



PROFILE

I define myself as a medicinal chemist with a comprehensive background in analytical chemistry and natural products research. My Ph.D. from Monash University focused on the structural analysis of novel peptide toxins from Australian sea anemones using NMR spectroscopy, involving expertise in peptide synthesis and advanced chromatographic techniques.

Moreover, my Master's degree aimed to develop RP-HPLC and HPTLC methods for conducting quality control and stability studies of phytopharmaceuticals.

Complementing my academic achievements, I've accumulated significant experience teaching undergraduate courses in pharmaceutical sciences in diverse settings across Australia and Egypt.

PERSONAL DETAILS

Nationality:
Australian

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KHALED ELNAHRIRY

EDUCATION

PhD Medicinal Chemistry

Oct 2023

Monash Institute of Pharmaceutical Sciences, Monash University, Australia

MSc Pharmaceutical Sciences (Phytochemistry & Analytical Chemistry)

Jan 2013

Faculty of Pharmacy, Suez Canal University, Egypt

BSc Pharmaceutical Sciences

May 2005

Faculty of Pharmacy, Suez Canal University, Egypt

WORK EXPERIENCE

Medicinal Chemistry Theme, Department of Pharmaceutical Sciences, Alfaisal University, KSA

○ Senior Lecturer

August 2024-Present

Medicinal Chemistry Theme, Monash Institute of Pharmaceutical Sciences, Monash University, Australia

○ Adjunct research associate

Oct 2023 – July 2023

○ Research assistant

2019-2022

Duties: Performed synthesis, purification of pharmaceutical compounds using chromatography (RP-HPLC, LCMS), molecular cloning, protein expression, and diverse microbial culture methodologies. Managed lab integrity, documented inventory, contributed to SOPs, and maintained equipment for safe, uninterrupted experiments.

○ Exam Supervisor

2021-2022

Duties: Performed eVigilation (online) and inVigilation (onsite) exam supervision

○ Teaching Associate

2021

Duties: Participated in teaching and marking the course of BPS 1021 (Medicinal Chemistry I: Structure)

Faculty of Pharmacy, Suez Canal University, Egypt

○ Assistant lecturer

2006-2013

Duties: Preparing and delivering lectures and tutorials, lab supervision, exam creation, and grading in two programs:

- Pharmaceutical Sciences Program:* Pharmacognosy (Part I & II), Phytochemistry, Phytotherapy, Natural Products and Quality Control
- Clinical Pharmacy Program:* Botany and medicinal plants, Pharmacognosy (Part I & II), Phytochemistry (Part I & II), Quality Control of Herbal Drugs, Phytotherapy, Alternative Medicinal Therapies, Production & Manufacture of Medicinal plants, Chromatography and Separation Techniques.

WORK EXPERIENCE (CONTINUED)

- 2018-2019 **Intern Pharmacist**
Pharmacy4Less, Reservoir, VIC, Australia
- 2017-2018 **Compounding chemist**
Pharmacy4Less, Lucas, VIC, Australia
- 2005-2006 **Quality assurance pharmacist**
Medical Union Pharmaceuticals (MUP), Egypt
Duties: Oversaw Quality Management System, ensured compliance, managed documentation, led audits, utilized data for ISO-aligned improvements, and oversaw validation activities

RESEARCH EXPERIENCE

- 2018-2023 **Ph.D. Medicinal Chemistry**
- Project: Structural and functional characterisation of novel peptide toxins from Australian sea anemones
 - Researched venomous sea anemones, uncovering novel peptides (U-AITx-Ate1, U-IPTX-Tst2, SA8) with varied applications. Developed peptides through synthesis and expression methods, conducting structural studies via NMR spectroscopy. Collaborated internationally for electrophysiological and cytotoxicity testing, exploring functional activities.
- 2008-2013 **MSc Pharmaceutical Sciences (Phytochemistry & Analytical Chemistry)**
- Project: Qualitative and quantitative determination of selected therapeutically active compounds in certain pharmaceutical products of the Egyptian market
 - Summary: Master's thesis focused on development of cost-effective RP-HPLC and HPTLC methods for detection of colchicine, khellin, visnagin and khellol glucoside in pharmaceutical preparations and plant crude extract. The developed methods were then employed to assess stability of these phytopharmaceuticals.

SKILLS AND TECHNIQUES

1. **Chemistry:** Chemical synthesis of therapeutically active compounds (e.g.: peptides using solid-phase peptide synthesis).
2. **Spectroscopy and spectrometry:** UV-Vis spectroscopy, Mass spectrometry (LC-MS) and NMR spectroscopy.
3. **Chromatography:** Purification and separation of pharmaceutical compounds: TLC, RP-HPLC, Size-exclusion chromatography, Ion chromatography, and FPLC.
4. **Molecular Biology:** Molecular cloning, bacterial transformation, and plasmid purification.
5. **Protein gel electrophoresis**
6. **Protein expression (Chromatography):** *E. coli* system protein expression (cytoplasmic and periplasmic) of unlabeled and ¹⁵N and ¹³C isotopically labelled peptides.
7. **Molecular modelling:** 3D structural calculation using CYANA.
8. **Molecular dynamics simulations** using GROMACS.
9. **Extraction and fractionation:** Preparation of crude extracts from various natural sources using solid-liquid and liquid-liquid extraction; developing solvent systems for fractionation of crude extracts and bioassay-guided fractionation.

PUBLICATIONS

1. Elnahriry KA, et al. Structural and functional characterisation of Tst2, a novel TRPV1 inhibitory peptide from the Australian sea anemone *Telmatactis stephensoni*. *BBA-Proteins Proteom.* 2023;1872(1):140952.
2. Ashwood LM*, Elnahriry KA*, et al. Genomic, functional, and structural analyses elucidate evolutionary innovation within the sea anemone 8 toxin family. *BMC Biol.* 2023; 21(1):121. *Contributed equally.
3. Belgi A, Burnley JV, MacRaid CA, Chhabra S, Elnahriry KA, et al. Alkyne-Bridged α -Conotoxin Vc1.1 potently reverses mechanical allodynia in neuropathic pain models. *J Med Chem.* 2021; 64(6):3222-3233.
4. Elnahriry KA, et al. Structural and functional characterisation of a novel peptide from the Australian sea anemone *Actinia tenebrosa*. *Toxicon*, 2019; 168, 104.
5. Badr JM, Hadad GM, Elnahriry KA & Hassanean HA. Validated HPLC method for simultaneous estimation of khellol glucoside, khellin and visnagin in Ammi visnaga L. fruits and pharmaceutical preparations, *Nat Prod Res.* 2015; 29 (7), 593.
6. Hadad GM, Badr JM, Elnahriry KA & Hassanean HA. Validated HPLC and HPTLC Methods for Simultaneous Determination of Colchicine and Khellin in Pharmaceutical Formulations. *J Chromatogr Sci.* 2013; 51(3), 258.

CONFERENCE ABSTRACTS

- 2021 Poster presentation at the 46th Lorne Conference on Protein Structure and Function 2021, Lorne, VIC, Australia
2020 Talk presentation at the 15th Annual Postgraduate Research Symposium, Monash Institute of Pharmaceutical Sciences, Melbourne, VIC, Australia
2019 Talk presentation at Peptide User Group (PUG) Symposium, Monash Institute of Pharmaceutical Sciences, Melbourne, VIC, Australia
2019 Poster presentation at the 18th Melbourne Protein Group (MPG) Symposium, LaTrobe University, Bundoora, Vic, Australia
2018 Poster presentation at the Asian Biophysics Association Symposium, Australian Society for Biophysics, Melbourne, VIC, Australia

AWARDS / SCHOLARSHIPS

- 2019 Faculty of Pharmacy & Pharmaceutical Sciences Scholarship. Monash University (Parkville), Melbourne, VIC, Australia.
2018 Departmental Scholarship, Monash Institute of Pharmaceutical Sciences, Monash University (Parkville), Melbourne, VIC, Australia.
2014 Two international publication awards, Suez Canal University, Egypt.

ACCREDITATION

- Oct 2015 Chemist-234211, VETASSESS
Aug 2015 Accredited Retail and Hospital Pharmacist, Australian Pharmacy Council.
June 2015 Passed Knowledge Assessment of Pharmaceutical Sciences (KAPS) exam

REFEREES

Prof Raymond S. Norton
(PhD supervisor)

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(Collaborator)

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