Kafrelsheikh University
Faculty of Agriculture
Genetics Department
33516, Egypt

CURRICULUM VITAE

PERSONAL DATA

Name : Antar El-Banna
Date of Birth : 15 October 1969
Sex : Male
Nationality : Egyptian
Permanent address: Department of Genetics, Faculty of Agriculture; 33516 - Kafrelsheikh University (KSU), EGYPT

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- **Current position:** Head of Genetics Department, Faculty of Agriculture, Kafrelsheikh University. Egypt.

Qualifications:

1- B. Sc. June 1992, Tanta University. Egypt Agriculture science (Genetics), final grade, excellent with honour grade.
2- M. Sc.: May 1998, Tanta University. Egypt (Genetics, Biotechnology)
M.Sc. Thesis title: The use of gametoclonal and somaclonal variations for releasing salt tolerant rice lines.
3-PhD: October 2008, Hanover University, Germany (Molecular biotechnology), final grade, very good.
PhD thesis title: Improvement of osmotic and salt tolerance in potato (*Solanum tuberosum L.*) by homologous protein overexpression.

Positions:

- Demonstrator, Genetics Dept.1993-1998.
- Assistant lecturer, Genetics Dept. (1998- 2008).
- Assistant Professor, Genetics Dept. 27.01.2009- 25.01.2014
- Associate Professor, Genetics Dept. 26.01.2014- 28-01-2019.
- Professor, Genetics Dept. 29.01.2019 till now.

Missions, Awards and prizes:

- PhD scholarship from Egyptian government to study PhD, 2004 – 2008.
- Post-doctoral scholarship awarded by the Hungarian Scholarship Board (Szent Istvan university, Hungary), 08.10.2010-08.11.2011.
- Post-doctoral scholarship awarded by the Hungarian Scholarship Board (Pannonia university, Hungary), 01.09.2012-30.03.2013.
- Post-doctoral fellowship funded by the Science and Technology Development Fund (STDF) - the Egyptian Ministry of Scientific Research), 01.10.2015-30.01.2016. (DSMZ, Germany).
- Post-doctoral fellowship funded by the Egyptian Ministry of Scientific Research), 01.06.2015-30.10.2016. (DSMZ, Germany).
- Post-doctoral fellowship funded by the Egyptian Ministry of Scientific Research), 01.06.2021-31.8.2021. (JKI, Germany).
- Research assistance fund awarded by Eiselen Stiftung Foundation, Germany (1.5.2008 - 1.10.2008).
- Working place equipment awarded by the world university service, Germany (2010-2012).
- University prize for international publications (2014-2015).
- University prize for international publications (2015-2016).
- University prize for international publications (2016-2017).
- University prize for international publications (2017-2018).
- University prize for international publications (2018-2019).
- University prize for international publications (2019-2020).
- University prize for international publications (2020-2021).

• *University activities*

- 1- Manager of the University Central Laboratory for Environmental Studies (KUCLES) at Kafrelshiekh University, Egypt. Accredited according to (ISO/IEC 17025-2017), 2013 till now
- 2- Technical Manager of the Genetic Engineering and Tissue Culture Laboratory at Genetics Dept. Faculty of Agriculture, Kafrelsheikh University, Egypt. Accredited according to (ISO/IEC 17025-2005), 2018 till now
- 3- Director of molecular genetics and biotechnology unit in the University Central Lab., for Environmental Studies, Kafrelshiekh University.

- 4- Coordinator of the Quality Assurance Unit at Genetics Dept., Faculty of Agriculture, Kafrelsheikh University. Egypt.
- 5- Member of the Directors Board of the College Fellowship Fund for the faculty members.
- 6- Member of the Committee for the Ethics of Scientific Research and Intellectual Property.
- 6- Attend many workshops in Quality assurance and self assessment for higher education accreditation.
- 7- Prepare and organized all activates of training course entitled: Applications of Molecular Techniques in Agriculture from 18-20 March 2012 in Central Laboratory for the Environmental Studies, Biotechnology Unit, Kafrelsheikh University.
- 8- Training team member of all workshops on Biotechnology held in Department, Faculty of Agriculture, Kafrelsheikh University, during 2009-2020.

Research interests:

- Improvement resistant and/or tolerant of plants for biotic and abiotic stresses using Tissue culture and genetic engineering technologies
- Gene function analysis using Next generation sequencing and gene silencing approaches.
- Molecular genetics, genetic diversity and phylogenetic analysis.
- Molecular characterization and exploitation of rhizosphere microorganisms for crop yield improvement.

Training and technical expertise

Extensive experience of working on Molecular, Microbiological & Biochemical techniques including:

- Genomic DNA, RNA isolation and purification.
- Polymerase Chain Reaction, qRT - PCR.
- cDNA and cDNA Library construction.
- DNA and protein quantification
- Gene Cloning: Vector Construction, Gel elution, Ligation and Bacterial transformation.
- Agarose and Acrylamide gel electrophoresis for DNA and Protein.
- Gene sequencing and BLAST analysis.
- Vector NTI software applications.
- Isolation, identification and maintenance of microbial cultures.
- Detection of animal and plant diseases by qPCR.
- Proteome analysis.

- 2 D gel electrophoresis.
- In situ Hybridization.
- Genetic engineering of different plant species *via Agrbacterium*/ biolistic (Arabidopsis, Rice, Wheat, Potato, Tobacco, Tomato, legumes, ornamental and medicinal plants).
- Molecular analysis of transgenic plants (Southern, proteome analysis, metabolome analysis. and Western blot).
- Detection of genetic variations via cytological, biochemical and molecular markers.
- Molecular plant breeding using DNA markers (RAPD, SSR, ISSR,……..etc)
- Sample preparation for Electron Microscope.
- Statistical analysis programs (SX, Sigma plot….etc)

• *Research experience:*

1- Extensive scientific and technical knowledge of genetics/genomics, Proteomics, transcriptomics, plant biotechnology, and molecular biology.

2- Outstanding communication skills: verbal, written and presentation.

3- Excellent negotiation and rhetorical skills with demonstrated ability to influence others and work towards consensus.

4- A good potential and cooperative behavior with the working team members

5-Well conversant with computer applications like Microsoft Word, Word Perfect, Slide Write and PowerPoint, Internet Skills, Blast search analysis.

• *Professional Experience:*

- Teaching the following courses in Genetics Department, Faculty of Agriculture, Kafrelsheikh University (2008-till now):
- Introduction to genetic engineering
- Tissue culture techniques
- Advanced Molecular Genetics
- Gene transfer technologies.
- Genomics and Proteomics
- Genetics 101 (Fundamentals).
- Cytogenetics

List of publications:

1- El-Banna, A.N.; El-Mahrouk, M.E.; Dewir, Y.H.; Farid, M.A.; Abou Elyazid, D.M.; Schumacher, H.M. Endophytic Bacteria in Banana In Vitro Cultures: Molecular Identification, Antibiotic Susceptibility, and Plant Survival. Horticulturae 2021, 7, 526

2- Abou Elyazid, D. M. and A.N. El-Banna(2021). Agrobacterium-Mediated Genetic Transformation and Regeneration of Salt Tolerant Transgenic of Sour Orange Rootstock (Citrus aurantium L.). Journal of Plant Production, 12: 1145-1150.

3- Seliem, M.; El-Mahrouk, M.; El-Banna, A.; Hafez, Y.; Dewir, Y. Micropropagation of Philodendron selloum: Influence of copper sulfate on endophytic bacterial contamination, antioxidant enzyme activity, electrolyte leakage, and plant survival. S. Afr. J. Bot. 2021, 139, 230–240.

4- Mohammed Elsayed El-Mahrouk, Mossad Khairy Maamoun, Omneya Farouk Abu El-Leel, Yaser Hassan Dewir, **Antar Nasr El-Banna**, Yougasphree Naidoo & Subodh Kumar Datta (2020). Morpho-agronomical and Biochemical Traits Screening and Genetic Variability in Selected Black Cumin (Nigella sativa) Mutant Lines. Sains Malaysiana 49(3): 503-515

5- Farahat S. Moghanm , **Antar El-Banna** , Mohamed A. El-Esawi , Mohamed M. Abdel-Daim, Ahmed Mosa and Khaled A.A. Abdelaal (2020). Genotoxic and Anatomical Deteriorations Associated with Potentially Toxic Elements Accumulation in Water Hyacinth Grown in Drainage Water Resources. Sustainability 12, 2147; doi:10.3390/su12052147.

6- ASH Derbalah, **A El-Banna**, MS Allah (2020). Efficiency of Candida tropicalis for Potential Degradation of Metalaxyl in the Aqueous Media. Current Microbiology 77 (10), 2991-2999

7- A. A Ali, **A.N. El-Banna**, A. Z Ahmed, E.E. El-Dabaawy (2019). Assessment of genetic divergence, stevioside and rebaudioside a contents and the effects of gamma irradiation on the performance of stevia (*Stevia rebaudiana* bertoni*)* genotypes.Egypt. J. Genet. Cytol., 48:295-315.

8 -Mohammed Elsayed El-Mahrouk, Mossad K. Maamoun, **Antar Nasr EL-Banna**, Soliman A. Omran, Yaser Hassan Dewir, and Salah El-Hendawy (2018). *In Vitro* Gynogenesis and Flow Cytometry Analysis of the Regenerated Haploids of Black Cumin (*Nigella sativa*). HortScience, 53:681-686.

9- **Antar N. El-Banna**, Ismael A. Khatab (2018). Molecular verification of released potato mutants resistant to *ralstonia solanacearum*under consequent pathogen stress. Asian Journal of Microbiology and Biotechnology, (2): 61-69.

10- Khattab A.A., Ahmed El-Sherbini and **Antar N. El-Banna** (2018). Generation of new high mutants of *Corynebacterium glutamicum* for glutamic acid production. Middle East Journal of Applied Sciences,8:436-443.

11- **A.N. El-Banna**, A.R. El-Shereif and Doaa, M. Abou Alyazid (2018) Morphological and genetic variations in "Balady" Mandarin induced by gamma irradiation, Annals of Agriculture Science, 1: 459-472.

12- **A.N. El-Banna** and M.M.F. Ghazy (2017). Assessment of genetic components and genetic diversity of six egyptian clover (*trifolium alexandrinum* l.) genotypes using issr and URP markers. *Egypt. J. Genet. Cytol., 46: 313-328.*

13- **Antar El-Banna** and Janos Taller (2017) Functional characterization of the silenced potato cysteine proteinase inhibitor gene (PCPI) in *Phytophthora infestans* resistance. Physiological and Molecular Plant Pathology 100 (2017) 23-29

14- H.A. Freeg , G.B. Anis , A.A. Abo-Shousha , **A.N. El-Banna , A**. El-Sabagh (2017). Genetic diversity among some rice genotypes with different drought tolerance based on SSR markers. Cercetări Agronomice în Moldova ,3 (167) / 2016: 39-50

15- A. A. Ali, A. E. Draz, **Antar. N. El-Banna**, Walaa, M. Essa (2017). Identification of blast resistance genes and marker assisted selection of some local and exotic rice genotypes. Egypt. J. Plant Breed., 21 (5): 219-236.

16- **Antar El-Banna** (2016) Overexpression of the antiporter AtNHX1 leads to improved salt tolerance in rice (*Oryza sativa* L.). Annals of Agriculture Science, 1: 21-28.

17- **Antar Nasr El-Banna**, Mohammed Elsayed El-Mahrouk, Mohammed Eraky El-Denary, Yaser Hassan Dewir and Yougasphree Naidoo (2016). Genetic Relationship and Diversity in Some Ornamental Palms Based on Proteins and Randomly Amplified Polymorphic DNA Markers. HORTSCIENCE 52(3):338–342. 2017.

18- Mohammed El-Sayed El-Mahrouk , Mosaad K. Maamoun, Yaser Hassan Dewir, Soliman A. Omran and **Antar Nasr El-Banna** (2015) Morphological and molecular characterization of induced mutants in *Nigella sativa l.* using irradiation and chemical mutagens. Egypt. J. Plant Breed. 19 (3):257 -272.

19- **A.N. El-Banna**, S.A. Dora, A.A. Aboshosha and Nada A. El-Morsy (2015). Horticultural and Genetical Characteristics of Tomato Somaclones under Salt and Heat Stresses. International Journal of Current Research in Biosciences and Plant Biology, 2 (4): 128-142.

20- A. A. Ali, A. A. Aboshosha, M.K. Kassem, Eman I. EL-Dabaawy and **A. N. EL-Banna (**2015). Salinity Tolerance and Stevioside Improvement of *in vitro* Selected Stevia (*Stevia rebaudiana*) Mutants. Int. J. Curr. Res. Biosci. Plant biol., .2(4): 11-20.

21-Y.H. Dewir, M.E. El-Mahrouk, **A.N. El-Banna** (2015). *In vitro* propagation and preliminary results of *Agrobacterium*-mediated genetic transformation of *Cordyline fruticosa*. South African Journal of Botany, 98, *45-51*.

22- Ismael A. Khatab, **Antar N. El-Banna**, Amira S. El-Keredy(2015). Genetic divergence among Egyptian populations of Drosophila melanogaster and Canton-S wild type strain, Journal of Biodiversity and Environmental Sciences. 7 (1): 173-179.

23-**A. N. EL-Banna**, I. A. Kattab and Mona A. Farid (2015). Characterization of some rice genotypes for fertility restoring genes using RAPD and SSR markers Egypt. J. Genet. Cytol., 44:253-264

24- Ismael A. Khatab and **Antar N. El-Banna** (2014) Establishment of high-efficiency *agrobacterium*-mediated transformation conditions of soybean callus. Indian Journal of Biotechnology, 13(4): 459-463.

25- Abo Shosha, A. A., A.A. Abdalla, Antar, N. El-Banna, Hytham, A. Fereg (2014). Effect of water stress on yield and its components of deferent genotypes of rice (*Oryza sativa L*). J. Agric. Res. kafr El-Sheikh univ., 40(2) 425-435.

26- Ismael A. Khatab, **Antar N. El-Banna** and Akram R. Morsy (2014). Molecular and biochemical markers for some soybean genotypes associated with cotton leaf worm resistance. Annals of Agriculture Science, 2: 31-37

27- Moemen S. Hanafy, **Antar El-Banna**, Heinz Martin Schumacher, Fathi S. Hassan, Hans-Jörg Jacobsen (2013). Enhanced tolerance to drought and salt stresses in transgenic faba bean plants expressing *PR10a* gene from potato. Plant Cell Rep. 32:663–674.

28- **A. N. El-Banna**, M. F. El-Nady, Y. H. Dewir, M. E. El-Mahrouk (2013) Stem fasciation in cacti and succulent species - tissue anatomy, protein pattern and RAPD polymorphisms. .Acta Biologica Hungarica 64 (3): 305–318

29-Tarek, A. Shalaby and **Antar El-Banna** (2013). Molecular and Horticultural characteristics of in vitro induced tomato mutants, Journal of agricultural science, Journal of Agricultural Science; 5(10): 155-163

30- Rahim Ahmadvand Ramin Hajianfar, Ahmad Mousapour Gorji, **Antar El-Banna**, Zsolt Polgár, and János Taller (2013). Development of Intron molecular markers as a tool for molecular breeding in response to pathogens in tetraploid potato**.** Egyptian Journal of Plant Breeding, 17 (2): 545-554.

31- Ismael A. Khatab and **Antar El Banna** (2013). Efficiency of genetic transformation of Egyptian soybean cultivars Giza 21 using *Agrobacterium tumefaciens***.** Egyptian Journal of Plant Breeding, 17(2): 555-564.

32- Tarek, A. Shalaby and **Antar El-Banna** (2013). Genetic diversity and horticultural characteristics of tomato mutants regenerated from tissue cultures, Egyptian Journal of Plant Breeding, 17(2) 225-231.

33- **Antar El Banna** and Ismael A. Khatab (2013). Assessing genetic diversity of some potato (*Solanum tuberosum* L.) cultivars by protein and RAPD markers. Egyptian Journal of Genetics and Cytology. 42:89-101.

34- Samah A. Mariey, Maher Noaman Mohamed, Ismail A. Khatab, **Antar N. El-Banna**, Amro Farouk Abdel Khalek and Medhat Eraqy Al-Dinary (2013). Genetic Diversity Analysis of Some Barley Genotypes for Salt Tolerance Using SSR Markers. Journal of Agricultural Science; 5 (7):12-28.

35- **El-Banna, A**. and Tarek Shalaby (2012). Detection of mutations in tomato induced by EMS using RAPD and SSR markers. Annals of Agriculture Science, 1: 21-28.

36- Ali, A, Yossef, T. and **El-Banna, A**. (2012). Cytokinin – cytokinin interaction ameliorates the callus induction and plant regeneration of tomato (*Solanum lycopersicum* MILL.), *Acta Agronomica Hungarica*, 60(1), 47-55

37-Heinz Martin Schumacher, **Antar El Banna**, Zahid Ali, Heiko Kiesecker, Lea Vaas and Elke Heine-Dobbernack (2011). Design of transgenic cell cultures as model systems for cryopreservation research**.** Proceedings of the final meeting AGROCAMPUS OUEST INHP, Angers - FRANCE, pp 6 11.

38- Elke Heine-Dobbernack, **Antar El Banna**, Heiko Kiesecker, Lea Vaas and Heinz Martin Schumacher (2011). Transgenic potato cell cultures – Application as a model system to investigate the relation of cryopreservation and osmotic tolerance Proceedings of the final meeting AGROCAMPUS OUEST INHP, Angers - FRANCE, pp 12-17.

39- **El-Banna, A.** and I. Khattab (2011). Biochemical characterization of rice somaclones resistant to blast. Current Research Journal of Biological Sciences. 4 (2): 137-142.

40- I. A. Khatab and **Antar, N. El-Banna** (2011) Detection of somaclonal variation in potato using RAPD markers. Egypt. J. Genet. Cytol., 40:227-238.

41- **El-Banna A**., Wissing J., Reza Hajirezaei M., Jacobsen H-J., Schumacher H.M. , Kiesecker H. (2010). Overexpression of Pr-10a leads to increased salt and osmotic tolerance in potato cell cultures. J.Biotechnol. 150 (2010) 277–287.

42- Ali, Z., Schumacher, H.M., Heine-Dobbernack, E., **El-Banna, A**., Hafeez, F.Y., Jacobsen, H.J., Kiesecker, H., (2010). Dicistronic binary vector system-A versatile tool for gene expression studies in cell cultures and plants. J. Biotechnol. 145, 9-16.

43- Elke Heine-Dobbernack, **Antar El Banna**, Mohammed Hajirezai, Heiko Kiesecker, Heinz Martin Schumacher (2010). Changes in cryotolerance after overexpression of pr10a in *Solanum tuberosum* cv. Desiree. CryoLetters, 31 (2), 169-197.

44- El-Degwy, I.S and **A. El-Banna (2010).** Agronomic characterization and biochemical genetic markers for drought tolerance in rice (*Oryza sativa L.*). Egypt. J. Genet. Cytol., 39:315-334.

45- Abdel–Hamid A. Ali; Galal H.E.; and Naser M.A. and **El-Banna A**. (1998). *In vitro* selection and somaclonal variation as tools for releasing salt tolerant rice lines. Proceedings of the 26th Annual meeting of Genetics Alex. 29-30 Sept. 1:1-15.

46- Galal, H.E.; Abdel-Hamid, A. Ali; and Naser M.A and **El-Banna A.** (1998). Genetic evaluation of rice lines derived via androgenesis. Proceedings of the 26th Annual meeting of Genetics Alex. 29-30 sept 1: 57-73.

Conferences

1- **A El Banna**, E Heine-Dobbernack1, M Hajirezaei, H Kiesecker and HM Schumacher Investigation of physiological mechanisms of osmotolerance using potato cell cultures **SLTP Conference, 12-14 September 2007. Germany**

2- **A El Banna**, E Heine-Dobbernack1, M Hajirezaei, H Kiesecker and HM Schumacher Investigation of physiological mechanisms of osmotolerance using potato cell cultures **ICCC 11 Conference, 7-14 October 2007. United Kingdom.**

3- Moemen S. Hanafy, **Antar El-Banna**, Fathi Hassan and Hans-Jörg Jacobsen. Development and characterization of transgenic faba bean plants containing a pathogen-related protein (PR10a) gene. **5th International Food Legume Research Conference (IFLRC) & 7th European Conference on Grain Legumes (AEP) 26th to 30th April 2010, Antalya, Turkey**

4- **El-Banna, Antar** , Hajirezaei, Mohammad-Reza , Schumacher, Dobbernack, Elke Heine ,Kiesecker, Heiko and Jacobsen, Hans-Jörg. Over-expression of PR-10a leads to increased salt and osmotic tolerance in potato cell cultures .**10th Gatersleben research conference, Sequence inform crop research, 22 – 24 November 2010, Germany.**

5- **El-Banna, A**. and Tarek shalaby. Detection of mutations in tomato induced by EMS using RAPD and SSR markers**, 1st International Conference On Biotechnology Application in Agriculture, Benha University, Moshtohor and Hurgada,18-22 February 2012, Egypt**,

6- Ismael A. Khatab and **Antar El Bana**. Efficiency of genetic transformation of Egyptian soybean cultivars Giza 21 using *Agrobacterium tumefaciens***. 8th international conference of plant breeding Kafrelshikh Univ., Egypt, 14-15 May, 2013.**

7- Rahim Ahmadvand, Ramin Hajianfar, Ahmad Mousapour Gorji, **Antar El-Banna**, Zsolt Polgár, and János Taller Development of Intron molecular markers as a tool for molecular breeding in response to pathogens in tetraploid potato. **8th international conference of plant breeding. Kafrelshikh Univ., Egypt, 14-15 May, 2013.**

8- **Antar El-Banna**, Rahim Ahmadvand, Ramin Hajianfar, Ahmad Mousapour Gorji, Zsolt Polgár, and János Taller. Isolation and functional analysis of resistance responce genes in potato and the develoment of molecular markers. **EAPR conference, 30 june – 04 July 2013, Heviz, Hungary**.

9- Tarek, A. shalaby and **Antar El-Banna** (2013). Genetic diversity and horticultural characteristics of tomato mutants regenerated from tissue cultures. **8th international conference of plant breeding. Kafrelshikh Univ., Egypt, 14-15 May, 2013.**

10-**Antar El-Banna** (**2013**). Climate change and food security in Egypt. DAAD-HEC International Summer School "FOOD SECURITY IN TIMES OF CLIMATE CHANGE" Bringing translational research from bench to field November 2-5, 2013 at COMSATS Institute of Information Technology (CIIT) Park Road Chak Shahzad Islamabad, Pakistan.

11- **Antar El-Banna**, Anastasia Kargiotidou, Ioannis Mylonas, Chrysanthi Foti, Constantinos Tzantarmas, Dimitrios Vlachostergios, and Ioannis Tokatlidis **(2014)** Spatial heterogeneity within lentil landraces is better sampled by the honeycomb rather than the classical-plot arrangement, **PGR Secure/EUCARPIA conference 16-20 June NIAB Innovation Farm, Cambridge, UK.**

12- **Antar El-Banna** (**2014**) Climate change and food security in Egypt: "Agricultural Biotechnology in Response to Climate Change" **International Interdisciplinary Symposium**, **Democritus University of Thrace, Greece, 2-3 June 2014.**

13- Antar El-Banna (2016) Overexpression of the antiporter AtNHX1 leads to improved salt tolerance in rice (*Oryza sativa* L.). International **Conference On Biotechnology Application in Agriculture, Benha University, Moshtohor and Hurgada,18-22 February 2016, Egypt**,

14- Antar El-Banna (2018) Morphological and genetic variations in "Balady" Mandarin induced by gamma irradiation, **International Conference On Biotechnology Application in Agriculture, Benha University, Moshtohor and Hurgada, 4-8 April 2018, Egypt**.

Research Projects

1- PI: Isolation and functional analysis of genes expressed during the environmental stresses response in Potato. Funded by Science and Technology Development Fund, Egypt (STDF, 2015-2018).

2- Co.PI: Selection for enhanced yield and tolerance to viral and vascular diseases within lentil landraces. Joint project with the Democritus University of Thrace, Greece, 2012-2015.

3- PI: Production of Local Potato Tubers Resistance to Brown Rot using Biotechnology, funded by Research Support Fund, Kafrelsheikh University (2012- 2014).