CURRICULUM VITAE

Name : Ahmed Gaber Ahmed Mahmoud

Date of birth : April 16, 1972

Place of birth : Cairo, Egypt

Sex : Male

Religion **:** Moslem

Martial status : Married

Nationality : Egyptian

Job Address **:** Cairo University, Faculty of Agriculture, Department of Genetics, Giza Street, Postal Code: 12613, Giza, Egypt.

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Position held : Associate Professor at the Department of Genetics, Faculty of Agriculture, Cairo University.

ACADEMIC DETAILS

Institution/Board	Degree/Certificate	Session	Grade
Osaka Prefecture University, Osaka, Japan Department of Applied biochemistry	**Ph.D.** (plant biotechnology & Molecular Biology)	2001-2004	A
Osaka Prefecture University, Osaka, Japan Department of Applied biochemistry	**M.Sc** (plant biotechnology)	1999-2001	A
Cairo University, Faculty of Agriculture,	**B.Sc** Horticulture	1990-1994	Excellent with honor

DISTINCTIONS/AWARDS

1- Award of training course from **Japan International Cooperation Agency** (JICA) (August 1995 to November 1995).
2- Award of a Ph.D. scholarship from **Egyptian Government** to Japan (April 1999 to March 2004).
3- Award of post doctoral fellowship from **Japan Society for the promotion of Science** (JSPS) (October 2008 to October 2010)

RESEARCH EXPERIENCE

I have been working as demonstrator in Department of Genetics, Faculty of Agriculture, Cairo University, Egypt, since October 1994 and have been involved in the genetics study and molecular biotechnology techniques.

Next, I completed my master and doctoral courses in plant biotechnology and Molecular Biology at the Department of Applied Biological Chemistry, Graduate School of Agriculture and Biological Sciences, Osaka Prefecture University, Japan from May 1999 to March 2004. My doctoral thesis entitled "**Molecular Cloning, Characterization, and Physiological Roles of Glutathione Peroxidase (GPX)-Like Proteins in Photosynthetic Organisms. Relationship between the enzyme and environmental stress tolerance**".

During my master and doctoral course, I studied the following to clarify the physiological roles of GPX-like proteins in photosynthetic organisms:

1) Isolation and Molecular Characterization of GPX-1 and GPX-2 from *Synechocystis* PCC 6803.

2) Investigate the Physiological Roles of both genes by constructed each genes disrupted mutant in the native cell by the insertion of *kanamycin* resistance cartridge gene.

3) Making of Transgenic *Arabidopsis* Plants Expressing GPX-2 like Proteins into Chloroplast/Cytosol with Increase Tolerance to Environmental Stresses.

To investigate the physiological roles of GPX-1 and GPX-2 in photosynthetic organisms, I constructed each gene disrupted mutant in the native cell (*Synechocystis* PCC 6803) by the insertion of kan^r cartridge gene. Next, I carried out northern and western blotting analysis after the treatment of wild-type and mutant cells to some stress

conditions such as high light, salt, and oxidative stress conditions. The results indicate that each gene have a different expression pattern under these stress conditions.

Next, I generated transgenic *Arabidopsis* plants expressing the *S.* PCC 6803 GPX-like proteins (GPX-2) in chloroplasts or cytosol. Both types of the transgenic plants showed increased tolerance to oxidative stress caused by application of methylviologen (MV: 50 μM) under high light intensity (600 μE m^{-2} s^{-1}), chilling (4°C) under high light intensity, high salinity (100 mM NaCl), or drought stress.

Nowadays, I am foxing in isolating and cloning genes related to resistance of environmental stresses from prokaryotic cells.

TRAININGS/EXPERIENCES

1- Teaching the basic concepts of Bioinformatics and principles of prokaryotic and eukaryotic genetics, mendelian inheritance, polygenic inheritance, linkage and mapping, DNA structure and replication, gene expression, mutation, gene regulation, extranuclear inheritance, bacterial and viral genetics, molecular biology of gene expression in animal, plant, and microbial systems and recombinant DNA technology. Moreover, study the variation in chromosome structure, behavior and number; developmental and evolutionary effects of this variation.

2- 1995 (August 2 to November 29), **Gene Manipulation for Agriculture**, in the Department of Applied Biochemistry, College of Agriculture, University of Osaka Prefecture, **Japan**. This course focused on isolation and manipulation of nucleic acid and protein from plant. There are many techniques were learned from this course such as electrophoresis, restriction digest, Southern hybridization, Northern hybridization, Western hybridization, sequencing, PCR technique, etc.

3- 1996 (March), **Agrobacterium Transformation in Plant**, Genetic Engineering Center, Faculty of Agriculture, Cairo University, **Egypt.**

4- 2005 (January), **Introduction to Applied Bioinformatics**, Faculty of Agricultyre, Cairo University, **Egypt**. Under supervisor of Dr. Ben F. Matthews, USDA, USA.

5- 2005 (February), **Gene Transfer and Tissue culture techniques in plant cell**, Faculty of Agricultyre, Cairo University, **Egypt**. Under supervisor of Dr. Hans-Joerg Jacobsen**, Hannover University, Germany.**

6- 2005 (November), **Active learning and curriculum Development, Faculty of Agricultyre**, Cairo University, **Egypt.**

7- 2006 (February), **Teaching Technologies in advanced Molecular Biology**, Faculty of Agricultyre, Cairo University, **Egypt**. Under supervisor of Dr. James A. Saunders Towson Univ., USA and Dr. Ben F. Matthews, USDA, USA

8- 2005 (April 19th to May 6), Traveling to Rutgers university, USA, for upgrading my methods in teaching ability in rapidly advanced biotechnology area.

9- 2006 (November 26th to December 10), Traveling to Rutgers, Ohio state and Washington universities, USA, for upgrading my methods in teaching ability in rapidly advanced biotechnology areas.

HELPING IN TRAINING COURSES

1- 1996 (September), **Tissue Culture and Genetic Engineering in Plant**, Genetic Engineering Center, Faculty of Agriculture, Cairo University, **Egypt.**

2- 1997 (September), **Gene Transfer in Plant**, Genetic Engineering Center, Faculty of Agriculture, Cairo University, **Egypt.**

RESEARCH PROJECTS

1- I was a member in the management team of "B.Sc. Agriculture Biotechnology English Program" project, founded by the World Bank.

2- I was a member in the management team of "Production of Tomato transgenic plant resistance to Environmental stresses and suitable for cultivating in Toshka Environments" project, founded by MUCIA, USA.
3- I was a member in the management team of " Analysis of gene expression of soybean roots after infection with root not nematode" project, founded by Egyptian and US joint projects.

LABORATORY EXPERIENCE

I have extensive experience, more than 10 years, with the application of molecular genetic methods in the lab. Proficiency in handling DNA and RNA gained during exercises used routinely in analyses of gene expression; RNA preparation and analysis on Northern blots; in vitro transcription and polyacrylamide gel analysis of nucleic acids; sub-cloning and mRNA quantitation using polymerase chain reaction, restriction enzymes digest, Southern hybridization, Western hybridization, DNA sequencing, PCR techniques.

LANGUAGES

Good Command over writing, reading and speaking of English and Arabic.

MEMBERSHIPS

1- Genetic Sciences Society of Egypt.

2- Member of Japanese Society of Plant and Cell Physiology (from 2002 to 2004).

3- Member of Japanese Society of Bioscience, Biotechnology, and Agrochemistry (from 1999 to 2003).

4- Cairo University Club.

INTERNATIONAL CONFERENCES/SYMPOSIUMS

The names and date of oral and poster presentations are:

1) Annual meeting for Japan Society for Bioscience, Biotechnology, and Agrochemistry, Tokyo, March 2000 (poster presentation).
2) Branch meeting for Japan Society for Bioscience, Biotechnology, and Agrochemistry, Osaka, Nara, October 2000 (oral presentation)
3) Annual meeting for Japan Society for Bioscience, Biotechnology, and Agrochemistry, Kyoto, March 2001 (oral presentation).
4) Annual meeting for Japan Society for Bioscience, Biotechnology, and Agrochemistry, Sendai, March 2002 (oral presentation).
5) Branch meeting for Japan Society for Bioscience, Biotechnology, and Agrochemistry, Osaka, Nara, Kinki University, October 2002 (poster presentation).
6) Euglena Research Association, Osaka, Nara, October 2001 (poster presentation)
7) Euglena Research Association, Osaka, OPU, October 2002 (oral and poster presentation)
8) Jica training course, November (2000, 2001, 2002) oral presentation
9) Kaihana international meeting 2000 (poster presentation).
10) Annual meeting for Japan Society for Plant and Cell Physiology, Osaka, Kinki University, March 2003 (oral presentation).
11) 11^{th} international symposium on Phototrophic prokaryotes (ISPP 2003 Tokyo), August 2003, (poster presentation).
12) Branch meeting for Japan Society for Bioscience, Biotechnology, and Agrochemistry, Kyoto, October 2003 (oral presentation).
13) Euglena Research Association, Osaka, OPU, November 2003 (oral and poster presentation)
14) Euglena Research Association, Osaka, OPU, November 2009 (oral presentation)
15) Annual meeting for Japan Society for Bioscience, Biotechnology, and Agrochemistry, Tokyo, March 2010 (oral presentation).

PUBLICATIONS

Ahmed Gaber, Masahiro Tamoi, Toru Takeda, Yoshihisa Nakano and Shigeru Shigeoka **(2001).** NADPH-dependent glutathione peroxidase-like proteins (Gpx-1, Gpx-2) reduce unsaturated fatty acid hydroperoxides in *Synechocystis* PCC 6803. **FEBS Letters**, 499: 32-36.

Kazuya Yoshimura, Kazuhiro Miyao, **Ahmed Gaber,** Toru Takeda, Haruo Kanaboshi, Hitoshi Miyasaka and Shigeru Shigeoka **(2004)**. Enhancement of stress tolerance in transgenic tobacco plants overexpressing *Chlamydomonas* glutathione peroxidase in chloroplasts or cytosol. **Plant Journal**, 37: 21-33.

Ahmed Gaber, Kazuya Yoshimura, Masahiro Tamoi, Toru Takeda, Yoshihisa Nakano and Shigeru Shigeoka **(2004)**. Induction and functional analysis of two reduced nicotinamide adenine dinucleotide phosphate-dependent glutathione peroxidase-like proteins in *Synechocystis* PCC 6803 during the progression of oxidative stress. **Plant Physiology,** 136(1):2855-2861.

Mona H. Hussein, Salah. E. El-Assal, **Ahmed Gaber** and Hashem Hussein (**2006**). Detection of genetic polymorphism among some cultivars of Egyptian clover (*Trifolium alexandrinum* L.). **Egyptian Journal of Genetics and Cytology**, 35: 105-115.

Ahmed Gaber, Kazuya Yoshimura, Takashi Yamamoto, Yukinori Yabuta, Toru Takeda, Haruo Kanaboshi, Hitoshi Miyasaka, Yoshihisa Nakano and Shigeru Shigeoka **(2006)**. Glutathione peroxidase-like protein of *Synechocystis* PCC 6803 confers tolerance to oxidative and environmental stresses in transgenic *Arabidopsis*. **Physiologia Plantarum,** 128: 251–262.

Ahmed Gaber, Mohamed El-Awady, Nagwa Elarabi and Mohamed Soliman (**2006**). Overexpression of a glutaredoxin-2 from cyanobacterium *Synechocystis* PCC 6803 in

Escherichia coli conferring enhanced salt stress tolerance. **Arab Journal of Biotechnology**, 10: 13-22.

Ahmed Gaber, Heba M. M. El-Maraghy, M. A. M. Aly, Nahed A. K. Rashed and A. Y. Gamal El-Din **(2007)**. Induction of Somatic Embryogenesis and DNA Fingerprinting of Jojoba [*Simmondsia chinensis* (Link) Schneider]. **Arab Journal of Biotechnology**, 10 (2): 341-354.

Neveen A. Hassan, Abeer A. El-Halwagi, **Ahmed Gaber**, Mohamed El-Awady and Ahmed Khalaf **(2007)**. Slow-Growth *in vitro* Conservation of Garlic Cultivars Grow in Egypt: Chemical Characterization and Molecular Evaluation. **Global Journal of Molecular Sciences**, 2(2): 67-75.

Abd El-Aal A. S., Ageez A., Maaty W., **Ahmed Gaber** and Abdallah, Naglaa A. **(2008).** Identification and characterization of resistance gene analog (RGA) and the leaf rust (resistance) Lr21 gene from the wheat cultivar Giza168. **Arab Journal of Biotechnology**, 11 (1):85-94.

Hassanien, H.A. and **Ahmed Gaber (2008)**. Genetic changes during spawning season for hatchery offspring in Nile tilapia *Oreochromis niloticus* (L.), revealed by microsatellite DNA markers. **Egyptian Journal of Applied Sciences** 23, No (7): 35-43.

Ahmed Gaber (2009). Enhancement of photo-oxidative stress tolerance in transgenic tobacco plants overexpressing *Synechocystis* PCC 6803 glutathione peroxidase (GPX-1). **Arab Journal of Biotechnology**, 12 (2):187-198.

Ahmed N. Sharaf, **Ahmed Gaber**, Abdelhadi A. Abdelhadi, Abdelshafy I. Ragab and Walid A. Korani **(2011)**. Induction, characterization and genetic analysis of *Aspergillus flavus* resistant mutants in *Arachis hypogaea*. **African Journal of Biotechnology**, 10 (75): 17095-17105.

Ahmed Gaber (2011). *Arabidopsis* glutathione peroxidase 8 is a key enzyme in response to environmental stresses. **Arab Journal of Biotechnology**, 14 (2): 213-224.

Ahmed Gaber, Takanori Maruta, Tomoya Ogata, Kazuya Yoshimura, Masahiro Tamoi and Shigeru Shigeoka **(2012)**. Glutathione peroxidase 8 is a novel enzyme for the detoxification of reactive oxygen species in the nucleus of *Arabidopsis*. **Plant Cell Physiol**, 53 (9): 1596-1606.

Ebtissam H. A. Hussein, Karima F. Mahrous, **Ahmed Gaber**, Nermine El-Halawany and Mohamad Maghawry (2012). Identification of genes preferentially expressed during *in-vitro* buffalo oocyte maturation using the differential display technique. a. Genes involved in DNA replication, repair and cell cycle, signal transduction and cell-to-cell communication and anti-apoptosis. **Arab Journal of Biotechnology,** 15 (1): 1-16**.**

Ahmed Gaber and Salah El-Din El-Assal **(2012).** A Cyanobacterium *Synechocystis* sp. PCC 6803 glutaredoxin gene (*slr1562)* protects *Escherichia coli* against oxidative, salt and drought stresses. **Am. J. Agri. & Biol. Sci.,** 7 (1): 88-96.

Salah El-Din El-Assal and **Ahmed Gaber (2012)**. Genetic diversity and relation ship among wheat cultivars based on RAPD, ISSR and SSR markers. **Am. J. Applied Sci.,** 9 (5): 724-735.