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Education

August, 2013	Ph.D. Biology, GPA 3.0	Braunschweig Institute of Technology, Germany
November, 2007	M.Sc. Phytochemistry, GPA 3.3	Cairo University, Egypt
May, 2002	B.Sc. Pharmacy, GPA 3.7	Cairo University, Egypt

Work Experience

Associate Professor of Pharmacognosy (March 2019- till now)	Faculty of Pharmacy, Cairo University (Full-time 2013-2019). Faculty of Pharmacy, Heliopolis University (part-time: 2014-2019). Faculty of Pharmacy, Heliopolis University (Full time: 2019/2020)
Lecturer (November 2013 till February 2019)	Teaching i) undergraduate & graduate courses of phytochemistry, biosynthesis and biotechnology of medicinal plants, ii) Research in field of natural products chemistry.
Ph.D. Student (April 2010- Semptember 2013)	Institute of Pharmaceutical Biology, Braunschweig Institute of Technology, Braunschweig, Germany. Elucidation of phytoalexins biosynthesis in pome-producing plants utilizing elicitor-treated cell cultures of <i>Sorbus aucuparia</i> as a model system and through using various biochemical techniques. Molecular cloning and functional biochemical analysis of <i>O</i> -methyltransferases participating in biosynthesis of biphenyls and dibenzofurans.
M.Sc. Student (October 2004- November 2007)	Faculty of Pharmacy, Cairo University. Isolation and structural elucidation of phenolics and terpenoids responsible for the antihyperglycemic activity of <i>Pterospermum acerifolium</i> (L.) Willd.
Demonstrator (November 2003- May 2009)	Faculty of Pharmacy, Cairo University. Teaching practical sessions of quality control of natural products, phytochemistry, pharmacognosy and botany.
Retail Pharmacist (May 2002- April 2004)	In addition, patients counseling.

Administrative work

October 2018 – September 2019	A member of the committee for scientific instruments, Faculty of Pharmacy, Cairo University.
2018	A member of the organizing committee for the 9 th International Scientific Conference of Faculty of Pharmacy, Cairo University.
October 2015 – September 2017	Vice dean of the head of the Central Laboratory, Faculty of Pharmacy, Cairo University.
2015	A member of the committee for the updating of the faculty website.

Skills**Scientific skills**

Molecular Biology	<ul style="list-style-type: none"> • Expression profiling using Real-Time qPCR. • Isolation and cloning of cDNAs. • Heterologous expression of plant genes in bacteria and yeast systems. • Phylogenetic analysis using MEGA 5 software.
Biochemistry	<ul style="list-style-type: none"> • Functional characterization of proteins. • Study of enzyme inhibition kinetics and mode of action • Feeding experiments using radioactively labeled compounds. • Plant tissue cultures & fungal cultures.
Chemistry and Phytochemistry	<ul style="list-style-type: none"> • Classical organic synthesis of natural products (e.g. Suzuki coupling, Ullmann synthesis, demethylation using BBr₃ or MgI₂). • Isolation, purification and characterization of natural products (HPLC, GC, GC-MS, LC-QTOF-MS, LC-MS/MS). • Structure elucidation of natural products (UV, IR, NMR).

Language Skills & others

English (fluent)	<u>11 October 2008</u> , Passing the TOEFL (IBT) Listening 30; Reading 30; Speaking 23; writing 28; Total 111 <u>20 August 2008</u> , Passing the GRE (general test) Quantitative 770, Verbal 500; Total 1270. Analytical Writing (3)
German (good)	<u>March 2010</u> , Goethe-Zertifikat B2 <u>October 2009-March 2010</u> , intensive German language course in Goethe Institute, Göttingen, Germany in context of the GERLS scholarship Program
Computer	Microsoft Office, Chemdraw
others	Cooking, football

Teaching experience

October 2013 - current	Lecturer (undergraduate courses) <i>Pharmacognosy-2 (203), Phytochemistry-2 (206), Biotechnology of medicinal plants (3276) and Quality Control of herbal products (3253)</i> (Postgraduate courses) <i>Isolation and identification of natural products (2203)</i>
December 2002-	(Demonstrator) Preparing and teaching practical courses on the following

April 2009	subjects <i>Botany and medicinal plants (201), Pharmacognosy-1 (202)</i> for first year students. <i>Pharmacognosy (203)</i> for second year students. <i>Phytochemistry (205), and (206)</i> for third year students. <i>Quality control and Natural Products (208)</i> for the final year students.
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Awards

2105 & 2017	The annual award of publishing internationally from Cairo University
March 2008	Best Master student in the field of medicinal plants from Mepaco co. and Nerhado International co.
December 2007	Ideal Demonstrator from Club of Cairo University faculty members.

Attended Workshops

Scientific lectures and seminars

3-4 April 2021	<u>Nawah Scientific</u>	Nano drug delivery systems: formulation and characterization.
14 February 2018	<u>PAQU-FOPCU-Cairo University</u> Performance Appraisal & Quality Assurance Unit, Faculty of Pharmacy, Cairo University	Experimental Design in Chromatography
03 April 2017		Bioanalysis and Validation of Bioanalytical Methods
24 April 2017		<u>As Trainer:</u> <i>In vitro</i> enzyme inhibition assays: guidelines and practical tips
15-16 May 2016	Pharmaceutical Chemistry Department, Faculty of Pharmacy, Ain Shams University	Recent advances in molecular docking and ligand-based drug design technique, 3 rd workshop in computer aided drug design
18 June 2013	Bio-Rad	Digital PCR
29 March 2012	Merck Millipore	Western Blot Grundlagen, Tipps und Tricks (Fundamentals of Western Blot, tips and tricks)
13 September 2011	Bio-Rad	qPCR seminar
5 July 2011	Promega GMBH	Methoden der Protein-Expression und Aufreinigung (Methods of protein expression and purification)
22-23 September 2010	EMBL European Bioinformatics Institute	EBI Bioinformatics Roadshow

Soft skills workshops

17-18 March 2021	FLDC, Faculty & Leadership Development Program, Cairo University	Fundamentals of integrated education
13-14 March 2021		Critical thinking
24-25 February 2021		Communication Skills in different types of education
16-17 September 2017	<u>PAQU-FOPCU-Cairo University</u>	Specialized workshop in quality assurance
15 November	Performance	Writing effective exam questions

2017	Appraisal & Quality Assurance Unit , Faculty of Pharmacy, Cairo University	
28 March 2017		Creating online and interactive quizzes
20 Mach 2017		The Do's and Dont's in Publishing & an overview on BFOPCU
6 February 2017		Citation Managers Software "Endnote vs Mendeley"
20 March 2014	DAAD Kairo Akademie	Interactive lectures
15 July 2017		Change management in higher education
3-4 September 2018	FLDC, Faculty & Leadership Development Program, Cairo University	University code of ethics
27-28 August 2018		Ethical considerations for animal use in research and education
8-9 September 2018		Creative thinking
6-7 August 2018		Crisis angement
20-21 December 2017		Conference organization
11-12 November 2013		Exam and students evaluation systems
25 June 2013	Grad.Life, TU Braunschweig	Fit for disputation
17 May 2013		Fundraising for young scientists
14-15 May 2012		Training 'Scientific Writing'
24 April 2012		Lecture 'Ups and downs and oops of multicultural experience'
28-29 Septenber 2011		Project management
2005 -2007	Faculty members & Leaders skills development Cairo University	,time management' ,lifetime learning' ,presentation skills'

Publications

- 1) Arafat MAM, **Khalil MNA**, Mohamed OG, Abd El-Ghafar OAM, Tripathi A, Mahrous EA, Abd El-Kadr EA, El-Hawary S: Vetiver aerial parts and roots ameliorate rheumatoid arthritis in complete Freund's adjuvant rat model, a phytochemical profiling and mechanistic study. *Journal of Ethnopharmacology*, 317, 1-17, <http://doi.org/10.1016/j.jep.2023.116764> (2023)
- 2) Attallah OA, Nady M, Al Gendy AM, Choucry M, **Khalil MNA**: Preparation and optimization of a molecularly imprinted polymers – solid phase extraction system for the extraction of bioactive sesquiterpene lactones of *Ambrosia maritima* plant. *Natural Product Research*, <https://doi.org/10.1080/14786419.2022.2118744>
- 3) Abdel-Dayem SI, **Khalil MNA**, Abdelrahman EH, El-Gohary HM, Kamel AS: Sesquiterpene lactones; Damsin and neoambrosin suppress cytokine-mediated inflammation in complete Freund's adjuvant rat model via shutting Akt/ERK1/2/STAT3 signaling. *Journal of Ethnopharmacology*, **266**: 113407 (2021).
- 4) **Khalil MNA**, Farghal HH, Farag MA: Outgoing and potential trends of composition, health benefits, juice production and waste management of the multi-faceted

Grapefruit Citrus X paradisi: A comprehensive review for maximizing its value. *Critical Reviews in Food Science and Nutrition*.(2020).
DOI: 10.1080/10408398.2020.1830364

- 5) Abdel-Dayem SI, **Khalil MNA**, Abdelrahman, EH, El-Gohary, HM, Yehia A: Ultrasound-assisted extraction of damsine and neobambosin from *Ambrosia maritima*: optimization using response surface methodology. **Egyptian Journal of Chemistry**, 2020, doi: 10.21608/ejchem.2020.47736.2989
- 6) El Sayed AM, AbdElSattar E, and **Khalil MN**: New calogenin pregnane glycoside derivative from *Huernia saudi-arabica* and its Lipase and α -Glucosidase Inhibitory Activities. **Biomedicine & Pharmacotherapy**, **127**: 110143 (2020).
- 7) **Khalil MN**, Choucry MA, Elsenousy AS, El-Marasy SA, El Awdan SA, Omar FA :Ambrosin, a potent NF- κ B inhibitor, ameliorates lipopolysaccharide induced memory impairment, comparison to curcumin. **PloS one**, *14*(7), (2019). e0219378-e0219378.
- 8) Srour AM, Dawood DH, **Khalil MNA**, Nofal ZM: Synthesis and 2D-QSAR study of dispiropyrrrolodinyloxindole based alkaloids as cholinesterase inhibitors. **Bioorganic Chemistry**, **83**: 226-234 (2019)
- 9) Choucry MA, **Khalil MNA**, El Awdan SA: Protective action of *Crateva nurvala* Buch. Ham extracts against renal ischaemia reperfusion injury in rats *via* antioxidant and anti-inflammatory activities. **Journal of Ethnopharmacology**, **214**: 47-57 (2018)
- 10) Farag MA, Fekry MI, Al-Hammady MA, **Khalil MNA**, El-Seedi HR, Meyer A, Prozel A, Westphal H, Wessjohan LA: Cytotoxic effects of *Sarcophyton* sp. Soft corals-Is there a correlation to their NMR fingerprints?. **Marine Drugs**, **15**:211-224 (2017).
- 11) **Khalil MNA**, Fekry MI, Farag MA: Metabolome based volatiles profiling in 13 date palm fruit varieties from Egypt *via* SPME GC-MS and chemometrics. **Food Chemistry**, **217**: 171-181 (2017).
- 12) El Sayed AM, Ezzat SM, **Khalil MNA**, El-Hawary: Chemical composition and evaluation of possible *alpha* glucosidase inhibitory activity of eight *Aloe* species. **Journal of Medicinal Plants Research**, **10**: 167-178 (2016).
- 13) **Khalil MNA**, Brandt W, Beuerle T, Reckwell D, Groeneveld J, Hänsch R, Gaid MM Liu B, Beerhues L: *O*-Methyltransferases involved in biphenyl and dibenzofuran biosynthesis. **Plant Journal**, **83**: 263-276 (2015).
- 14) **Khalil MNA**, Beuerle T, Müller A, Ernst L, Bhavanam VBR, Liu B, Beerhues L : Biosynthesis of the biphenyl phytoalexin aucuparin in *Venturia inaequalis*-treated *Sorbus aucuparia* cell cultures. **Phytochemistry** **96**: 101-109 (2013).
- 15) Coyne S, Chizzali C, **Khalil MNA**, Litomska A, Richter K, Beerhues L, Hertweck C: Biosynthesis of the antimetabolite 6-thioguanine in *Erwinia amylovora* plays a key role in fire blight pathogenesis. **Angewandte Chemie** **52**:10564-10568 (2013) .
- 16) Coyne S, Litomska A, Chizzali C, **Khalil MNA**, Richter K, Beerhues L, Hertweck C: Control of plant defense mechanisms and fire blight pathogenesis through the regulation of 6-thioguanine biosynthesis in *Erwinia amylovora*. **ChemBioChem** **15**:373-376 (2014).

- 17) **Khalil MNA**, Ph.D. thesis "Biosynthesis of biphenyl and dibenzofuran phytoalexins in *Sorbus aucuparia* cell cultures" Institute of Pharmaceutical Biology, Braunschweig Institute of Technology, Braunschweig, Germany, (2013).
- 18) Chizzali C, **Khalil MNA**, Beurle T, Schuehly W, Richter K, Flachowsky H, Peil A, Hanke MV, Liu B, Beerhues L: Formation of biphenyl and dibenzofuran phytoalexins in the transition zones of fire blight-infected stems of *Malus domestica* cv. 'Holsteiner Cox' and *Pyrus communis* cv. 'Conference'. **Phytochemistry** **77**: 179-185 (2012).
- 19) Selim MA, El-Askary HI, Sanad OA, **Ahmed MN**, Sleem AA: Phytochemical and pharmacological study of *Pterospermum acerifolium* L. Willd. growing in Egypt. **Bull. Fac. Pharm. Cairo Univ.** 44 (3): 119-126 (2006).
- 20) **Khalil MNA**, MSc thesis, "Pharmacognostical study of certain plants belonging to family *Sterculiaceae*" Faculty of Pharmacy, Cairo University, 2007.

Conference Presentations

- 1) A poster presentation entitled "Studies on *Moorea producens* microalga from Red Sea, Egypt" Abdelhady EM, **Khalil MNA**, Hashem MM, Sabry OM. Human and planetary health: everything is connected. OM Emory University, Atlanta, Georgia, USA. June 4-9th, 2023
- 2) Keynote speaker "Ambrosin: A possible alternative for curcumin in alleviation of lipopolysaccharide induced memory impairment". **Khalil MNA**, 2nd International Conference on Natural Products & Traditional Medicine" November 19th, 2020, Webinar
- 3) A poster presentation entitled "Phytochemical study of certain plants growing in Egypt from family *Lamiaceae* with anticholinesterase activity" Gadelhak T, Sobeh M, Othman S, **Khalil M**, Wink M, Tadros S. 9th International Scientific Conference, Faculty of Pharmacy, Cairo University, April 25-26th, 2018
- 4) A poster presentation entitled "Localization of phytoalexin biosynthesis in Pyrinae" Reckwell D, Sircar D, **Khalil MNA**, Groeneveld HJ, Hänsch R, Beerhues L. 13th International Fire Blight Workshop. Zürich, Switzerland, July 2nd-5th, 2013.
- 5) An oral presentation entitled "Molecular analysis of biphenyl biosynthesis" **Khalil MNA**, Beurle T, Liu B, Beerhues L. Black Forest Retreat on Molecular Plant Science. Herzogenhorn, Freiburg, Germany, Sep 10th-13th, 2012.
- 6) An oral presentation entitled "Biosynthesis of biphenyl and dibenzofuran phytoalexins in *Sorbus aucuparia* cell suspension cultures" **Khalil MNA**, Beurle T, Liu B, Beerhues L. Tagung der Sektion 'Pflanzliche Naturstoffe' der deutschen Botanischen Gesellschaft im Michaeliskloster Hildesheim, Germany, Sep 30th – Oct 2nd, 2012.

Funded Projects:

- PI of the project "Preparation of molecularly imprinted polymers for the isolation of the bioactive sesquiterpene lactones from *Ambrosia maritima*, small scale API production" STDF, ID no. 43014, (October 2020-October 2021)
- Participant in "Large scale untargeted metabolomics analysis of Egyptian nutraceuticals & Red Sea marine soft corals" STDF, ID no. 12594, RSTDG, (May 2015 – May 2016).

References

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