

Nesma M. Mohamed

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ACADEMIC EDUCATION AND QUALIFICATION

PhD in pharmaceutical sciences, 2017, **specialization:** Chemistry of the natural products, joint system supervision between **National center of Natural Product Research (NCNPR)**, University of Mississippi, MS, USA and Faculty of Pharmacy, Assiut University, Assiut, Egypt (**Aug. 2014- Nov. 2016**).

Thesis title "Phytochemical and biological study of some plants belonging to family Verbenaceae".

Master degree in pharmaceutical sciences, 2012, **specialization:** Chemistry of the natural products, Faculty of Pharmacy, Assiut University, Assiut, Egypt.

Thesis title "Pharmacognostical study of *Lantana montevidensis* (Spreng.) Briq. cultivated in Egypt".

Bachelor degree in pharmaceutical sciences and chemistry with honors, 2007, Faculty of Pharmacy, Assiut University, Assiut, Egypt.

ACADEMIC EMPLOYMENT

Associate professor at Faculty of Pharmacy, Pharmacognosy department, Badr University in Assiut, Assiut, Egypt. (Sep. 2022 till now)

Associate professor at Faculty of Pharmacy, Pharmacognosy department, Assiut University, Assiut, Egypt. (May 2022 till Sep. 2022)

Lecturer at Faculty of Pharmacy, Pharmacognosy department, Assiut University, Assiut, Egypt. (Dec. 2020 till May 2022)

Postdoctoral scholarship holder at National center of Natural Product Research (NCNPR), University of Mississippi, MS, USA (Feb. 2020 till Nov. 2020)

Lecturer at Faculty of Pharmacy, Pharmacognosy department, Assiut University, Assiut, Egypt. (May 2017 Feb. 2020)

Lecturer assistant at Faculty of Pharmacy, Pharmacognosy department, Assiut University, Assiut, Egypt. (Dec 2016 to May 2017)

Visiting scholar at National center of Natural Product Research (NCNPR), University of Mississippi, MS, USA (Aug 2014 to Dec 2016)

Lecturer assistant at Faculty of Pharmacy, Pharmacognosy department, Assiut University, Assiut, Egypt. (July 2012 to Aug 2014)

Demonstator at Faculty of Pharmacy, Pharmacognosy department, Assiut University, Assiut, Egypt. (Dec. 2007 to July 2012)

RESEARCH INTERESTS

Exploration of biodiversity for novel drug lead discovery, isolation and structure determination of organic natural products of medicinal significance from plants and microbes, studies on the structure and

biochemistry of biological products, examination of the biosynthesis of natural products, and evaluation of the biochemical effects of these active constituents.

RESEARCH EXPERIENCE

- Well trained for isolation, identification, structure elucidation, synthesis and evaluation of biologically active metabolites from natural sources including plants, fungi, and marine organisms.
- Good experience in the area of glycan and glycoside natural products drug discovery as well as NMR spectroscopy.
- Previous experience in the field of the plant tissue culture and studying of the effect of different external stress factors on the biosynthetic pathways of the plant.
- Well trained to do the 1D and 2D-NMR experiments using different NMR equipment including:
 - Varian - Mercury AS 400 MHz (^1H) and 100 MHz (^{13}C) with a 3mm inverse probe using residual solvent signal as internal standard (manual shim version), NC, USA.
 - Bruker Avance DRX spectrometer at 400-600 MHz (^1H) and 100-150 MHz (^{13}C), Germany.

Structural elucidation of these isolated compounds was done using 1D- (^1H - & ^{13}C -NMR), 2D- (^1H - ^1H -COSY, NOESY, ROESY, TOCSY, HMQC, HSQC & HMBC) NMR techniques together with HRESIMS. The obtained data was handled using Mnova NMR software.

Different research projects led to exposure to NMR pattern of diverse classes of compounds including monoterpenoid glycosides, sterols, triterpenoid aglycones, triterpenoid saponins, flavonoid aglycone and glycosides, iridoid glycosides, phenyl propanoid glycosides, phenolics and quinolone alkaloids.

Bioassay guided fractionation of the used plant extracts augmented the isolation of the bioactive compounds, in which some of the isolated compounds were found to be active when they were assessed against antimicrobial, antiprotozoal, antiplasmodial, cannabinoid and opioid receptor binding assay and anticancer studies.

TEACHING EXPERIENCE

- **Practical courses;** Pharmacognosy-1-3, Natural product chemistry-1&2, and applied Pharmacognosy-1&2, for the students of Faculty of pharmacy, Assiut university, Assiut, Egypt (Grades 1 through 4).
- Natural product chemistry-1, for the students of Faculty of pharmacy, Assiut university, Assiut, Egypt (Grade 3).

TRAINING COURSES

- **Dealing with change,** DAAD office in Cairo, April 2013
- **Managing conflicts using constructive negotiation techniques,** DAAD office in Cairo, April 2013
- **Research management,** DAAD office in Cairo, April 2013
- **Communication and rhetorical techniques,** DAAD office in Cairo, May 2013

- **Effective cooperation and communication in team**, DAAD office in Cairo, May 2013
- **Principles of scientific work**, DAAD office in Cairo, May 2013
- **Ethics in sciences**, DAAD office in Cairo, May 2013

AWARDS

- Joint system supervision scholarship from the Egyptian Ministry of Higher education, 2013.
- 2nd place for the poster presentation in 4th university of Mississippi malria symposium, April 2016, under title “Secondary metabolites from the roots of *Lantana montevidensis*”.
- Short term postdoctoral fellowship (6 months) from the Egyptian Ministry of Higher Education, 2019.
- Assiut University Best PhD thesis award (2020).

CONFERENCES

Assiut University 11th International Pharmaceutical Sciences Conference, Faculty of Pharmacy, Assiut, April, 11th & 12th, 2018. Monoterpene Glucosides From the Flowers of *Lantana montevidensis* cultivated in Egypt. Poster Presentation.

15th Annual Oxford International Conference on the Science of Botanicals, April 11th - 14th 2016. Oleanane and ursane saponins from the roots of *Glandularia x hybrida*. Poster presentation.

14th Annual Oxford International Conference on the Science of Botanicals, April 13th - 16th 2015. New pentacyclic triterpenoid from the roots of *Lantana montevidensis* (spreng.) briq. cultivated in Egypt. Poster presentation.

PUBLICATIONS

Manuscripts

1. AbdelMohsen UR, Bayoumi SAL, Mohamed NM, Mostafa YA, Ngwa CJ, Pradiel G, Farag SF. Naturally Occurring Phenylethanoids and Phenylpropanoids: Antimalarial potential. RSC advances. August 2023. **In press**
2. Hassanein EH, Abd El-Maksoud MS, Ibrahim IM, Abd-alhameed EK, Althagafy HS, Mohamed NM, Ross SA. The molecular mechanisms underlying anti-inflammatory effects of galangin in different diseases. *Phytotherapy Research*. 2023 May 29.
3. Hassanein EH, Ibrahim IM, Abd-Alhameed EK, Mohamed NM, Ross SA. Protective effects of berberine on various kidney diseases: Emphasis on the promising effects and the underlined molecular mechanisms. *Life Sciences*. 2022 Oct 1;306:120697.
4. Mohamed SM, Hassanein EH, Ross SA, Mohamed NM. Phytoconstituents from *Adenantha pavonina* L. as antioxidants and inhibitors of inducible TNF- α production in BV2 cells. *Natural Product Research*. 2022 Jan 10:1-2.
5. Mohamed NM, Ahmed MA, Khan SI, Fronczek FR, Mohammed AF, Ross SA. Anti-inflammatory and cytotoxic specialised metabolites from the leaves of *Glandularia* \times *hybrida*. *Phytochemistry*. 2022 Mar 1;195:113054.

6. Ahmed MA, Mohamed NM, Woodman TJ, Kociok-Köhn G, Blagbrough IS. Loganin-type iridoids as chemotaxonomic markers in *Glandularia gooddingii* (Briq.) Solbrig. *Phytochemistry Letters*. 2021 Aug 1;44:68-73.
7. Abdelmalek EM, Ramadan MA, Darwish FM, Assaf MH, Mohamed NM, Ross SA. *Callistemon* genus-a review on phytochemistry and biological activities. *Medicinal Chemistry Research*. 2021 Feb 25:1-25.
8. Zaher AM, Ahmed MA, Mohamed NM. Anti-inflammatory activity of the food plant *Calligonum polygonoides* L. flavonoids targeting NF- κ B. *Bulletin of Pharmaceutical Sciences. Assiut*. 2020 Dec 1;43(2):157-64.
9. Mohamed NM, Makboul MA, Farag SF, Mohamed S, Ross SA. Chemosystematically valuable triterpenoid saponins and other constituents from *Glandularia x hybrida* roots. *Phytochemistry*. 2020;1-8.
10. Mohamed S, Chaurasiya N, Mohamed NM, Bayoumi S, Tekwani B, Ross SA. Promising selective MAO-B inhibition by sesamin, a lignan from *Zanthoxylum flavum* stems. *Saudi Pharmaceutical Journal*. 2020;28(4):409-413.
11. Gadetskaya AV, Mohamed SM, Tarawneh AH, Mohamed NM, Ma G, Ponomarev BN, Zhusupova GE, Cantrell CL, Cutler SJ, Ross SA. Phytochemical characterization and biological activity of secondary metabolites from three *Limonium* species. *Medicinal Chemistry Research*. 2017:1-8.
12. Kiyekbayeva L, Mohamed NM, Yerkebulan O, Mohamed EI, Ubaidilla D, Nursulu A, Assem M, Srivedavyasri R, Ross SA. Phytochemical constituents and antioxidant activity of *Echinops albicaulis*. *Natural Product Research*. 2017 May 5:1-5.
13. Mohamed NM, Makboul MA, Farag SF, Tarawneh AH, Khan SI, Brooks TA, Wang YH, Ross SA. Iridoid and phenylpropanoid glycosides from the

roots of *Lantana montevidensis*. Medicinal Chemistry Research. 2017 Jun 1;26(6):1117-26.

14. Mohamed NM, Makboul MA, Farag SF, Jain S, Jacob MR, Tekwani BL, Ross SA. Triterpenes from the roots of *Lantana montevidensis* with antiprotozoal activity. Phytochemistry Letters. 2016 Mar 31;15:30-6.
15. Makboul MA, Attia AA, Farag SF, Mohamed NM, Ross SA. Chemical Constituents with Free-Radical-Scavenging Activity from the Leaves of *Lantana montevidensis* (Spreng.) Briq. Phcog J. 2014 Nov 1;6:27-31.
16. Makboul MA, Attia AA, Farag SF, Mohamed NM, Ross SA. Investigation of essential oil and biological activities of *Lantana montevidensis* (Spreng.) Briq. cultivated in Egypt. J Nat Pharm. 2013 Jan 1;4(1):13-20.
17. Makboul MA, Attia AA, Farag SF, Mohamed NM, Ross SA, Takaya Y, Niwa M. A new pentacyclic triterpenoid from the leaves of *Lantana montevidensis* (Spreng.) Briq. Natural product research. 2013 Nov 1;27(21):2046-52.

Abstracts

Mohamed NM, Makboul MA, Farag SF, Ross SA. Oleanane and ursane saponins from the roots of *Glandularia x hybrida*. Planta Medica. 2016 Mar;82(05):PC51.

Mohamed NM, Makboul MA, Farag SF, Ross SA. New pentacyclic triterpenoid from the roots of *Lantana montevidensis* (spreng.) briq. cultivated in Egypt. Planta Medica. 2015 Mar;81(05):PC22.

LANGUAGES

Arabic: Fluent

English: Very good

COMPUTER SKILLS

Awarded a certificate of international computer driving license (ICDL), 2013

Office (Word, Excel, PowerPoint)

Mnova NMR software

REFERENCES

Prof. Dr. Samir A. Ross, Research Professor of Pharmacognosy and Natural Products Chemistry, in National Center of Natural product (NCNPR), University of Mississippi, MS, USA. Email: sross@olemiss.edu. Tel.: +1/6629151031