



Adil Ali El Hussein Hamad

Associate Prof. of Microbiology

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1. Personal Details

1.1 Personal definition

Name	Adil Ali El Hussein Hamad
Date of Birth	3/8/1957
Place of Birth	Magashi, Northern State
Gender	Male
Marital Status	Married
Nationality	Sudanese
Academic Status	Associate Professor
Department	Botany
Faculty	Science
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1.2 FIELD OF WORK

Microbial/Plant Biotechnology

1.3 SPECIAL INTEREST

- **Salmonella* : Surveillance and Multi-drug Resistance.
- *Application of Molecular markers for assessment of genetic diversity in crop plants.
- *Role of microorganisms in pesticides degradation.
- *Phylogenetic analysis of important vegetable viruses.

2. Academic Qualifications

Degree	Institution	Country	Date
Ph.D.	Botany Dept., Faculty of Science, University of Khartoum	Sudan	2000
M.Sc.	Botany Dept., Faculty of Science, University of Khartoum	Sudan	1987
B.Sc.	Faculty of Agriculture, University of Khartoum	Sudan	1982

3. ACADEMIC APPOINTMENTS EXPERIENCE INCLUDING INDICATIONS of External Recognition

Position/Title	Institution/ country	Date
Professor	Botany Dept., Faculty of Science, University of Khartoum	April. 2014
Associate Professor	Botany Dept., Faculty of Science, University of Khartoum	2010-2014
Assistant Professor	Botany Dept., Faculty of Science, University of Khartoum	2000- 2010
Lecturer	Botany Dept., Faculty of Science, University of Khartoum	1993- 2000
Assistant Professor	University of Medical Science and Technology	2000- 2004
Lecturer	University of Medical Science and Technology	1996-2000

4. SPECIALISED/ PROFESSIONAL TRAINING

Training	Institution / Country	Date
Production and quality control of Legume Inoculants	Cairo Microbiological Resource Center (Cairo MIRCEN), Egypt	1988
Soil and plant tissue analysis	International Institute for Tropical Agriculture (IITA), Ibadan, Nigeria,	1989
Lichen secondary metabolites, Isolation and purification	Department of Botany, Smithsonian Institution, Washington D. C.	1997
Chemistry of lichen substances	Department of Biology, Faculty of Science, University of Padova, Padova, Italy	1999
UNESCO workshop on: Innovative Methods for Teaching Sciences at the University Level	Sana'a University, Sana'a, Yemen	2005

5. SCHOLARSHIPS, Awards, Honours and Distinctions

5.1. Scholarships

Awarding Body	Country	Date
United Nation Environment program (UNEP)	UN	1985
United Nation Environment program (UNEP)	UN	1988
Smithonian Institution	USA	1998
University of Padova	Italy	1999

5.2. AWARDS

Award	Awarding Body	Country	Date
Distinguished researchers in Basic Sciences and Engineering	U of K	Sudan	2012

6. PROFESSIONAL COURSES, Conferences & WORKSHOPS ATTENDED

Training Course/ Workshop	Body	Country	Date
The 30 th Conference for the Arab Association of Collegiate Registrars and Admissions Officers.	Art, Sciences and Technology University in Lebanon	Lebanon	2010
6th Conference on New Frontiers in Microbiology and Infection, Salmonella: From Basic Science to Clinical Issues. 3-7 Oct. 2010	European Society of Clinical Microbiology and Infectious Diseases	Switzerland.	2010
1 st International Conference of University of Khartoum.	Graduate College, University of Khartoum	Sudan	March 2010
3 rd International Conference of Genetic Engineering & Biotechnology Division: Biotechnology for Better Life.	NRC	Egypt	3-5 Nov. 2009
Arab-ACRAO Conference 2009: The 29 th Conference for the Arab Association of Collegiate Registrars and Admissions Officers.	Balamand University	Lebanon	2009
The 13 th International Conference on promotion of university education.	Ain Shams University	Egypt	2007
2nd international conference on biological nitrogen fixation.	NRC	Egypt	1987

7. COURSES & WORKSHOPS ATTENDED IN EDUCATION

Training Course/ Workshop	Body	Date
International Council of Association for Science Education (ICASE) African Regional Conference: Challenges to Sustainable Development in Africa through Science and Technology Education	International Council of Association for Science Education (ICASE), Nigeria	May 2009
UNESCO Workshop on Innovative Methods for Teaching Sciences at the University Level.	Sana'a University, Sana'a, Yemen.	2005.

8. TEACHING & EXAMINATION EXPERIENCE

a) Teaching Responsibilities for:

i) Undergraduate

Course Title	Credit hours	Semester/ year
BOT407 «Bacteriology»	3	1/4th
BOT408 «Virology»	3	2/4th
BOT402 «Biostatistics»	3	2/4th
BOT504 «Experimental Design & Analysis»	4	2/5th
Graduation projects (6 students)	6 (per student)	5th

ii) Staff Training

Training	Staff Grade	Institution
Research Methodology and Biostatistics	M.Sc. & Ph.D	U of K Staff promotion Centre
Research Methodology and Biostatistics	M.Sc. & Ph.D	U of K Staff promotion Centre
Supervision of Postgraduate Studies (4 students)	M.Sc. & Ph.D	University of Khartoum
Supervision of Postgraduate Studies (2 students)	Ph.D	University of Kordufan
Supervision of Postgraduate Studies (1 student)	Ph.D	University of Kassala
Supervision of Postgraduate Studies (1 student)	Ph.D	University of Elnailain
Supervision of Postgraduate Studies (1 student)	Ph.D	University of Shendi

Previous years: 1993 - 2011

i) Undergraduate

Course Title	Credit hours	Semester/ year	Faculty
BIO 103 «Diversity of Life/ Microbiology »	4	2/1st	Science/U of K

Introduction to Plant Physiology	3	2/1st	Science/U of K
Cytogenetics	3	2/2nd	Science/U of K
BOT306 « Microbial Genetics »	3	2/3rd	Science/ U of K
Mycology	3	2/3rd	Science/U of K
BOT407 « Bacteriology»	3	1/4th	Science/ U of K
BOT408 « Virology»	3	2/4th	Science/ U of K
BOT529 « Seed Pathology/host-pathogen Interaction»	3	1/5th	Science/ U of K
BOT523 « Applied Microbiology»	3	1/5h	Science/ U of K
BOT522 « Genetic engineering»	3	2/5th	Science/ U of K
Cell biology	3	1/1st	Med., Pharm., MLS, Dent./UMST (1996-2004)
Pharmacognostical Botany	3	2/1st	Pharmacy, /UST (2001-2004)

iii) Staff Training

Training	Staff Grade	Institution	Date
Supervision of Postgraduate Studies (7 students)	M.Sc. & Ph.D	University of Khartoum	2000-2013
Supervision of Postgraduate Studies (1 student)	M.Sc.	University of Elnailain	2004
Supervision of Postgraduate Studies (1 student)	M.Sc.	University of Shendi	2007
Supervision of Postgraduate Studies (1 student)	M.Sc.	University of Kassala	2006
Supervision of Postgraduate Studies	M.Sc.	Sudan University of Science & Technology	2004
Supervision of Postgraduate Studies (5 students)	M.Sc. & Ph.D	National Center for Research	2004-2011

c) Examinations

i) Undergraduate

Status	Course Title	Faculty	University	Date
External examiner	Graduate students	Natural Resources	University of Juba	2002
External examiner	Graduate students	Science & Technology	Alnilain University	2012
External examiner	Graduate students	Science & Technology	Alnilain University	2014
Examiner	BIO 103 «Diversity of Life/Microbiology»	Science	U of K	2005 - 2009
Examiner	Introduction to Plant Physiology	Science	U of K	2005-2009
Examiner	Cytogenetics	Science	U of K	1993-1995
Examiner	BOT306 « Microbial Genetics»	Science	U of K	1998 & 2008
Examiner	Mycology	Science	U of K	1998-2000
Examiner	BOT407 « Bacteriology»	Science	U of K	1993-2014
Examiner	BOT408 «Virology»	Science	U of K	2002-2014
Examiner	BOT529 «Seed Pathology/host-pathogen Interaction»	Science	U of K	2007-2012
Examiner	BOT523 «Applied Microbiology»	Science	U of K	2008-2010
Examiner	BOT527 «Genetic engineering»	Science	U of K	2008-2010
Examiner	Introduction to Microbiology	Science	U of K	1993-2000
Examiner	General Botany	Science	U of K	1993
Examiner	Cytogenetics	Science	U of K	1993-1995
Examiner	Cell biology	Med., Pharm., MLS, Dent.	UMST	(1996-2004)
Examiner	Pharmacognostical Botany	Pharmacy,	UMST	(2001-2004)

9) ADMINISTRATIVE & PROFESSIONAL RESPONSIBILITIES & ACTIVITIES at UNIVERSITY of KHARTOUM

i) ADMINISTRATIVE RESPONSIBILITIES

Date	Position
May 2010-March 2014	Director, Planning Administration, University of Khartoum
Aug. 2004-May 2010	Deputy Academic secretariat affairs – University of Khartoum
Feb.2004- Aug.2004	Head Botany Department, Faculty of Science - University of Khartoum
2000	Secretary of Examination Office,Botany Department, Faculty of Science, University of Khartoum
1994	Secretary of Examination Office,Botany Department, Faculty of Science, University of Khartoum

ii) Membership of Academic committees:

Date	Committee
2004-2014	University of Khartoum Senate
2004-2010	Teaching assistant appointment
2004-2010	Teaching assistant training
2004-2010	Admission and Registration
2004-2010	Examination and prizes
2008-2011	The National Committee of Basic Sciences, Ministry of Higher Education
2003-2004	Faculty Board member, Faculty of Science
2013-Date	Faculty Board member, Faculty of Science

iii) NEW ESTABLISHMENTS

Date	Establishment
1988-1989	Biofertilization laboratory, National council for Research
2004	Molecular Biology research laboratory, Botany Dept., Faculty of Science, U of K.

iv) SERVICE ACTIVITIES

Date	Activity
2000-2004	Project leader, Water, Sanitation and Hygiene. CARE International (Microbiological water analysis in displacement camps at Khartoum State peripheries)
2009	Consultancy for British Airways & MaKs (Microbiological water quality)
2007	Consultancy for Khartoum State government (sewage purification plant at Almaygoma, Hag Yousif)
2015	Consultancy for MAKs (Microbiological water quality)

v) OTHER ACTIVITIES

Date	Activity
2005-Date	Establishment of <i>Salmonella</i> surveillance group in collaboration with scientists from Sudan, Canada, France & Germany
2011-Date	Molecular Identification and Phylogenetic Analysis of Viruses Associated with Garlic and Pumpkin in collaboration with scientists from Sudan & Italy
2008-Date	Establishment of Biodegradation of Pesticide Research group in collaboration with scientists from U of K and NCR

10) MEMBERSHIP

i) LOCAL

Status	Association/ Society	Town//Country	Date
Member	Natural Products Research Organization (NAPRECA-SUDAN)	Khartoum/Sudan	2013

iii) INTERNATIONAL

Status	Association/ Society	Town/Country	Date
Member	International Association of Plant Biotechnology (IAPB)	Australia	2012
Member	Bergey's International Society for Microbial Systematics.	USA	2010
Member	African Crop Science Society	Many	2009

	(ACSS)		
Member	International Council of Association for Science Education (ICASE)	Many	2009

11) ORGANISATION OF PROFESSIONAL TRAINING COURSES

Status	Training course/ Symposium	Country	Date
Organizer	Training course for laboratory technicians at Sudanese Universities	Sudan	17/7- 5/9/2007
Organizer	Training course for Sudanese Association of Scientific Equipment Users	Sudan	16- 27/3/ 2008

12) ORGANIZATION OF SCIENTIFIC CONFERENCES, MEETINGS & SYMPOSIA

Status	Seminar/ meeting/ conference/ Public Lecture	Country	Date
Organizer	Better plants for better life (3-days Symposium)	Sudan	2009
Member, Scientific Advisory Committee	3rd Genetic Engineering & Biotechnology Conference (International Conference)	Egypt	2009
Co-organizer	Transfer of Knowledge Through Expatriate Nationals (TOKTEN) program (2 weeks workshop)	Sudan	2012
Co-organizer	Development of new Sorghum cultivars using molecular markers (one-day symposium)	Sudan	2013
Co-organizer	The 15th Symposium of The Natural Products Research Network for Eastern and Central Africa (NAPRECA)	Sudan	2013

13) Research and related administration

a) SUPERVISION OF RESEARCH WORK

i) Undergraduate

Student Name	Thesis Title	Faculty	University	Date
More than 100 students during the period 1993-2015				

ii) Postgraduate Supervision (Higher Research Degrees)

1) Master

Student Name	Thesis Title	University	Date
Maha Abdel Hafiz	Diversity and Cross-Inoculation Abilities among Rhizobia Isolated from Different Guar Lines	U of K	2003
Rna Abdel Gabar	Effects of Nitrogen on <i>Striga hermonthica</i> (DEL.) Benth., Germination, Growth and Parasitism on <i>Sorghum bicolor</i> (L.) Moench	U of K	2003
Marmar A. El Siddig	Cultural, Biochemical and Molecular Characterization of Agrobacteria Isolated from Stem Tumours of <i>Launea capitata</i> L in Sudan	U of K	2004
Sana Yousif Elneima	Characterization of Locally Isolated <i>Streptomyces</i> Species and Their Potentialities as Sources of Antibiotics.	U of K	2005
Aisha Ohag Osman	Characterization of Native Guar Rhizobia and their Cross Inoculation Abilities among Different Guar Lines.	U of K	2006
Suha Abdelmajeed	Citric acid production by <i>Aspergillus niger</i> isolates in batch submerged fermentation.	U of K	2005
Iman Khalifa	The Formulation of Two Media for the Selective Isolation of <i>Agrobacterium</i> Species in Soils.	U of K	2005
Deena Abdel Fatah	Characterization of Locally isolated <i>Streptomyces</i> Species and their Potentialities as Sources of Antifungal Agents.	U of K	2007
Haleema Salih	Isolation, Identification, Serotyping and Antibiotic Susceptibility testing of Human <i>Salmonella</i> in Khartoum State.	U of K	2007
Mayha M. Ali	Biochemical, Serological and Molecular Characterization of <i>Salmonella</i> spp. Isolated from Different Sources in Sudan.	U of K	2007
Sara Abdel	Numerical Taxonomic Study of Legume Nodulating	U of K	2008

Gayoum	Bacteria.		
Sara Mahmoud El Sayed	Cultural, Biochemical, Serological and Molecular Characterization of <i>Salmonella</i> spp. Isolated from Food and Water in Khartoum State	U of K	2008
Rasha Ali	Diversity and Cross Infestation Abilities among Different <i>Striga hermonthica</i> populations.	U of K	2008
Zahra Mohammed Ibrahim	Evaluation of the Specificity and Sensitivity of Some PCR Primers for the Detection and Identification of Locally Isolated <i>Salmonella</i> Strains	U of K	2009
Afrah Tajelsi	An Investigation of the Role of Soil Microorganisms in the Degradation of Oxyfluorfen (Goal) Herbicide.	U of K	2009
Eltoga El Tayeb Abdel Rahman	Evaluation of different PCR primers for the detection and identification of conventionally characterized agrobacteria.	U of K	2009
Rihab Ishag Mohammed El Hassan	Isolation and characterization of <i>Streptomyces</i> species with in vitro and in vivo activities against some phytopathogenic fungi.	U of K	2010
Mohammed Salih Osman Hommed Ali	Citric acid production from cane molasses by <i>Aspergillus niger</i> under submerged fermentation conditions.	Sudan Academy of Sciences	2011
Randa Eltayeb	Screening of locally isolated <i>Streptomyces</i> for production of metabolites active against pathogenic bacteria	Sudan Academy of Sciences	2011
Hind Emad Fadul	Estimation of genetic diversity in wheat (<i>Triticum aestivum</i> L.) cultivars grown in Sudan using RAPD Markers	U of K	2012
Mervet Abdellah Mohammed	Characterization of locally isolated <i>Streptomyces</i> and their potentialities as anti-fungal agents.	Sudan Academy of Sciences	2012
Hyfa Hassan A. Wahid	<i>In Vitro Agrobacterium</i> -Mediated Transformation and Regeneration of Some Tomato (<i>Lycopersicon Esculentum</i> Mill.) Cultivars Harboring Antifungal Protein Gene.	U of K	2013
Heyam Salih Mohammed	Molecular Identification and Phylogenetic Analysis of Viruses Associated with Garlic (<i>Allium sativum</i> L.) and Pumpkin (<i>Cucurbita maxima</i> Duchesne) in Sudan.	U of K	2013
Twassul Mohi Eldeen Mohammed	Microbiological and Physico-chemical Quality of Domestic Water in Khartoum State.	U of K	2014
Rabab Mohamed Ahmed Ali	Estimation of Genetic Diversity and Drought Tolerance in Sudanese <i>Sorghum bicolor</i> (L.) Moench Accessions Using Morpho-physiological and Molecular Markers,	U of K	2014
Leiza Hayder	Effect of Growth Conditions on the Production, Composition and Viscosity of Xanthan Gum Production	U of K	2014

Ahmed	by <i>Xanthomonas campestris</i>		
Co-supervisor: Ishraga Mohammed Abdel Rahman	Laboratory Trials for Chemical and Biological Control of the Mosquitoes <i>Anopheles Arabiensis</i> and <i>Culex Quinquefasciatus</i> (Diptera: Culicidae).	U of K	2006
Co-supervisor: Hassan El Siddig Hag Elsafi	Biochemical, Serological and Molecular Characterization of <i>Salmonella</i> spp. Isolated from Poultry in Khartoum State.	U of K	2008
Co-supervisor: Ashraf M. Shareif	Effect of fungicide Tetramethylthiuram disulfide (Thiram) on soil microorganisms with special emphasis on nitrogen fixing bacteria.	U of K	2010
Co-supervisor: Noura Khalil Ahmed	Utilization of Genetic Markers to Assess the Heritability of Bacterial Leaf spot Resistance Trait in Sesame (<i>Sesamum indicum</i> L.).	U of K	2015

2) PhD

Student	Thesis Title	University	Date
Marmar A. El Siddig	Molecular Aspects of <i>Agrobacterium</i> -Host Interaction and Production of Transgenic Tomato Plants Expressing Defensin Gene.	U of K	2009
Shaza Gamal Mohammed	Optimization of fermentation conditions for citric acid production by <i>Aspergillus niger</i> in submerged culture.	U of K	2012
Randa H. Elsalahi	Microbial Degradation of Fungicide Benomyl in Soil as Influenced by Temperature Organic and Inorganic Fertilizers.	U of K	2013
Rasha Ali M. A. Ali	Fine Mapping of Quantitative Trait Loci (QTLs) Associated with Striga Resistance using Molecular Markers and Introgression of Resistance genes into Sorghum (<i>Sorghum bicolor</i> (L.) Moench) in Sudan.	U of K	2013
Iman Khalifa Abdel Gadir Ahmed	Genetic Transformation of Sudanese Cotton (<i>Gossypium</i> spp.) Cultivars for Improved Insect Resistance Using <i>Agrobacterium tumefaciens</i> as a Vector.	U of K	2014
Aisha Ohag Osman	Genetic Transformation of Sudanese Sunflower (<i>Helianthus annuus</i> L.) Lines for Improved Drought Tolerance Using <i>Agrobacterium tumefaciens</i> as a Vector.	U of K	2014
Co-supervisor: Nazik El Tayeb Musa	<i>Bacillus</i> and Clostridial Species Isolated from Food of Animal Origin with Special Reference to their Spores Resistance and Injury by Heat.	U of K	2005
Co-supervisor: Sayeda Ali Khalil	Effect of Methyl Jasmonate and Insect <i>Agrilus nubeclosus</i> on Gum Production of <i>Acacia senegal</i> Wild var senegal.	U of K	2009

Co-supervisor: RNA A. A. Babikar	Development and Integration of Biocontrol Products in <i>Striga hermonthica</i> (Del.) Benth Management Strategy.	Sudan University of Sci. & Technol.	2013
Co-supervisor: Maha A. M. Abdalla	Isolation, Characterization and Potentiality of Soil Aerobic Crude Oil Degrading Bacteria from Different Areas in Sudan.	U of K	2013
Co-supervisor: Badreldeen A. M. Ali	Symbiotic Nitrogen Fixation in Guar (<i>Cyamopsis tetragonoloba</i>)-Sorghum (<i>Sorghum bicolor</i> L. Moench) Intercropping System.	U of K	2014

b) RESEARCH GRANTS

Proposal Title	Granting Body/country	Amount	Date
Principal Investigator : Molecular Aspects of <i>Agrobacterium</i> -Host Interaction and Transformation	Ministry of Higher Education and Scientific Research	20000 SDG	2005
Principal Investigator : An Investigation of the Role of Soil Microorganisms in the Degradation of Pesticides Commonly used in Sudan	University of Khartoum	5000 SDG	2008
Principal Investigator : <i>In vitro</i> <i>Agrobacterium</i> -mediated transformation and Regeneration of Drought Tolerant Sunflower Plants	University of Khartoum	20000 SDG	2009
Principal Investigator : A Biotechnological Approach Towards Selection and Development of Heat and Drought Tolerant Wheat Cultivars in Sudan	University of Khartoum	25000 SDG	2010
Principal Investigator: Detection and Molecular Analysis of Potyviruses Associated with Some Important Vegetable Crops in Sudan	Ministry of Higher Education and Scientific Research	25000 SDG	2011
Principal Investigator: Bioleaching of Refractory Low-Grade Gold Ores by <i>Acidithiobacillus ferrooxidans</i> Isolates	Ministry of Higher Education and Scientific Research	30000 SDG	2013
Principal Investigator: A Systematic Approach Towards the Exploitation of the Potentialities of Actinomycetes for the Production of Bioactive Metabolites and Enzymes	Ministry of Higher Education and Scientific Research	470,000 SDG	2015
Principal Investigator: A Proposal for establishment of: Microbial	Ministry of Higher Education and Scientific	400,000 SDG	2015

Culture Collection Unit (MCCU)	Research		
Co-Investigator : Identification of Molecular Markers and their Exploitation for the Development of White-Coloured Sesame (<i>Sesamum indicum</i> L.) Seeds	Ministry of Higher Education and Scientific Research	30000 SDG	2013
Co-Investigator : A Biotechnological Approach Towards Selection and Development of Drought Tolerant Sorghum in Sudan	Ministry of Higher Education and Scientific Research	25000 SDG	2011
Co-Investigator : <i>Agrobacterium</i> -mediated Transformation and Regeneration of Sudanese Cotton (<i>Gossypium hirsutum</i> L.) Using <i>Bt</i> Genes for Enhanced Insect Resistance	Ministry of Higher Education and Scientific Research	22000 SDG	2011
Co-Investigator : Application of Molecular Markers for the Estimation of Genetic Diversity in <i>Cymopsis tetragonoloba</i> and its Wild relative <i>C. senegalensis</i>	Ministry of Higher Education and Scientific Research	30000 SDG	2010
Co-Investigator : Fine Mapping of Quantitative Trait Loci (QTLs) Associated with Striga Resistance using Molecular Markers and Introgression of Resistance genes into Sorghum (<i>Sorghum bicolor</i> (L.) Moench) in East Africa	ASARICA	25000 USD	2010

d) Other Scientific Achievements

(a) Different diagnostic nucleotides sequences were designed and deposited in the international Genebank (NCBI) as follows:

No	Organism	Isolate code	GenBank accession numbers
1	<i>Garlic common latent virus</i>	Sud.G52	KC191717
2	<i>Garlic common latent virus</i>	Sud.G58	KC191718
3	<i>Leek yellow stripe virus</i>	Sud.G52	KC207712
4	<i>Onion yellow dwarf virus</i>	Sud.G55	KC207713
5	<i>Onion yellow dwarf virus</i>	Sud.G60	KC207714
6	<i>Garlic virus A</i>	Sud.G60	KC207715
7	<i>Garlic virus B</i>	Sud.G56	KC207716
8	<i>Garlic virus C</i>	Sud.G52	KC207717
9	<i>Garlic virus X</i>	Sud.G61	KC207718
10	<i>Zucchini yellow mosaic virus</i>	Sud.C20	KC695817
11	<i>Zucchini yellow mosaic virus</i>	Sud.C20	KC677622

12	<i>Cucurbit yellow stunting disorder virus</i>	Sud.C.22	KC677625
13	<i>Cucurbit yellow stunting disorder virus</i>	Sud.C.32	KC677626
14	<i>Cucurbit chlorotic yellows virus</i>	Sud.C.35	KC677623
15	<i>Cucurbit chlorotic yellows virus</i>	Sud.C.37	KC677624
16	<i>Watermelon chlorotic stunt virus</i>	Sud.C.23	KC677627
17	<i>Watermelon chlorotic stunt virus</i>	Sud.C.37	KC677628
18	<i>Papaya ringspot virus type P</i>	Sud.C24	JX430436
19	<i>Streptomyces rochei</i>	R92	KJ689444
20	<i>Bacillus clausii</i>	Bd28	KJ801390
21	<i>Pseudomonas putida</i>	Bd7	KJ801391
22	<i>Pseudomonas stutzeri</i>	Bd32	KJ801392
23	<i>Acinetobacter sp.</i>	Bd23	KJ801393
24	<i>Pseudomonas stutzeri</i>	Bd8	KJ801394
25	<i>Brevibacillus invocatus</i>	Bd9	KJ801395
26	<i>Lysinibacillus sp.</i>	Bd27	KJ801396
27	<i>Agrobacterium tumefaciens</i>	Bd49	KJ801397

(b) I purchased some laboratory's apparatus and equipment from different funds generated from different funding authorities:

Apparatus/equipment	Amount (SDG)	Date
Autoclave, incubator, Refrigerator	15000	2007
Cold incubator	12000	2009
water distillation apparatus, controlled water bath	15000	2009
Thermal Cyclor	30000	2010
Vertical Gel electrophoresis apparatus, power supply, dry Ice maker	10000	2012
Horizontal Gel electrophoresis apparatus	5000	2010
Sensitive balance, pH meter	8000	2009
Shaker	14000	2012
Microwave	1200	2011
micro-pippetes	5000	2010
Microcentrifuge	15000	2010

e) PUBLICATIONS

i) Textbooks or Book - chapter

(1) **Adil A. El Hussein**, Halima S. Mohy-Eldin, Mayha M. M. Nor Elmadiena and Marmar A. El Siddig (2012). Prevalence, Detection and Antimicrobial Resistance Pattern of *Salmonella* in Sudan. Chapter 3, 51-80. In: "*Salmonella – Distribution, Adaptation, Control Measures and Molecular Technologies* ISBN 979-953-307-690-3. Edited by: Bassam A. Annous and Joshua B.Gurtler.

ii) Papers published in International Journal

(1) El Shafie A. E. and **El Hussein A. A.** (1991). An evaluation of *Rhizobium* survival in two carriers new to Sudan. *Experimental Agriculture* **27**: 319-321. [Impact factor: 1.06]

(2) Elsiddig A.E. Elsheikh , Somya S.M. Salih, **Adil A. Elhussein**, Elfadil E. Babiker (2009). Effects of intercropping, *Bradyrhizobium* inoculation and chicken manure fertilisation on the chemical composition and physical characteristics of soybean seed. *Food Chemistry* **112**: 690-694. [Impact factor: 3.655]

(3) Hag Elsafi H.E, Nor Elmadiena M.M, **El Hussein A.A**, M Siddig M.A, A Muckle C, Cole L, Wilkie E, Mistry K. (2009). *Salmonella* Umbadah: A new *Salmonella* serovar isolated from cattle in Sudan, *Tropical Animal Health and Production* **41**. 1605-1606. [Impact factor: 1.115]

(4) Ali, R.M.A., **Elhussein, A.A.**, Mohamed KI. and Babiker, AGT. (2009). Specificity and Genetic relatedness among *Striga hermonthica* strains in the Sudan. *International Journal of Life Sciences* **3** (3): 1152-1158. (ISSN: 2320-964X)

(5) El Siddig, M.A., **El Hussein, A.A.**, Siddig, M.A., Elballa, M.M. and Saker, M.M. (2009). *Agrobacterium*-mediated Transformation and *in vitro* Regeneration of of Tomato (*Lycopersicon esculentum* Mill.) Plants cv. CastleRock. *Journal of Genetic Engineering and Biotechnology* **7** (1): 11-17. (ISSN: 1687-157X)

(6) **A. A. El Hussein**, S. A. Tawfig, S. G. Mohammed, M. A. El Siddig and M. A. M. Siddig (2009). Citric acid production from kenana cane molasses by *Aspergillus niger* in submerged fermentation. *Journal of Genetic Engineering and Biotechnology* **7** (2): 51-57. (ISSN: 1687-157X)

(7) Mohammed, S. S., Elsheikh, E. A. and **El Hussein, A. A.** (2010). Effect of *Bradyrhizobium* and chicken manure on growth and yield of sorghum intercropped with soybean. *U. of K. J. Agric. Sci.* **18** (1): 18-30. (ISSN: 1560-2141)

(8) **El Hussein, A. A.**, Nor Elmadiena, M. M., Elsaid, S. M., Siddig, M. A., Muckle, Cole, L., Wilkie, E. and Mistry, K. (2010). Prevalence of *Salmonella enterica* subspecies *enterica* serovars in Khartoum State, Sudan. *Research Journal of Microbiology* **5** (10): 966-973. (ISSN: 1816-4935; H Index: 11)

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iii) Conference papers

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The 13th International Conference on promotion of university education, Ain Shams University, Cairo

(2) **Adil A.El Hussein** (2007). Science and Technology Education in the Republic of Sudan. International Council of Association for Science Education (ICASE) African Regional Conference: Challenges to Sustainable Development in Africa through Science and Technology Education. Abuja, Nigeria.

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iv) Posters

(1) El Siddig, M.A. and **El Hussein, A.A.** (2005). Compatibility Pattern between Ten *Agrobacterium tumefaciens* Isolates and Some Sunflower Genotypes. Proceeding of the 7th Conference in Biotechnology, National Center for Research, Sudan.

(2) M. M. Nor Elmadiena, **A. A. Elhussein** and M. A. Siddig. (2009). Serological, molecular characterization and antimicrobial susceptibility of Salmonella spp. Isolated from different sources in sudan. Pasteur institute, Paris, France.

(3) El Siddig, M.A. and **El Hussein, A.A.** (2010). *Agrobacterium*-Host Interaction. Proceeding of the 1st Conference of University of Khartoum, Graduate College.

(4) Mayha Mohammed Ali, **Adil A. El Hussein**, Mohammed Siddig, C. Anne Muckle, Linda Cole, Elizabeth Wilkie, Ketna Mistry (2010). Molecular Characterization and Antimicrobial susceptibility of Salmonella spp. Isolated from Different Sources in Sudan. Proceeding of the 6th Conference on New Frontiers in Microbiology and Infection, Salmonella: From Basic Science to Clinical Issues. 3-7 Oct. 2010 Villars-Sur-Ollon, Switzerland.

(5) Marmar A. El Siddig, Hind E. Fadoul and **Adil A. El Hussein** (2011). Evaluation of Genetic Diversity and Drought Tolerance in Sudanese Wheat (*Triticum aestivum* L.) Cultivars Using RAPD Markers. 1st Annual Symposium: Arab-American Frontiers in Science, Medicine and Engineering, Kuwait Institute for Scientific Research (KISR), Kuwait State.

(6) El Togha E. Abdel Rahman, Marmar A. El Siddig and **Adil A. El Hussein** (2012). Detection of Tumourigenicity in Agrobacteria Using Pathogenicity PCR Primers. 3rd Conference of University of Khartoum, Graduate College.

(7) Hind E. Fadoul, Marmar A. Elsidig and **Adil A. El Hussein** (2012). Evaluation of

genetic diversity in Sudanese wheat (*triticum aestivum L.*) cultivars using RAPD markers. 3rd Conference of University of Khartoum, Graduate College.

(8) Heyam S. Mohammed, **Adil A. El Hussein**, Marmar A. Elsiddig and Nebras H. Ahmed (2012). Detection and molecular analysis of potyviruses associated with onion (*Allium cepa*) and garlic (*Allium sativum*) crops in Sudan. 3rd Conference of University of Khartoum, Graduate College.

(9) Bader Eldeen A. Eltayeb, **Adil A. El Hussein**, Marmar A. Elsiddig and Hind E. Fadoul (2012). An efficient protocol for wheat (*Triticum aestivum L.*) regeneration. 3rd Conference of University of Khartoum, Graduate College.

(10) Heyam Salih, Ariana Monglli, **Adil Ali El Hussein** and Laura Tomossoli (2012). Preliminary Results on Potyviruses in Sudan. PYV Wide Organization -5th meeting, Italy.

Forthcoming publication

(1) First Report of Natural Occurrence of Citrus exocortis Viroid on Tomato in Sudan.

(2) An Efficient Protocol for *Agrobacterium*-mediated transformation of Cotton.

(3) A Simple and Efficient Protocol for *Agrobacterium*-mediated transformation of Sunflower.

(4) Optimization of Culture Conditions for Xanthan Gum Production from *Xanthomonas campestris* Isolates.

Referee of Textbooks OR Journals

Journal/ Textbook	Date
Journal of Genetic Engineering & Biotechnology	2009
Research Journal of Microbiology	2012
Current Research in Bacteriology	2012
American Journal of Biochemistry and Molecular Biology	2013
Bacteriology Journal	2012
Microbiology Journal	2012