

Dr. Lekmine Sabrina

Date and Place of Birth:

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UNIVERSITY:

Université Abbas Laghrour-Khenchela-

DEGREE

MCB

FACULTY

Natural and Life Sciences

DEPARTMENT

Molecular and Cellular Biology

LANGUAGE

Arabic English French

EDUCATION

Baccalaureate 2013

Natural and Life Sciences

Bachelor's Degree 2016

Biological Sciences

Specialization: Applied Biochemistry

University: Larbi Ben M'hidi, Oum El Bouaghi

Master's Degree 2018

Biological Sciences

Specialization: Applied Biochemistry

Thesis Topic: The effect of saponins extracted from the forage plant *Astragalus gombiformis* on ruminal protozoa

Thesis Supervisor: Prof. Arhab Rabah

University: Larbi Ben M'hidi, Oum El Bouaghi

Doctorate 2021

Biological Sciences

Specialization: Applied Biochemistry

Thesis Topic: Phytochemical characterization and biological activities of plant extracts

Thesis Supervisor: Prof. Boussekine Samira

University: Echahid Cheikh Larbi Tebessi, Tebessa

EXPERTISE

- Bioinformatics
- Genetic Engineering
- Molecular Biology
- Biotechnology
- Structural and Applied Biochemistry
- Enzymology
- Bioactive Molecules of Eukaryotic Origin
- Genetics

Research Projects

PRFU Project:

Evaluation of the antidiabetic, cardioprotective, and anticancer effects of medicinal plants.

Project Director: Prof. Boussekine Samira

Project Code: D01N01UN120120200001

Laboratory Affiliation

Laboratory: Biotechnology, Water, Environment, and Health

Faculty: Natural and Life Sciences

University: Abbes Laghrour University, Khenchela

SKILLS

- In Silico Studies
- Molecular Docking
- Network Pharmacology
- ADMET (Absorption, Distribution, Metabolism, Excretion, and Toxicity)
- Simulation
- Molecular Dynamics
- Drug Design
- HPLC (High-Performance Liquid Chromatography)
- LC-MS/MS (Liquid Chromatography-Mass Spectrometry)
- GC-MS (Gas Chromatography-Mass Spectrometry)
- Polymerase Chain Reaction (PCR)
- DNA Gel Electrophoresis
- Polyacrylamide Gel Electrophoresis
- SDS-PAGE
- Medicinal and Pharmaceutical Chemistry
- Organic Chemistry
- Natural Product Chemistry
- Phytochemistry
- Extraction
- Antioxidant Activities
- DPPH Radical Scavenging Assay
- ABTS Cationic Radical Scavenging Assay
- Copper Reduction Antioxidant Capacity Test (CUPRAC)
- GOR Radical Scavenging Assay
- β -Carotene Bleaching Activity
- Antidiabetic Activities
- α -Amylase Inhibition Assay
- α -Glucosidase Inhibition Assay
- Tyrosinase Inhibition Assay
- Urease Inhibitory Activity
- Anti-inflammatory Activity
- Photoprotective Activity
- Cytotoxic Effect
- Brine Shrimp Lethality Test (BST)
- Oxidative Hemolysis Inhibition Assay (OxHLIA)
- In Vitro Antibacterial Activity Evaluation

Publications and Scientific Activities

Scientific Articles

- **Lekmine, S.**; Benslama, O.; Bensalah, B.; Touzout, N.; Moussa, H.; Tahraoui, H.; Ola, M.S.; Hafsa, H.; Zhang, J.; Amrane, A. Bioactive Phenolics of *Hyoscyamus Muticus* L. Subsp. *Falezlez*: A Molecular and Biochemical Approach to Antioxidant and Urease Inhibitory Activities. *Int J Mol Sci* **2025**, 26, 370.
- **Lekmine, S.**; Benslama, O.; Ola, M.S.; Touzout, N.; Moussa, H.; Tahraoui, H.; Hafsa, H.; Zhang, J.; Amrane, A. Preliminary Data on *Silybum Marianum* Metabolites: Comprehensive Characterization, Antioxidant, Antidiabetic, Antimicrobial Activities, LC-MS/MS Profiling, and Predicted ADMET Analysis. *Metabolites* **2025**, 15, 13.
- Djilali, K.; Maachi, R.; Danish, M.; **Lekmine, S.**; Hadjadj, M.; Ait Mesbah, Z.; Benslama, O.; Tahraoui, H.; Ola, M.S.; Ali, A. A Novel Mobile Phase for Green Chromatographic Determination of Haloperidol: Application to Commercial Pharmaceutical Products and Forced Degradation Studies. *Processes* **2025**, 13, 260.
- **Lekmine, S.**; Benslama, O.; Kadi, K.; Brik, A.; Djefali, O.; Ounissi, M.; Slimani, M.; Ola, M.S.; Eldahshan, O.A.; Martín-García, A.I. Preliminary Investigation of *Astragalus Arpilobus* Subsp. *Hauarensis*: LC-MS/MS Chemical Profiling, In Vitro Evaluation of Antioxidant, Anti-Inflammatory Properties, Cytotoxicity, and In Silico Analysis against COX-2. *Antioxidants* **2024**, 13, 654.
- Benslama, O.; **Lekmine, S.**; Moussa, H.; Tahraoui, H.; Ola, M.S.; Zhang, J.; Amrane, A. Silymarin as a Therapeutic Agent for Hepatocellular Carcinoma: A Multi-Approach Computational Study. *Metabolites* **2025**, 15, 53.
- Moussa, H.; Hamid, S.; Mameri, A.; **Lekmine, S.**; Tahraoui, H.; Kebir, M.; Touzout, N.; Dahmoune, F.; Ola, M.S.; Zhang, J. From Green Chemistry to Healthy Environments: Silver Nanoparticles as a Dual Antioxidant and Antibacterial Agents for Advancing Biomedicine and Sustainable Wastewater Treatment. *Bioengineering* **2024**, 11, 1205.
- **Lekmine, S.**; Benslama, O.; Tahraoui, H.; Ola, M.S.; Laouani, A.; Kadi, K.; Martín-García, A.I.; Ali, A. Anti-Cholinergic Effects of the Phenolic Extract from the *Astragalus Crenatus* Plant: A Computational and Network Pharmacology Study. *Pharmaceuticals* **2024**, 17, doi:10.3390/ph17030348.

- Toumi, S.; **Lekmine, S.**; Touzout, N.; Moussa, H.; Elboughdiri, N.; Boudraa, R.; Benslama, O.; Kebir, M.; Danish, S.; Zhang, J. Harnessing Deep Learning for Real-Time Water Quality Assessment: A Sustainable Solution. *Water (Basel)* **2024**, 16, 3380.
- Moussa, H.; Dahmoune, F.; Lekmine, S.; Mameri, A.; Tahraoui, H.; Hamid, S.; Benzitoune, N.; Moula, N.; Zhang, J.; Amrane, A. Optimization of Ultrasound-Assisted Extraction of Bioactive Compounds from *Carthamus Caeruleus* L. Rhizome: Integrating Central Composite Design, Gaussian Process Regression, and Multi-Objective Grey Wolf Optimization Approaches. *Process Biochemistry* **2024**, 147, 476–488.
- **Lekmine, S.**; Benslama, O.; Kadi, K.; Ignacio Martín-García, A.; Shamsul Ola, M.; Abdullah Yilmaz, M.; Ali, A. Therapeutic Potential of *Hyoscyamus Niger*-Derived Compounds: Targeting Ovarian Cancer through Antioxidant Activity and EGFR Tyrosine Kinase Inhibition. *J King Saud Univ Sci* **2024**, 36, 103103, doi:<https://doi.org/10.1016/j.jksus.2024.103103>.
- Harrat, N.; Kadi, K.; Gueboudji, Z.; Addad, D.; Hamli, S.; Dib, D.; Boukeria, S.; **Lekmine, S.**; Mekersi, N. Effect of Infiltration-Percolation Treatment of Olive Mill Wastewater on Cereal Seed Germination. *Water Air Soil Pollut* **2024**, 235, 693.
- Gherdaoui, D.; Yahoum, M.M.; Toumi, S.; **Lekmine, S.**; Lefnaoui, S.; Benslama, O.; Bouallouche, R.; Tahraoui, H.; Ola, M.S.; Ali, A. Elucidating Chiral Resolution of Aromatic Amino Acids Using Glycopeptide Selectors: A Combined Molecular Docking and Chromatographic Study. *Int J Mol Sci* **2024**, 25, 9120.
- **Lekmine, S.**; Bendjedid, S.; Benslama, O.; Martín-García, A.I.; Boussekine, S.; Kadi, K.; Akkal, S.; Nieto, G.; Sami, R.; Al-Mushhin, A.A.M. Ultrasound-Assisted Extraction, LC–MS/MS Analysis, Anticholinesterase, and Antioxidant Activities of Valuable Natural Metabolites from *Astragalus Armatus* Willd.: In Silico Molecular Docking and In Vitro Enzymatic Studies. *Antioxidants* **2022**, 11, 2000.
- Djeghim, H.; Bellil, I.; Benslama, O.; **Lekmine, S.**; Temim, E.; Boufendi, H.; Postigo, I.; Sánchez, P.; Khelifi, D. Effects of Genetic Diversity on the Allergenicity of Peanut (*Arachis Hypogaea*) Proteins: Identification of the Hypoallergenic Accessions Using BALB/c Mice Model and in Silico Analysis of Ara h 3 Allergen Cross-Reactivity. *J Proteomics* **2024**, 306, 105264.
- Smara, M.; Khalladi, R.; Moulai-Mostefa, N.; Madi, K.; Mansour, D.; **Lekmine, S.**; Benslama, O.; Tahraoui, H.; Zhang, J.; Amrane, A. Efficiency of Hydrogen Peroxide and Fenton Reagent for Polycyclic Aromatic Hydrocarbon Degradation in Contaminated Soil: Insights from Experimental and Predictive Modeling. *Processes* **2024**, 12, 621.

- **Lekmine, S.**; Benslama, O.; Kadi, K.; Martín-García, A.I.; Yilmaz, M.A.; Akkal, S.; Boumegoura, A.; Alhomida, A.S.; Ola, M.S.; Ali, A. LC/MS-MS Analysis of Phenolic Compounds in Hyoscyamus Albus L. Extract: In Vitro Antidiabetic Activity, in Silico Molecular Docking, and in Vivo Investigation against STZ-Induced Diabetic Mice. *Pharmaceuticals* **2023**, 16, 1015.
- Fahmy, N.M.; Fayez, S.; Zengin, G.; Selvi, S.; Uba, A.I.; Mollica, A.; Bouyahya, A.; Ponniya, S.K.M.; Nilofar; **Lekmine, S.** Chemical Exploration of Different Extracts from Phytolacca Americana Leaves and Their Potential Utilization for Global Health Problems: In Silico and Network Pharmacology Validation. *J Biomol Struct Dyn* **2024**, 1–21.
- Triki, Z.; Fergani, Z.; **Lekmine, S.**; Tahraoui, H.; Amrane, A.; Zamouche, M.; Kebir, M.; Assadi, A.A.; Khezami, L.; Zhang, J. Numerical Modelling and Performance Evaluation of Vacuum Membrane Distillation for Energy-Efficient Seawater Desalination: Towards Energy-Efficient Solutions. *Water (Basel)* **2023**, 15, 3612.
- Benslama, O.; **Lekmine, S.**; Mansouri, N. Phytochemical Constituents of Astragalus Monspensulanus and Integrative Analysis for Its Antioxidant, Photoprotective, and Antityrosinase Activities: Experimental and Computational Investigation. *Eur J Integr Med* **2023**, 60, 102247.
- **Lekmine, S.**; Boussekine, S.; Akkal, S.; Martín-García, A.I.; Boumegoura, A.; Kadi, K.; Djeghim, H.; Mekersi, N.; Bendjedid, S.; Bensouici, C.; et al. Investigation of Photoprotective, Anti-Inflammatory, Antioxidant Capacities and LC–ESI–MS Phenolic Profile of Astragalus Gombiformis Pomel. *Foods* **2021**, 10, doi:10.3390/foods10081937.
- Mekersi, N.; Addad, D.; Kadi, K.; Casini, S.; Hackenberger, D.K.; Boumaza, A.; **Lekmine, S.** Effects of Olive Mill Wastewater and Olive Mill Pomace on Soil Physicochemical Properties and Soil Polyphenols. *J Mater Cycles Waste Manag* **2023**, 25, 1404–1416.
- Boussekine, S.; **Lekmine, S.**; Gasmi, S.; Benkhedir, A.; Saker, H.; Lidoughi, A. The PROTECTIVE EFFECT OF SELENIUM ON DIABETIC NEPHROPATHY IN WISTAR RATS. *Journal of microbiology, biotechnology and food sciences* **2022**, 12, e5960–e5960.
- Mekersi, N.; Kadi, K.; Casini, S.; Addad, D.; Amari, A.; **Lekmine, S.** Evaluation of the Effects of Short-Term Amendment with Olive Mill Pomace on Some Soil Properties. *Soil Science Annual* **2022**, 73, 1–6.
- **Lekmine, S.**; Boussekine, S.; Kadi, K.; Martín-García, A.I.; Kheddouma, A.; Nagaz, K.; Bensouici, C. A Comparative Study on Chemical Profile and Biological Activities of Aerial Parts (Stems, Flowers, Leaves, Pods and Seeds) of Astragalus Gombiformis. *Biocatal Agric Biotechnol* 2020, 27, doi:10.1016/j.bcab.2020.101668.

- Mekersi, N.; Kadi, K.; Casini, S.; Addad, D.; Bazri, K.E.; Marref, S.E.; **Lekmine, S.**; Amari, A. Effects of Single and Combined Olive Mill Wastewater and Olive Mill Pomace on the Growth, Reproduction, and Survival of Two Earthworm Species (Aporrectodea Trapezoides, Eisenia Fetida). *Applied Soil Ecology* **2021**, 168, 104123.
- Kadi, K.; Mrah, R.; Hamli, S.; **Lekmine, S.**; Dib, D.; Addad, D.; Boukeria, S.; Gueboudji, Z.; Hafsaoui, I. Evaluation of the Anticoagulant Activity of Margins from Olives Extraction in the Khenchela Region. *Journal of Fundamental and Applied Sciences* 2020, 12, 634–649.

List of Books

- Lekmine Sabrina. *Natural Desert Sources of Bioactive Compounds*. October 26, 2022. ISBN 9994983407