Mohamed Amine Ferhat. Antioxidant activity and phenolic compounds of Algerian *Mentha pulegium L.* Medicinal plant used traditionally for treatment of digestive system disorders, international Seminar on Green Chemistry and Sustainable Engineering At: University of Echahid Hamma Lakhdar, El-Oued, Algeria, December 2019.
2. M. Messaoudi, Hamza Ouakouak, **Samir Begaa**, N. Benchikha, A. Benarfa, Mokhtar Benmohamed, Mohamed Amine Ferhat, Toxicity against cancer cells and the antioxidant activity of the essential oil of *Pelargonium graveolens* extract in different ways. , international Seminar on Green Chemistry and Sustainable Engineering At: University of Echahid Hamma Lakhdar, El-Oued, Algeria, December 2019.

3. M. Messaoudi, **Samir Begaa** S, L. Alghem. Liquid-liquid extraction of Radiochemical separation for the determination of selenium in *Mentha pulegium L.*: Toxicity and health study, *the second International Conference on Radiations and Applications* (ICRA'2019)/USTHB/28-30 October 19.
4. **Begaa S**, Hamidatou L, Messaoudi M ; Détermination des éléments essentiels et non essentiels dans deux types de plantes médicinales par la technique INAA, 11ème Congrès National de la Physique et de ses Applications (CNPA'2014) / Blida / 21, 22 et 23 décembre2014.
5. Hamidatou L, Akhal T, Slamene H, Boussad Z, **Begaa S**, Messaoudi M, Meeting on Inter- Comparison Feedback of NAA and other Analytical Techniques Proficiency Tests, AIEA Project/RAF4022 - Enhancing Research Reactor Utilization and Safety, 27-31 May 2013, Vienna, Austria. "The Proficiency Testing tests related to the determination of major, minor and trace elements in materials of the International Soil and Plant Analytical Exchange material WEPAL"
6. Doumaz T · Hamidatou L · Beladel B · Slamene H · **Begaa S** ·Messaoudi M · Arezki M · Amalou S · Benmahdiou M · Benamar M.E.A; Major and Trace Elements Determination in Algerian Alzheimer Patients by k0-NAA Method. MTAA-14/NAMLS-11, Delft, Netherland; 08/2015.
7. Lylia Alghem Hamidatou, Slamene Hocine, Zouranen Boussaad, **Begaa Samir**, Messaoudi Mohammed; Overview of NAA method applied at Es-Salam research reactor; International conference on Research Reactors: Safe Management and Effective Utilization, At Vienna, Austria 16–20 November 2015 Conference ID: 46533 (CN-231).
8. L Hamidatou, Slamene H, **Begaa S**, Messaoudi M Zouranen B; Determination of Trace Amounts of Arsenic, Cerium, Cobalt, Antimony, Manganese, Tungsten and Zinc in 35NCD16 Steel using k0-NAA method; THE 8TH AFRICAN CONFÉRENCE on RESEARCH REACTOR UTILIZATION & SAFETY., At Algiers, Algeria; 14 – 16 December 2014.
9. M. Messaoudi, L. Alghem, B. Zouranen, H. Slamene, **S. Begaa S**, Analyse des éléments majeurs, mineurs et traces des grains médicinaux par INAA, 11ème Congrès National de la Physique et de ses Applications (CNPA'2014) / Blida / 21, 22 et 23 décembre 2014.
10. Hamidatou L B. zouranen, H. slamene, **Begaa S**, Messaoudi M. R&D neutron activation analysis laboratory executed at Es-Salam Research Reactor, 11ème Congrès National de la Physique et de ses Applications (CNPA'2014) / Blida / 21, 22 et 23 décembre 2014.

## **WORKSHOPS, MEETINGS AND COURSES TRAINING**

1. **National Training Course on Introduction to nuclear Forensics**, organized by the International Atomic Energy Agency with cooperation of de Nuclear Research Center of Algiers, 23 to 26 February 2015”
2. **First AFRA RESEARCH REACTOR SCHOOL** organized by the International Atomic Energy Agency with cooperation South Africa NECSA. 22 to 26 February 2016 «Necsa Visitor Centre» South African Nuclear Energy, NECSA, Pretoria, South Africa.
3. **Training Workshop on the IAEA Neutron Activation Analysis E-learning Course**, IAEA Headquarters, Vienna, Austria, 3–7 September 2018, Ref. No : T3-TR-1703914, organized by the International Atomic Energy Agency.

## **MEMBERSHIP OF EDITORIAL BOARDS /COMMITTEES**

Associated Editor: Algerian Journal of Engineering and Technology  
 Editorial Board: Journal of Organic Chemistry Plus.

2019- Present  
 2019- Present

Member of the specialized commission for the evaluation of the personnel of the Technological Control and Operation of Nuclear Facilities of the Nuclear Research Centre of Birine.  
 2015- Present

## **PEER REVIEW ACTIVITIES** (<https://publons.com/researcher/1510639/samir-begaa/>)

1. Peer reviewer for Journal of Food Measurement and Characterization(3)
2. Peer reviewer for Journal of Biological Trace Element Research (3).
3. Peer reviewer for Journal of Food Science and Technology (2).
4. Peer reviewer for International nuclear science and technology conference.
5. Peer reviewer for Journal of PHYTOCHEMISTRY LETTERS
6. Peer reviewer for Journal of heliyon journal.

## **SKILLS**

### **Measurement techniques**

Expert in employing Neutron activation analysis (NAA) and Radiochemical Neutron Activation Analysis

### **Science and Engineering Software**

Specialist in **Genie 2k**, **HyperLab**, **Ko-IAEA** and **Kay-zero** software.

### **Programming/Computer**

Professional with Microsoft Office.