ATIA-TUL-WAHAB

MAILING ADDRESS

Dr. Panjwani Center for Molecular Medicine and Drug Research,
International Center for Chemical and Biological Sciences,
University of Karachi, Karachi-75270, Pakistan
Tel: (92-21) 99261673
Fax: (92-213) 4819018-9
Email: tulwahab@yahoo.com

EDUCATION

Post-doctoral Studies (Structural Biology) under the Supervision of **Prof. Dr. Harald Schwalbe,** Johann Wolfgang Goethe-University, Frankfurt, Germany	2014, and 2016
Post-doctoral Studies (Structural Biology) under the Supervision of **Prof. Dr. Kurt Wüthrich (Nobel Laureate)** The Scripps Research Institute, La Jolla, CA 92037, USA	2009-2010
Ph. D. (Organic Chemistry) H. E. J. Research Institute of Chemistry University of Karachi, Karachi-75270, Pakistan	2007
M. Sc. (Organic Chemistry) University of Karachi, Karachi-75270, Pakistan	1999
B. Sc. Hons. (Chemistry, Biochemistry, Microbiology) University of Karachi, Karachi-75270, Pakistan	1998
Higher Secondary School Certificate (HSC) (Chemistry, Biology, Physics), Khatoon-e-Pakistan Govt. Degree College, Karachi-75270	1995

AWARDS & SCHOLARSHIPS

Merit Scholarship for Ph. D. Studies awarded by Higher Education Commission (HEC), Pakistan	2003-2007
Pak-US Ph.D. Partial Support Program awarded by United States Department of States (USDOS) and Higher Education Commission (HEC), Pakistan	2005-2006

EXPERIENCE

Associate Professor, Dr. Panjwani Center for Molecular Medicine and Drug Research, International Center for Chemical and Biological Sciences, University of Karachi, Karachi-75270, Pakistan	2017-todate

Assistant Professor Dr. Panjwani Center for Molecular Medicine and Drug Research, International Center for Chemical and Biological Sciences, University of Karachi, Karachi-75270, Pakistan	2010-2017
Post-doctoral Studies (Structural Biology) under the Supervision of **Prof. Dr. Kurt Wüthrich (Nobel Laureate)** The Scripps Research Institute, La Jolla, CA 92037, USA	2009-2010
Research Officer H.E.J. Research Institute of Chemistry University of Karachi, Karachi-75270, Pakistan	2006-2008
Ph. D. Research Student H.E.J. Research Institute of Chemistry University of Karachi, Karachi-75270, Pakistan **Title of Thesis** "Phytochemical Investigation on the Chemical Constituents of *Iris germanica*, *Cocculus pendulus* and related medicinal plants".	2000-2007
Graduate Student Research Studies at Department of Chemistry University of California Irvine, Irvine, CA 92697, USA Title "Creation of nanometer-scale molecular architecture based on unnatural *iota*-amino acid, aminodiphenylmethanecarboxylic acid (Adc)"	Feb. 2006-Dec. 2006
Graduate Research Studies at Department of Chemistry, Facultés Universitaires Notre-Dame de la Paix (FUNDP), Belgium Title "Learning Principles of Synthetic Organic Chemistry"	2004–2005
Research Studies during M. Sc. at Department of Chemistry, University of Karachi, Karachi-75270, Pakistanon Title "Phytochemical Studies on *Solanum melongena*"	Jan. 1999-Dec 1999

PROTEIN DEPOSITED IN PROTEIN DATA BANK (PDB)

		PDB ID
1	NMR structure of protein NP_888769.1, a phage- related protein in the *Bordetella bronchiseptica* genome	2L25
2	NMR structure of the *Klebsiella pneumoniae* protein YP_001336205	2L1S
3	NMR structure of heavy metal binding protein TM0320 from *Thermotoga maritime*	2KYZ
4	NMR based solution structure of PTS system, galactitol-specific IIB component from methicillin resistant Staphylococcus aureus	5GQS
5	Solution NMR Structure of DNA Mismatch Repair Protein MutT (Family Nudix Hydrolase) from Methicillin Resistant Staphylococcus aureus 252	5X1X

BOOK

Solving Problems with NMR Spectroscopy, Atta-ur-Rahman, M. Iqbal Choudhary, Atia-tul-Wahab, Academic Press, An imprint of Elsevier USA 2016

RESEARCH PUBLICATIONS

1 Biotransformation of a potent anabolic steroid, mibolerone, with *Cunninghamella blakesleeana*, *C. echinulata*, and *Macrophomina phaseolina*, and biological activity evaluation of its metabolites, Siddiqui, M., Ahmad, M.S., **Atia-tul-Wahab**, Yousuf, S., Narjis, F., Shaikh, N. N., Atta-ur-Rahman, Choudhary, M. I., *PlosOne*, *2017*, 12(2), e71476.

2 Two new prenylated flavonoids from the roots of Berberis thunbergii DC. Hussain, N., Adhikari, A., Ahmad, M. S., **Atia-tul-Wahab**, Ali, M., Choudhary, M. I., *Natural Product Research*, 2017, 31(7), 785-790.

3 New anti-inflammatory metabolites by microbial transformation of medrysone, Bano S., **Atia-tul-Wahab**, Yousuf, S., Jabeen A., Mesaik M. A., Atta-ur-Rahman, Choudhary, M. I., *PlosOne*, *2016*, 11(4) e0153951.

4 Biotransformation of 6-dehydroprogesterone with Aspergillus niger and Gibberella fujikuroi, Ahmad M., S., Zafar, S., Yousuf, S., **Atia-tul-Wahab**, Atta-ur-Rahman, Choudhary, M. I., *Steroids, 2016,* 112, 62-67.

5 Dihydropyrano [2,3-c] pyrazole: Novel *in vitro* inhibitors of yeast α-glucosidase, Kashtoh, H., Muhammad, M. T., Khan, J. J. A., Rasheed, S., Khan, A., Perveen, S., Javaid, K., **Atia-tul-Wahab**, Khan, K. M., Choudhary, M. I., *Bioorganic Chemistry, 2016,* 65, 61-72.

6 Benzamide sulfonamide derivatives: potent inhibitors of carbonic anhydrase-II, Saleem, M., Saeed, A., **Atia-tul-Wahab**, Khan, A., Abbasi, S., Khan, W., Khan, S. B., Choudhary, M. I., *Medicinal Chemistry Research, 2016,* 25(3), 438-448.

7 Flavonoids as natural inhibitors of Jack bean urease enzyme, Awllia, J. A. J., AL-Ghamdi, M., Huwait, E., Javaid, S., **Atia-tul-Wahab**, Rasheed, S., Choudhary, M. I., *Letters in Drug Design & Discovery, 2016,* 13(3): 243 – 249.

8 Study of binding epitopes by STD-NMR spectroscopy and molecular docking of urease inhibitors from Lichens, Thadhani, V. M., Khan, A., **Atia-tul-Wahab**, Javaid, S., Shafqat, A., Zaheer-ul-Haq, Choudhary, M. I., Letters in Drug Design & Discovery, 2016, 13(4): 282 – 294.

9 Microbial transformation of danazol with *Cunninghamella blakesleeana* and anti-cancer activity of danazol and its transformed products, Baydoun, E., **Atia-tul-Wahab**, Mehmood, H., Ahmad, M. S., Malik, R. Smith, C., Choudhary, M. I., *Steroids, 2016,* 105, 121-127.

10 Reversal of multi-drug resistance in *Staphylococcus aureus* by natural product-way forward, Farooq, S., **Atia-tul-Wahab,** Azarpira, A. Atta-Ur-Rahman, Choudhary, M. I., *Letters in Drug Design and Discovery, 2016,* 13(7), 668-675.

11 Evaluation of 2-indolcarbohydrazones as potent alpha-glucosidase inhibitors, in silico studies and DFT based stereochemical predictions, Taha, M., Ismail, N. H., Javaid, K., Imran, S., Anouar, E. H., Wadood, A., **Atia-tul-Wahab**, Ali, M., Khan, K. M., Saad, S. M., Rahim, F., Choudhary, M. I., *Bioorganic & Medicinal Chemistry, 2016,* 63, 24–35.

12 Discovery of new inhibitors of urease enzyme: A study using STD-NMR spectroscopy, Awllia, J. A. J., Sara, A., **Atia-tul-Wahab**, AL-Ghamdi, M., Rasheed, S. Huwait, E., Choudhary, M. I., *Letter in Drug Design & Discovery, 2015,* 12(10), 819-827.

13 Synthesis of diethyl 4-substituted-2,6-dimethyl-1,4-dihydropyridine-3,5-dicarboxylates as a new series of inhibitors against yeast α-glucosidase, Niaz, H., Kashtoh, H., Khan, J. A. J., Khan, A., **Atia-tul-Wahab**, Alam, M. T., Khan, K. M., Perveen, S., Choudhary, M. I., *European Journal of Medicinal Chemistry, 2015,* 95, 199-209.

14 Microbial transformation of oxandrolone with *Macrophomina phaseolina* and *Cunninghamella blakesleeana*, Smith, C., **Atia-tul-Wahab,** Khan, M. S. A., Malik S. A., Farran, D., Choudhary, M. I., Baydoun, E. *Steroids, 2015,* 102, 39-45.

15 Synthesis of novel inhibitors of α-glucosidase based on the benzothiazole skeleton containing benzohydrazide moiety and their molecular docking studies, Taha, M., Ismail, N. H., Lalani, S., Fatmi, M. Q., **Atia-tul-Wahab**, Siddiqui, S., Khan K. M., Imran, S., Choudhary, M. I., *European Journal of Medicinal Chemistry*, 2015, 92, 387-400.

16 Fungal transformation and T-cell proliferation inhibitory activity of melengestrol acetate and its metabolite, Baydoun, E., Bano, S., **Atia-tul-Wahab**, Jabeen, A., Yousuf, S., Mesaik, A., Smith, C., Choudhary, M. I. *Steroids, 2014,* 86, 56-61

17 Microbial transformation of nandrolone with *Cunninghamella echinulata* and *Cunninghamella blakesleeana* and evaluation of leishmaniacidal activity of transformed products, Baydoun E., Karam M., **Atia-tul-Wahab,** Khan M.S., Ahmad M.S., Samreen, Smith C., Abdel-Massih R., Choudhary, M. I. *Steroids, 2014,* 88, 95-100.

18 Biotransformation of androgenic steroid mesterolone with *Cunninghamella blakesleeana* and *Macrophomina phaseolina*, Ahmad, M.S., Zafar, S., Bibi, M., Bano, S., **Atia-tul-Wahab**, Atta-ur-Rahman, Choudhary, M. I., *Steroids, 2014,* 82, 53-59.

19 Artonin I inhibits multidrug resistance in *Staphylococcus aureus* and potentiates the action of inactive antibiotics *in vitro*, Farooq, S., **Atia-tul-Wahab**, Fozing, C. D. A., Rahman, A. U., Choudhary, M. I, *Journal of Applied Microbiology, 2014,* 117, 996-1011.

20 Discovery and study of the binding epitopes of novel urease Inhibitors by STD-NMR spectroscopy and biochemical Analyses, **Atia-tul-Wahab**, Khan, A.; Marasini, B. P.; Lodhi, M. A.; Atta-ur-Rahman, Choudhary, M. I.; *Letters in Drug Design & Discovery* 2013, 10(6), 515-521.

21 Microbial transformation of anti-cancer steroid exemestane and cytotoxicity of its metabolites against cancer cell lines, Baydoun E.; Bibi M.; Muhammad A., I.; **Atia-tul-Wahab**; Farran D.; Smith C.; Sattar S. A.; Atta-ur-Rahman; Choudhary, M. I.; *Chemistry Central Journal* 2013, 7:57.

22 Anticancer and α-chymotripsin inhibiting diterpene and triterpenes from *Salvia leriifolia*, Choudhary, M. I.; Hussain, A.; Adhikari, A.; Marasini, B. P.; Sattar, S. A., **Atia-tul-Wahab**, Hussain, N.; Ayatollahi, S. A. M.; Atta-ur-Rahman, *Phytochemistry Letters*, 2013, 6(1), 139-143.

23 Synthesis of some potent immunomodulatory and anti-inflammatory metabolites by fungal transformation of anabolic steroid oxymetholone, Khan N. T.; Bibi M.; Yousuf S.; Qureshi I. J.; Atta-ur-Rahman; Al-Majid A. M.; Mesaik M. A.; Khalid A. S.; Sattar S. A.; **Atia-tul-Wahab**, Choudhary M. I.; *Chemistry Central Journal*, 2012, 6:153.

24 New antiglycation and enzyme inhibitors from *Parmotrema cooperi*, Choudhary, M. I.; Ali, M.; **Atia-tul-Wahab**; Khan, A.; Rasheed S.; Shyaula S. L.; Atta-ur-Rahman, *Scince China Chemistry*, 2011, 54(12) 1926-1931.

25 NMR structure of the *Bordetella bronchiseptica* protein NP_888769.1 establishes a new phage-related protein family PF13554, **Atia-tul-Wahab**; Serrano, P.; Geralt, M.; Wüthrich, K. *Protein Science*, 2011, 20 (7), 1137-1144.

26 Discovery of leishmanicidal agents from medicinal plants, Atta-ur-Rahman; Samreen; **Atia-tul-Wahab**; Choudhary, M. I. *Pure & Applied Chemistry*, 2008, 80(8), 1783-1790.

27 A new class of macrocyclic receptors from *iota*-peptides, Kang, S. –W.; Gothard, C.; Maitra, S.; **Atia-tul-Wahab**; Nowick, J. S. *Journal of American Chemical Society*, 2007, 129, 1486-1487.

28 Bisbenzylisoquinoline alkaloid from *Cocculus pendulus*, Atta-ur-Rahman; **Atia-tul-Wahab**; Nawaz, S. A.; Choudhary, M. I. *Natural Product Research*, 2009, 23 (14), 1265-1273.

29 Crystal and molecular structure of talatisamine, Tashhodjaev, B.; Turgunov, K. K.; **Atia-tul-Wahab**; Choudhary, M. I.; Atta-ur-Rahman *Chemistry of Natural Compounds*, 2005, 41(5), 611-612.

30 Crystal and molecular structure of 12-epinapelline, Atta-ur-Rahman; **Atia-tul-Wahab**; Tashhodjaev, B.; Turgunov, K. K.; Sultankhodjaev, M. N.; Choudhary, M. I. *Chemistry of Natural Compounds*, 2005, 41(5), 609-610.

31 Norditerpenoid alkaloids from *Akonitum karakolicum*, Atta-ur-Rahman; **Atia-tul-Wahab**; Sultankhodzhaev, M. N.; Teshebaeva, U. T.; Choudhary, M. I. *Natural Product Research*, 2005, 19(7), 713-718.

32 New cholinesterase inhibiting bisbenzylisoquinoline alkaloids from *Cocculus Pendulus*, Atta-ur-Rahman; **Atia-tul-Wahab**; Nawaz, S. A.; Choudhary, M. I. *Chemical & Pharmaceutical Bulletin*, 2004**,** 52(7), 802-806.

33 Spectral data of secokaraconitine, Sultankhodzhaev, M. N.; **Atia-tul-Wahab**; Choudhary, M. I.; Atta-ur-Rahman *Chemistry of Natural Compounds*, 2003, 39(5), 512.

PATENTS GRANTED

1 Schiff bases of thiazoles: A new class of ureases inhibitors, Choudhary, M. I., Khan, K. M., Khan, A., Ambreen, N., Atia-tul-Wahab, Atta-ur-Rahman, Patent No. US 9,447,057B2, Date of Patent Sep. 20, 2016.

2 Thiourea derivatives, Choudhary, M. I., Farooq, S., Khan, K. M., Naz, F., Atia-tul-Wahab, Atta-ur-Rahman, Patent No. US 9,387,186 B2, Date of Patent Jul. 12, 2016.

3 Treatment and inhibition of protozoal diseases with nandrolone and its derivatives, Baydoun, E., Choudhary, M. I., Atia-tul-Wahab, Smith, C., Karam, M., Farran, D., Khan, M. S. A., Ahmad, M. S., Patent No. US 9,173,888 B1, Date of Patent Nov. 3, 2015.

4 Artonin I to treat resistant infectious Staphylococcus aureus, Choudhary, M. I., Farooq, S., Atia-tul-Wahab, Fozing, C. D. A., Atta-ur-Rahman, Patent No. US 8,889,733 B2, Date of Patent Nov. 18, 2014.

PATENTS APPLIED

1 4-[2-(Dipropylamino)ethyl]-1,3-dihydro-2H-indol-2-one (Ropinirole), a new inhibitor of Jack bean urease enzyme: An example of drug repurposing, Khan, J. A. J., Choudhary, M. I., AL-Ghamdi, M. A. A., Huwai, E. A. H., Atia-tul-Wahab, Iqbal, S., U. S. Patent Application No. 15/061,280, Filing Date 08/03/2016.

2 4-Hyroxybenzohydrazide- A new class of angiogenic enzyme thymidine phosphorylase inhibitors, Choudhary, M. I.,Javaid, S., Khan, K. M., Saad, S. M., Atia-tul-Wahab, Atta-ur-Rahman, U. S. Patent Application No. 15/053, 887, Filing Date 25/02/2016.

3 Drug repositioning: Urease inhibitory activity of (2S)-1-[(2S)-2-methyl-3-sulfanylpropanoyl]pyrrolidine-2-carboxylic acid (captopril), Khan, J. A. J., Muhammad Iqbal Choudhary, AL-Ghamdi, M. A. A., Huwai, E. A. H., Atia-tul-Wahab, Iqbal, S., U. S. Patent Application No. 15/051,077, Filing Date 23/02/2016.

4 Potent inhibitors of human carbonic anhydrase II and bovine carbonic anhydrase II and their mechanism of action, Choudhary, M. I., Saleem, M., Bhatti, A. S., Atia-tul-Wahab, Khan, A., Atta-ur-Rahman, U.S. Patent Application No. 14/854,981; Filing Date 21/09/2015.

5 Anti-hyperurecemic agent 4-pyradine carboxylic acid hydrazide, Choudhary, M. I., Zafar, H., Khan, K. M., Atia-tul-Wahab, Hayat, M. Karim, A., US Patent Application No. 14/617,718, Filing date 09/02/2015.

6 Anti-glycation properties of oxindole derivatives, Choudhary, M. I., Rasheed, S., Ahmed, N., Khan, K. M., Khan, M., Atta-ur-Rahman, Atia-tul-Wahab, US Patent Application No. 13/954,648, Filing Date 07/30/2013.

7 Heterocyclic Schiff's bases as novel and new antiglcation agents, Ibrahim, S., Warad, I., Al-Nuri, M. A., Choudhary, M. I., Atia-tul-Wahab, Rasheed, S., US Patent Application No. 13/757,956, Filing date 02/04/2013.

8 Thiourea derivatives as alpha-chymotrypsin inhibitors, Atta-ur-Rahman, Choudhary, M. I., Marasini, B. P., Khan, K. M., Sheikh, F., Atia-tul-Wahab, US Patent Application No. 14/030,817, Filing date 09/18/2013.

PARTICIPATION IN CONFERENCES

1 Lecture at ANRAP 7th International Seminar , entitled "Towards Mechanism-based Inhibition of Post-prandial Hyperglycemia- *Discovery of Novel α-Glucosidase Inhibitors"*, from March 22–24, 2013, at the Nepal Academy of Sciences, Kathmandu, Nepal.

2 Lecture at 4th International Symposium cum Training Course on Molecular Medicine and Drug Research, entitled "Molecular Identification and Recognition-Examples of Applications of STD-NMR*"*, from January 7–10, 2013, at the ICCBS, Karachi.

3	Lecture at 3rd International Symposium cum Training Course on Molecular Medicine and Drug Research, entitled "NMR Structure of Protein YP_001336205, from Klebsiella pneumoniae Genome**",** from January 3–6, 2012, at the ICCBS, Karachi.
4	Attend workshop "Modern Biotechnology in Muslim Countries – Specific Issues and Challenges" from 27-29 February, 2012, at COMSTECH Islamabad, Pakistan.
5	Lecture at International Conference on Chemical Sciences, entitled, "Understanding the α-Glucosidase Inhibition Properties of Natural Products at the Molecular Level", from 20–22 June, 2012 at Colombo, Sri Lanka.
6	Lecture at 1st International Conference on Frontiers in Pharmaceutical Sciences: Global Perspectives, entitled, "Discovery of Novel Antiglycation Agent- An Approach Towards the Treatment of Late Diabetic Complications" from 28–30 September, 2012, at New College of Pharmacy Research and Education Building, The University of Rhode Island, Kingston, Rhode Island, USA.
7	Lecture at the 13th International Symposium for Natural Product Chemistry, entitled, "*NMR for Molecular Identification and Recognition-Examples of STD NMR and 1D-TOCSY*", organized by H. E. J. Research Institute of Chemistry, from 22–25 September, 2012, at the ICCBS, Karachi.
8	Public awareness lecture entitled, "Gastrointestinal Ulcers: Most Common bur Most Misunderstood" on November 29, 2012 at ICCBS Public Awareness Program.
9	Attend Biochemistry Symposium "Exploring Biochemistry: Molecular Innovation and Beyond" organized by Department of Biochemistry, University of Karachi, 5th December, 2012 at ICCBS, Karachi
10	14th Asian Chemical Congress 2011 (14 ACC), Contemporary Chemistry for Sustainability and Economic Sufficiency, September 5-8, 2011 at Bangkok, Thailand.
11	3rd Biosafety and genetic engineering congress, June 13-15, 2011 at Tehran, Iran.
12	7th Joint Meeting of AFERP, ASP, GA, PSE & SIF Natural Products with Pharmaceutical, Nutraceutical, Cosmetic and Agrochemical Interest, August 3-8, 2008 at Athens, Greece.
13	11th International Symposium on Natural Product Chemistry, October 2008, at Karachi, Pakistan.
14	10th International Symposium on Natural Product Chemistry, in January 2006, Karachi, Pakistan.
15	9th International Symposium on Natural Product Chemistry, in January 2004, Karachi, Pakistan.
16	7th Eurasia Conference on Chemical Sciences, in March 2002 at Karachi, Pakistan.
17	12th National and 2nd International Symposium on Natural Product Chemistry, in February 2002, Jamshoro, Pakistan.
18	11th National & 1st International Symposium on Natural Product Chemistry, in April 2001, Peshawar, Pakistan.

RESEARCH PROJECTS WON

1	Studies on the chemoprevention of mammary carcinogenesis by dietary agents	Higher Education Commission, Pakistan
2	Development of novel methods against Aedes aegypti vector, causative agent of dengue fever epidemic in Pakistan	Higher Education Commission, Pakistan

3	Application of saturation transfer difference NMR in the discovery of potent urease inhibitors	Higher Education Commission, Pakistan
4	Biomedical studies and intellectual property right (IPR) documentation of medical plants used in the treatment of women diseases in Sindh	Govt. of Sindh, Pakistan
5	Survey, documentation and scientific studies on plant remedies used for the treatment of infectious skin diseases in Sindh	Govt. of Sindh, Pakistan
6	Studies on natural inhibitor of kidney stone formation and possible treatment of urolithiasis	Pakistan Academy of Sciences
7	Studies of structural and molecular mechanism of resistance reversal in Staphylococcus aureus by natural products	Pakistan Academy of Sciences
8	Studies on hepatoprotective effects of bioactive secondary metabolites of plants by using antioxidant and relevant bioassays	Pakistan Science Foundation
9	Study of natural products for the *in vivo* bacterial clearance in pneumonia	Higher Education Commission, Pakistan

SCHOLARS WHO COMPLETED Ph.D. STUDIES UNDER THE SUPERVISION OF DR. ATIA-TUL-WAHAB

S. #	NAME OF STUDENT	Year	THESIS TITLE
1.	Dr. Fauzia Yasir *Supervisor*	2016	Evaluation of the anti-kidney stone (Anti-urolithiasis) activity of natural products, and study of their mechanism of action

SCHOLARS WHO COMPLETED M. PHIL. STUDIES UNDER THE SUPERVISION OF DR. ATIA-TUL-WAHAB

S. #	NAME OF STUDENT	Year	THESIS TITLE
1.	Ms. Nimra Naveed Sheikh *(M. Phil.)* *Co-supervisor*	2017	Study of molecular structures and drugibility potential of new inhibitors of β-glucuronidase enzyme
2.	Ms. Ayesha Sarah *(M. Phil.)* *Supervisor*	2014	Application of biochemical, saturation transfer difference and other NMR techniques for the discovery of high affinity urease inhibitors
3.	Ms. Salima Lalani *(M. Phil.)* *Supervisor*	2013	Studies on mechanism of action of α-glucosidase inhibitors

4.	Mr. Yasir Mahmood *(M. Phil.)* *Supervisor*	2011	Potential role traditional herbs in the prevention of atherosclerosis in a rodent animal model
5.	Mr. Meher Ali *(M. Phil.)* *Co-supervisor*	2010	Chemical and bioassay screening studies on lichens