

# Curriculum Vitae

## 1. Name:

Adel Hasan Abdel-Ghani/ Prof. of Plant Breeding and Genetics

الأستاذ الدكتور عادل حسن محمود عبد الغني

## 2. Date and place of birth:

February 22, 1972, Amman, Jordan.

## 3. Address:

Mutah University, Faculty of Agriculture, P. O. Box 7, Karak, Jordan, E-mail: [abdelghani@mutah.edu.jo](mailto:abdelghani@mutah.edu.jo) or [abdghani55445@yahoo.com](mailto:abdghani55445@yahoo.com), Tele: 00962-799771229, Fax: 00962-3-2323154.

## 4. Field of specialization:

- Plant Biotechnology
- Plant Breeding and Genetics-Molecular Plant Breeding-Biotechnology
- Molecular plant Breeding
- Biodiversity and evaluation of plant genetic resources
- Field crop production

## 5. Research interest:

- Utilizing the available techniques of plant breeding, population genetics and DNA molecular marker analysis in plant improvement.
- Improving yield ability and stability of cultivated plants under unpredictable drought stress conditions.
- Gene Mapping: association mapping at different levels (genome wide association mapping and candidate genes association mapping).
- Evaluation of plant genetic resources using morphological traits and DNA markers
- Utilization DNA markers as a plant genetic tool (protein, RAPD, SSR, ISSR and SNPs markers)
- Hybrid seed production
- Parallel with up to date publications of relevant research.

## 6. Qualifications:

### 6.1. Academic:

- Post-Doctoral studies, Jan. 2010- Dec. 2010. Project entitled "Developing Single Nucleotide Polymorphism (SNP) Markers from Candidate Genes Related to Nitrogen Use Efficiency (NUE) in Maize", Dept. of Agronomy, Iowa State University, Ames, USA.

- Ph.D. in plant breeding, University of Hohenheim, 2003, Germany. Ph.D. thesis entitled " Genetic Studies on the Outcrossing Rate and Related Floral Characteristics in Barley (*Hordeum vulgare* ssp. *vulgare* and *H. v. ssp. spontaneum*)"
- M.Sc. (3.78 out 4): Field Crops, University of Jordan, 1997, Jordan. M.Sc. thesis: entitled "Assessment of Variability among Baladi Wheats Grown in Jordan".
- B.Sc. (74.9%): Plant Production, University of Jordan, 1994, Jordan.
- General Secondary School Certificate, Scientific Stream. 1990. Al-Hussien College Secondary School, Amman, Jordan.
- Elementary, preparatory and secondary schools, 1978-1990, Jordan.

## 6.2. Employment:

- Professor of biotechnology, plant breeding and genetics, Mutah University, 2013 until now
- Associate professor of biotechnology, plant breeding and genetics, Mutah University 2008-2013
- Fulbright Visiting Scholar (Post-Doctoral studies) Awards to the United State, Iowa State University, 2010/2011 Academic year
- Assistant professor of biotechnology, plant breeding and genetics, Mu'tah University, Karak, Jordan (2003-2008)
- Researcher (Ph.D. student) in the field of plant breeding, University of Hohenheim (1999 until 2003).
- Teaching Assistant, Mu'tah University, (1997-1999), Jordan.
- Supervisor Engineer for field crops and fruit trees in Rum Agricultural Company, Desi, Aqaba, Jordan (1997).
- Research Assistant, University of Jordan, Faculty of Agriculture, University of Jordan, (1995-1997), Jordan.
- Nursery Manager in private sector (1994).

## 6.3. Ph.D. and Master Topics:

- My Advisor during Ph.D. was Prof. Dr. Hartwig H. Geiger ([Geiger@uni-hohenheim.de](mailto:Geiger@uni-hohenheim.de)) from university of Hohenheim, Germany (<http://www.uni-hohenheim.de>). My Ph.D project was a collaborative work between the University of Hohenheim, the Mut'tah University of Jordan, and the International Center for Agricultural Research in the Dry Areas (ICARDA). The project was constructed to establish the base information needed for selection strategies to improve adapted barley material under drought conditions through increased heterozygosity. This had been theorized to be achieved by increasing the outcrossing rate and hence taking advantage of both heterozygosity and heterogeneity. Improved populations developed through this approach fit well in the existing seed supply systems for barley. In these systems, seed is largely produced on-farm or purchased from neighbours, and uniformity is not a major requirement. The results obtained could be serve as model study for the improvement of yield and yield stability of other self-pollinated crops in semi-arid

and arid environments without the use of external inputs and without reducing the genetic diversity of the crops.

- M. Sc. degree from University of Jordan under supervision of Prof. Dr. Mahmoud Ayed Duwayri ([duwayri@ju.edu.jo](mailto:duwayri@ju.edu.jo)). The Master Thesis work focused on estimation of genetic diversity of wheat landraces populations collected from different eco-geographical regions from Jordan using: morphological, developmental and seedling characteristics. Furthermore, genetic diversity was estimated using High Molecular Weight (HMW) Glutenins.

#### 6.4. Academic awards and honors:

- Fulbright Visiting Scholar (Post-Doctoral) Awards (used as sabbatical leave) to the United State, Iowa State University, Academic year 2010/2011.
- DAAD (Germany Academic Exchange Service) fellowship for Ph.D. study in Germany.
- DFG "Deutsche Forschungsgemeinschaft" or German Research Fund Association) completee financial support for Ph.D project.
- Jordan University, Research assistant fellowship for M. Sc. degree.
- DFG short term-research visit support to Germany, June-August 2010. Project entitled "Effect of temperature on the expression of cytoplasmic male sterility in cultivated
- barley (*Hordeum vulgare* L.)
- DFG short term-research visit support to Germany, **June to August 2012**, Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Genebank/ Genome Diversity, scientific cooperation German fund association (DFG) in a project entitled " Genotypic variation for seedling root traits in barley lines grown under optimum and drought stress conditions
- DFG short term-research visit support to Germany, **June to August 2013**, Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Genebank/ Genome Diversity, scientific cooperation German fund association (DFG) in a project entitled " Genome-wide association mapping in barley"

#### 6.5 Research grants:

Grant source	Participants	Title	Period	Budget US \$
Abdul Hameed Shoman Fund For Supporting Scientific Research	<b>Adel H. Abdel-Ghani</b> and Saed J. Owais	Evaluation of genetic diversity among Jordanian pomegranate landraces based on morphopomological, RAPD and SSR markers	2010-2012	22000
The Deanship of the Scientific Research, Mutah university	<b>Adel H. Abdel-Ghani</b> and Atif Mahadeen	Genetic variation in snake melon ( <i>Cucumis melo</i> var. <i>flexuosus</i> ) populations from Jordan using	2008-2010	10000

		morphological traits and RAPDs		
The Deanship of the Scientific Research, Mutah university	<b>Adel H. Abdel-Ghani</b> and Kaled M. Abssi	Phenotypic response of sympatrically distributed populations of barley landraces and <i>Hordeum spontaneum</i> from Jordan to salt stress	2005-2007	6000
The Deanship of the Scientific Research, Mutah University	<b>Adel H. Abdel-Ghani</b>	Selection of high yielding and drought tolerant genotypes from landrace populations of durum wheat collected from Jordan	2005-2007	6000
Scientific Research Support Fund	<b>Adel H. Abdel-Ghani, Duwayri M, Dalain S, Abbadi S</b>	Identification of genomic region controlling drought and the cereal leafminer ( <i>Syringopais temperatella</i> ) tolerance in spring barley using wide-genome association approach	2014-2017	50,000
The Deanship of the Scientific Research, Mutah University	<b>Adel H. Abdel-Ghani and Saed J. Owais</b>	Mapping for root morphology traits in barley using single nucleotide polymorphism markers	2015-2018	100, 000
The Deanship of the Scientific Research, Mutah University	<b>Adel H. Abdel-Ghani and Saed J. Owais</b>	Population structure and selection of high yielding lines from local heterogeneous bitter vetch ( <i>Vicia ervilia</i> ) from Jordan	2015-2018	60, 000

#### 6.6 Recent visits a broad (to international institutes)

- **June to August 2013**, Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Genebank/ Genome Diversity, scientific cooperation German fund association (DFG) in a project entitled " Genome wide association mapping in barley".
- **June to August 2014**, Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Genebank/ Genome Diversity, scientific cooperation German fund association (DFG) in a project entitled " Continuation of the project entitled genome wide association genetics for root traits in barley"
- **June to August 2013**, Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Genebank/ Genome Diversity, scientific cooperation German fund association (DFG) in a project entitled " Genome wide association genetics for root traits in barley"
- **June to August 2012**, Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Genebank/ Genome Diversity, scientific cooperation German fund association (DFG) in a project entitled " Genotypic variation for seedling root traits in barley lines grown under optimum and drought stress conditions

- **2010/2011 academic year:** Visiting scholar, Post-Doctoral studies, Iowa State University, Ames USA.
- **June to August 2010,** University of Hohenheim, scientific cooperation German fund association (DFG) in a project entitled "The stability of an existing cytoplasmatic male sterility (cms) system in barley and the search for novel sources of cms in genetic resources of barley".
- **9-12 Nov, 2010:** a member of Jordanian delegation in a study trip to the state of Saxony Anhalt, Germany. The following institutes concerned with plant breeding research were visited: Anhalt University of applied sciences, IPK, Martin Luther University Halle and Leibniz institute of Agricultural development in central Europe.
- **July to September, 2008:** International expert on Biodiversity in United Nation Development Program (UNDP, Libya), preparation of Self-Assessment of National Capacity in Libya for Global Environmental Management (NCSA), Biological diversity section
- **March to May, 2000:** Research collaboration on a project entitled "Genetic analysis of outcrossing rate in *Hordeum vulgare* and *H. spontaneum* populations under semi-arid localities in Jordan and Syria" between University of Hohenheim/ Germany, the International Center for Agricultural Research in the Dry Areas (ICARDA) /Aleppo/Syria and Mu'tah University, Jordan. January, 2009-01-27

## 6.7 Consultations:

- International expert on Biodiversity, United Nation Program Development, UNDP. Self-Assessment of National Capacity in Libya for Global Environmental Management (NCSA), from July to September, 2008.
- Environment impact assessment expert/Biodiversity: Socio-Economic and Environmental Impact of the Rural Roads Component "a field study on the Governorates of Karak , Tafilah and District of Shawbak" Implemented by South Center for Training and Consolutions of Mutah University, for the Favor of Project of Agricultural Sources Management Second Phase Ministry of Agricultural, Jordan
- Sustainable agriculture development and conservation agriculture expert, project of Agricultural Sources Management, Second Phase, Ministry of Agricultural, Jordan.

## 7. Skills:

### 7.1. Research

- Molecular plant breeding research
- Plant biotechnology related research
- Genes mapping
- Conducting and supervising plant breeding field trials.
- Capability to deal with several laboratory instruments and supplies.

- Good knowledge of scientific research and related procedures

## 7.2. Languages:

- Arabic: mother language.
- English: very good
- German: good, holding DSH certificate (German language university entrance exam for foreign students), September 1999.

## 7.3. Computer:

- Good capability in dealing with Population genetics analysis programs: PLABSTAT - Software to analyze plant breeding experiments, Multilocus Mating System Program (MLTR), SAS, multivariate analysis programs, programs specialized in molecular data analysis, Structure, Tassel, GenStat .....ect.
- Several software packages (Word Processing: MS-Word, WordPerfect, Excel; Graphics/presentation and power point).

## 7.4. Training courses intended:

- 1- Mu'tah University Computer Driving License Course Requirements, 2005
- 2- Statistical analysis for social sciences (SPSS) at Mu'tah University during 2<sup>nd</sup> April to 3<sup>rd</sup> May 2006.
- 3- Chromatography Applications, offered by the faculty development center at Mu'tah University during 11<sup>th</sup> November 2007 to 26<sup>th</sup> November 2007.
- 4- Educational portal, offered by the faculty development center at Mu'tah University during 26<sup>th</sup> February to 27<sup>th</sup> May 2008.
- 5- E-Content Development, Academic development and quality assurance center, Mutah University, 26-03-2012 to 25-04-2012.
- 6- Electronic Content Manager, Academic development and quality assurance center, Mutah University, 18-11-2012 to 11-12-2012.
- 7- Training course: Lab Safety: Fundamental Concepts, Iowa State University, Ames, USA
- 8- Training course: Lab Safety: Fundamental Concepts, Iowa State University, Ames, USA, 2011
- 9- Training course: Fire Extinguisher Monthly Inspection , Iowa State University, Ames, USA, 2011

10- Training course: Lab Safety: Fire Safety and Extinguisher training, Iowa State University, Ames, USA, 2011

**8. Council, Committee memberships and other academic responsibilities:**

- Scientific Research Fund (SRF) Committee
- Faculty of Agriculture Council
- Editorial Board of Mu'tah Journal for Research and Studies, Natural and Applied Sciences
- Series.
- Plant production B. A. course plan
- Committees Concerning Research Laboratories, Employee's
- Faculty members for workshops and scientific days

## 9. Papers presented at recent seminars, workshops and conferences:

- A. Mutah University, Scientific day of Faculty of Agriculture. 13 May, 2013. Selecting for root morphology traits to enhance water and nutrient use efficiency.
- B. Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Genebank/ Genome Diversity, July, 2012. "Out crossing rate in barley and its implication in drought tolerance in barley".
- C. Professional plant breeding seminars, Iowa State University, Department of Agronomy, 1211 Agronomy Hall, Ames, Iowa State University, 3 February, 2011. Seminar entitled "Exploiting heterosis and populational buffering to increase yield and yield stability of wheat and barley under unpredictably variable drought stress environments".
- D. A key speaker in workshop about using integrated pest management in cereal leaf miner control in Karak District, 20-22, February 2008. Mu'tah University, Karak, Jordan
- E. A workshop to discuss National Capacity Self Assessment (NCSA) report on implementation of the three Rio conventions (Biodiversity, combat desertification and climate change), 2007, Amman, Jordan
- F. Participation in a workshop as international biodiversity expert, Self-Assessment of National Capacity in Libya for Global Environmental Management (NCSA), from July to September, 2008.
- G. Estimation of Outcrossing Rate in *Hordeum spontaneum* and Barley Landraces from Jordan, Deutscher Tropentag, October 9 - 11, 2002 in Kassel-Witzenhausen, Germany
- H. Evaluation of the Floral Characteristics of Barley Accessions from ICARDA's Gene Bank Collection (poster presentation) Deutscher Tropentag 2001 – Bonn.

## 10. Graduate Students at Mu'tah University, Karak, Jordan

1. Abou-Isba, S. 2007. Morphological and molecular assessment of genetic variation of *Hayoscymaus* species collected from Jordan. M. Sc. Thesis, Mu'tah University, Karak, Jordan
2. Frejat, N. 2007. Effect of seeding rate and chemical fertilizers on yield, growth and nutrient uptake of fenugreek (*Trigonella foenum-graecum* L.) under rainfed conditions of Jordan. M. Sc. Thesis, Mu'tah University, Karak, Jordan.
3. Al-Rawashdeh, Y. 2007. Dry matter and nitrogen assimilation and partitioning of six wheat cultivars in rainfall region. M. Sc. Thesis, Mu'tah University, Karak, Jordan.
4. Al-Majali, D. 2009. DNA characterization of local fig cultivars from Jordan. M.Sc. Thesis, Mu'tah University, Karak, Jordan, 2009.
5. Haddadin, M. 2009. Growth performance of some barley genotypes subjected to water stress at different growth stages. M.Sc. Thesis, Mu'tah University, Karak, Jordan, 2009.
6. Amarin, R. 2011. Characterization of almond landraces from Jordan using RAPD and SSR markers. M.Sc. Thesis, Mu'tah University, Karak, Jordan,



7. Yacoub Emeel Hijazeen. 2017. Field evaluation of yield, yield components and drought related traits of world-wide spring barley core collection under rainfed conditions. M.Sc. Thesis, Mu'tah University, Karak, Jordan.
8. Raieda Abdel Rahman Al- Ma'aitah. 2017. Performance of Eight Wheat Genotypes Grown Under Different Water Treatments in a Semi-Arid Environment. M.Sc. Thesis, Mu'tah University, Karak, Jordan.
9. Ayat Assafeh. 2017. Genetic diversity and population structure and selection of high yielding lines from local heterogeneous bitter vetch (*Vicia ervilia*) from Jordan. M.Sc. Thesis, Mu'tah University, Karak, Jordan.
10. Ahmad Al-Majali. 2017. Selection for high yield and quality related traits in bitter vetch (*Vicia ervilla*). M.Sc. Thesis, Mu'tah University, Karak, Jordan (under supervision)
11. Menwer Al-Majali. 2017. Genotypic variation in root traits and their relationships with yield in spring barley (*Hordeum vulgare* L.). Thesis, Mu'tah University, Karak, Jordan (under supervision)
12. Layth Katatneh. 2017. Evaluation of spring barley core collection in small plots under semi-arid conditions, Qaser Jordan. Mini-Thesis, Mu'tah University, Karak, Jordan.
13. Awad Salim Al-Obisat. 2017. Irrigation effect on seed size, germination rate and seedling traits of eight wheat varieties. Mini-Thesis, Mu'tah University, Karak, Jordan
14. Shahed Ibrahim Sarayrh. 2017. Response of eight durum wheat varieties to PEG-simulated drought stress at germination and seedling stage. Mini-Thesis, Mu'tah University, Karak, Jordan.
15. YusraSlemanAlrawahneh. 2017. Variation in coleoptile length and seminal roots morphology in spring barley core collection. Mini-Thesis, Mu'tah University, Karak, Jordan.

#### 11. Examination committee member

1. Bakahen, R. 2008. Environmental impacts of different bacterial strains' uptake to chromium. M. Sc. Thesis, Mu'tah University, Karak, Jordan
2. Abu-Samra, O. 2007. Chloride toxicity tolerance of two pistachio rootstocks as influenced by salicylic acid. M. Sc. Thesis, Mu'tah University, Karak, Jordan
3. Al-Najar H. 2005. Genetic and biochemical characterization of genes required for nitrate assimilation in the filamentous fungus (*Aspergillus niger*). M. Sc. Thesis, Mu'tah University, Karak, Jordan
4. Al-Shareef, R. 2005. Assessment of genetic diversity among Jordanian eggplant (*solanum melongena* L.) landraces using random amplified polymorphic DNA (RAPD), M.Sc. Thesis, University of Jordan, Amman, Jordan.
5. Misbeh, S. 2005. Molecular characterization of grape vine virus A isolated from Jordan, M.Sc. Thesis, University of Jordan, Amman, Jordan.

6. Al-Tawarah, N. 2008. Characterization of Verotoxigenic *Erscherichia. coli* isolated from slaughtered small ruminants and slaughter houses in south Jordan. M. Sc. Thesis, Mu'tah University, Karak, Jordan.

## 12. Teaching activities (Primary Responsibility)

- A. Under-graduate level courses: Plant Breeding (1101442), Field Crop Production (1101321), Practical Applications in Field Crop Production (1101488), Principles of Agricultural Statistics (1101204), Seminar in plant Production (1101390).
- B. Graduate level courses: Plant Biotechnology (1101537), Advance Field Crop Production (1101321), Advance Plant Breeding (1101488), Advance Seed Technology (1101556)

## 13. Administrative positions held:

- A. Assistant Dean for Student Affairs, Mu'tah University, Faculty of Agriculture, 2004-2008, four years experience
- B. Chairman of plant production department, from September 2008 to September 2010, two years experience.
- C. Vice Dean of faculty of Agriculture, from September 2014 to September 2016, two years experience.

## 14. Publications:

1. **Adel H. Abdel-Ghani**; Rajiv Sharma; Celestine Wabila; Saed J. Owais; Mahmud A Duwayri; Saddam A. Al-Dalain; Christian Klukas; Dijun Chen; Thomas Lübberstedt; Nicolaus von Wirén; Andreas Graner; Benjamin Kilian; Kerstin Neumann. 2018. Genome-wide association mapping in a diverse spring barley collection reveals the presence of QTL hotspots for root architecture traits. BMC Plant Biology (submitted)
2. Saddam A. Al-Dalain, Ghaid J. Al-Rabadi, Rolf Nieder, Mohamad Alnawaiseh, Alwain Kusters, Peter J. Torley, **Adel H. Abdel-Ghani**, and Farah Al-Nair. 2018. Plant-soil-nutrient status of vegetables and wheat grown on calcareous soil. Crop Research 53: 109-116.
3. **Abdel-Ghani, AH**, Sanchez DL, Kumar B and Lübberstedt T. 2016. Paper Roll Culture and Assessment of Maize Root Parameters. Bio-protocol6(18): e1926. DOI: 10.21769/BioProtoc.1926.
4. **Abdel-Ghani, AH**, Hu S, Chen Y, Brenner EA, Narayana B, Blanco M and Lübberstedt T. 2016. Genetic architecture of plant height in maize phenotype-selected introgression families. Plant Breeding 135, 429–438.

5. Owais, SJ and **Abdel-Ghani AH**. 2015. Evaluation of genetic diversity among Jordanian pomegranate landraces by fruit characteristics and molecular markers. *International Journal of Agriculture and Biology*. 18: 393–402.
6. **Abdel-Ghani AH**, Kumar B, Pace J, Jansen C, Gonzalez-Portilla PJ, ReyesMatamoros J, Martin JPS, Lee M, Lübberstedt T. 2015. Association analysis of genes involved in maize (*Zea mays*L.) root development with seedling and agronomic traits under contrasting nitrogen levels. *Plant Mol Biol* 88: 133-147
7. **Abdel-Ghani, AH**, Neumann K, Wabila C, Sharma R, Dhanagond S, Owais SJ, Borner A, Graner A, Kilian B. 2015. Diversity of germination and seedling traits in a spring barley (*Hordeum vulgare* L.) collection under drought simulated conditions. *Genet. Resour. Crop Evol.* 62: 275–292
8. Kumar K, **Abdel-Ghani AH**, (equal contribution for Kumar and Abdel-Ghani), Jordon Pace, Jenaro Reyes-Matamoros, Frank Hochholdinger, Thomas Lübberstedt. 2014. Association analysis of single nucleotide polymorphisms in candidate genes with root traits in maize (*Zea mays* L.) seedlings. *Plant Science* 224: 9-19.
9. **Abdel-Ghani AH**, Mahadeen A. 2014. Genetic variation in snake melon (*Cucumis melo* var. *flexuosus*) populations from Jordan using morphological traits and RAPDs. *Jordan Journal of Agricultural Sciences* 10: 96-116.
10. Maisa'a F. Haddadin, Adel H. Abdel-Ghani, Nedal F. Al-Majali. 2013. Response of barely varieties to drought stress imposed at different developmental stages. *Jordan Journal of Agricultural Sciences* 9: 507-524./
11. Saed J. Owais, **Adel H. Abdel-Ghani**, Ayouf M. Ghrair, Saddam A. Al-Dalain, Nedal Almajali: 2013. Effect of natural Jordanian volcanic tuff on growth, irrigation water saving and leaves mineral content of *Salvia officinalis*. *Jordan Journal of Agricultural Sciences* 9:439-456.
12. **Adel H. Abdel-Ghani**, Saddam A. Al-Dalain, Saed J. Owais, Nedal Al-Majali, Doa Al-Majali, Farah Al-Nasir. 2013. Effect of water deficit and soil nitrogen on dry matter and nitrogen accumulation and mobilization in durum wheat under semi-arid environment. *Jordan Journal of Agricultural Sciences* 9: 457-474.
13. **Adel H Abdel-Ghani**. 2013. Genetic diversity and population structure of Jordanian durum wheat (*Triticum turgidum* L. subsp. *durum*) landraces as revealed by RAPD markers. *Jordan Journal of Agricultural Sciences* 9: 369-382.
14. **Adel H Abdel-Ghani**. 2013. Selection of high yielding lines from heterogeneous Jordanian barley landraces under well watered and drought stress conditions. *Bulletin of Faculty of Agriculture, Cairo University* 64: 13-29
15. **Abdel-Ghani, A H.**, T. Lübberstedt. 2013. Parent selection – usefulness and prediction of hybrid performance. Lübberstedt, T, Varshney R (eds) *Diagnostics in Plant Breeding*, Springer Publisher.
16. **Adel H. Abdel-Ghani**, Felix P. Frey, Heiko K. Parzies. 2013. Effect of temperature on the expression of cytoplasmic male sterility in cultivated barley (*Hordeum vulgare* L.). *Plant Breeding* 132, 42–47
17. **Abdel-Ghani, A.H.**, B. Kumar, J. Reyes-Matamoros, P.J. Gonzalez-Portilla, C. Jansen, J.P. San Martin, M. Lee and T. Lubberstedt. 2013. Genotypic variation and

- relationships between seedling and adult plant traits in maize (*Zea mays* L.) inbred lines grown under contrasting nitrogen levels. *Euphytica* 189: 123-133.
18. Kumer, B., **AH Abdel-Ghani**, J. Reyes-Matamoros, F. Hochholdinger, T. Lubberstedt. 2012. Genotypic variation for root architecture traits in seedlings of maize (*Zea mays* L.) inbred lines. *Plant Breeding* 131: 465-478
  19. Almajali D, **AH Abdel-Ghani**, H Migdadi. 2012. Evaluation of genetic diversity among Jordanian fig germplasm accessions by morphological traits and ISSR markers *Scientia Horticulturae* 147: 8–19
  20. Madanat, H.M.; F.A. Al-Zyoud; **A.H. Abdel-Ghani** and N.F. Al-Majali. 2012. Sources of Tolerance in Wheat and Barley Against the Cereal Leafminer *Syringopais temperatella* Led. (Lepidoptera: Scythridaidae) under Semi-arid Climate of Southern Jordan. *Jordan Journal of Agricultural Sciences* 8: 367-379
  21. Karajeh, M. R., **Abdel-Ghani, A. H.**, Al Majali. 2011. Response of wheat, barley and oat cultivars and accessions to *Meloidogyne javanica*. *Nematol. mediterr.* 39: 85-89
  22. Saleh Al-Quran, **A. H. Abdel-Ghani**, Saed J. Owais. 2010. A study of airborne pollen grains in Karak, Jordan during 2005–2007. *Botany Research Journal* 4: 3-12.
  23. Al-Joumayly, A, S. J. Owais, **A. H. Abdel-Ghani**. 2010. Effect of self, open and cross pollination on fruit set of three apple cultivars in south Jordan. *Bulletin Faculty of Agriculture, Cairo University* 61: 294-298.
  24. Al Nasir, F., Abdel-Ghani AH. 2010. Studying the variation in nitrogen use, uptake and utilization efficiency in different barley genotypes under different N application levels in Jordan. *J. King Saud Univ.*, Vol. 22, Agric. Sci. (2), 39-46.
  25. Al Nasir, F., M. Batarseh M., **A.H. Abdel-Ghani**, Anwar Jiries. 2010. Determination of Changes in Free Amino Acids Content in some Halophytes under Salinity Stress in Arid Environment, Jordan *Clean – Soil, Air, Water*, 38 (7), 592–600
  26. **Abdel-Ghani, A.H.** 2009. Response of wheat varieties from semi-arid regions of Jordan to salt stress. *Journal of Agronomy and Crop Science* 195: 55-65.
  27. **Abdel-Ghani, A.H.** 2008. Genetic variation, heritability and interrelationships of agromorphological and phenological traits in Jordanian durum wheat landraces. *Jordan Journal of Agricultural Sciences* 4, 350-366.
  28. Tarawneh, K.A., N.M. AL-Tawarah, **A. H. Abdel-Ghani**, A. H. Al-Majali, K.M Khleifat. 2008. Characterization of verotoxigenic *Escherichia coli* (VTEC) isolates from faeces of small ruminants and environmental samples in southern Jordan. *Journal of Basic Microbiology* 48, 1-8.
  29. **Abdel-Ghani, A.H.**, N. S. Al-Ameiri and M. R. Karajeh. 2008. Resistance to powdery mildew in barley landraces and wild barley populations from Jordan. *Phytopathologia Mediterranea* 47: 92-97.
  30. Bdour, M. A. and **Abdel-Ghani A.H.** 2008. Impact of improved crop production technologies on enhancing barley and wheat productivity under rainfed areas of Jordan. *Bulletin Faculty of Agriculture, Cairo University* 59: 172-178.
  31. Al-Rawashdeh Y.A. and **Abdel-Ghani A.H.** (2008). Effect of nitrogen application timing on dry matter and nitrogen assimilation and partitioning in six wheat cultivars under rain-fed conditions of Jordan. *Archives of Agronomy and Soil Science* 54: 149-162.

32. Parzies, H.K., C.F. Nke, **A. H. Abdel-Ghani** and H.H. Geiger. 2008. Outcrossing rate of barley genotypes with different floral characteristics in drought-stressed environments in Jordan. *Plant Breeding* 127: 536-538.
33. Abou-Isba, S., **A.H. Abdel-Ghani** and Al-Qura'n S. 2007. Variation in *Hyoscyamus* spp. populations from Jordan using morphological traits and RAPD markers. *Jordan Journal of Agricultural Sciences* 3: 411-428.
34. **Abdel-Ghani A.H.**, H.K. Parzies, S. Ceccarelli, S. Grando and H.H. Geiger. 2005. Estimation of quantitative genetic parameters for outcrossing-related traits in barley. *Crop Science* 45: 98-105.
35. **Abdel-Ghani A.H.**, H.K. Parzies, A. Omary, and H.H. Geiger. 2004. Estimating the outcrossing rate of barley landraces and wild barley populations collected from ecologically different regions of Jordan. *Theoretical Applied Genetics* 109, 588-595.
36. **Abdel-Ghani, A.H.**, H.K. Parzies, S. Ceccarelli, S. Grando and H.H. Geiger. 2003. Evaluation of floral characteristics of barley in the semi-arid climate of north Syria. *Plant Breeding* 122:273-275.
37. **Abdel-Ghani, A.H.**, M. Duwayri and O. Kafawin. 2001. Phenotypic diversity of seedling characteristics among wheat landraces from Jordan. *Dirasat* 28: 1-5.
38. **Abdel-Ghani, A.H.**, M. Duwayri and O. Kafawin. 2001. Phenotypic diversity among wheat landraces from Jordan: morphological and developmental traits. *Rachis Newsletter* 18:31-38.
39. **Abdel-Ghani, A. H.** 2003. Genetic studies on the outcrossing rate and related floral characteristics in barley (*Hordeum vulgare* ssp. *vulgare* and *H. v. ssp. spontaneum*). Doctoral thesis, University of Hohenheim, Germany

#### In preparation

1. Rasha Amarin, **Adel H. Abdel-Ghani**, Saed J. Owais. 2015. Morphological and DNA characterization of almond landraces from Jordan (in preparation)
2. **Abdel-Ghani, A. H.** 2013. Response of barley varieties adapted to arid regions to salt stress (in preparation)

#### 15. References:

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