

CURRICULUM VITA

Abdel Rahman El Gamal, Ph.D

Personal History

Name: Abdel Rahman Abdel Latif El Gamal

Date of Birth: January 11, 1946

Previous Occupation: Senior Aquaculture Scientist, World Fish Center for Africa and West Asia, Egypt

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Education

Ph.D in aquaculture (breeding & genetics), 1987, Auburn University, USA

M.Sc in aquaculture, 1984, Auburn University, USA

B.Sc in agriculture, 1966, Cairo University, Egypt

Official awards and recognition

The World Fish Center's achievement award for research (2004)

<http://fishconsult.org/wp-content/uploads/2011/08/Staff-Award.jpg>

Dedicating the WorldFish auditorium to my name (2010)

<http://fishconsult.org/?p=116>

Leadership Positions

I got appointed as the Director of Central Laboratory of Aquaculture Research (Agricultural Research Center). I have filled this position from February 1992 – May 1997. (10 Departments – about 340 staff).

Latest Job Responsibilities (during the period 1998-2009).

Managing the outreach program since 1998 till the present. This includes:

- A- Training: until the end of December 2009, the Regional Center at Abbassa, has organized 87 training courses. (49 local and 38 regional & international). Until

the end of December 2009, these courses have accommodated 1321 participants (748 Egyptian; 573 regional & international from 98 countries).

B- Building farmer capacity: This is carried out through:

- Training (has been mentioned)
- Field trials (the outcomes has been presented as one of the center's success stories)

C- Workshops and expert consultations: Examples of these:

1. Serving on the organizing committee of the workshop **“Improving policies for sustainable utilization of fishery resources in Egypt”**. This workshop has been held on May 29, 2000 with the sponsorship of General Authority for Fish Resources Development (GAFRD), FAO, WorldFish and Agricultural Policy Reform Program (APRP).
2. Serving on the organizing committee for the workshop **“Environmentally Friendly Aquaculture and Fisheries Practices”** Sponsored by FAO, PERSGA, ROPMI, RDI and WorldFish. The workshop was conducted in Hurghada, Egypt during 15-17 September 2002. The citation of the workshop proceedings is as follows: *El Gamal, A.A.; Abdullah, S.; and Barrania, A. (editors). 2002. Environmentally friendly aquaculture and fisheries practices, workshop proceedings, 15-17 September 2002, Hurghada, Egypt.*
3. Serving on the organizing committee for the workshop **“Fish and Seafood Products in West Asia and North Africa”**. The supply & demand of fish and fish products was the focus of the workshop. This workshop has been conducted in Kuwait during 7-9 October 2002 and sponsored by Kuwait Government, FAO and World Fish Center.
4. Representing the center in the workshop **“Setting Agricultural Research Priorities for the Central and West Asia and North Africa Region (CWANA)**. This workshop was held in Syria and organized by the International Center for Agricultural Research in the Dry Areas ICARDA during 8-11 May, 2003.
5. Managing Fish Trade Workshop which was held at Abbassa on 24 February 2004. Arabic/English Proceedings has been developed; The citation of the workshop is as follows: *El Gamal, A.A. 2004. Fish Trade in Egypt.*
6. Has actively contributed in the preparation and implementation of **“Egyptian Aquaculture Strategy Stakeholder Meeting”**. The workshop took place during 6-7 May, 2007.
7. Serving on the organizing committee on the preparation of a regional workshop on **“Ecosystem Approach to Fisheries and Aquaculture in the Near East and North Africa Region Facing Climate Change”**. The workshop has been conducted during 10 to 12 November, 2009. Workshop proceedings is being developed in the present.

D- Serving on the 3-year program (2005-2008): CGIAR Challenge Program on Water and Food **“Improving water productivity in tropical reservoirs”**. The reservoirs covered under the program are: Lake Nasser (Egypt), Volta Basin (Ghana) and Ingo-Gangetic Basin (India).

Advisory Studies & Missions

1. Upon the nomination of fishery authority (Egypt), I worked as the national counterpart with FAO expert during 1980/1981 on UN/aquaculture project (EGY/80/002). The project included a 6-month training course which was conducted during 1980.
2. Upon the nomination of fishery authority (Egypt), I worked as the national counterpart with international experts during the early phases of Aquaculture Development Project which has been established through the collaboration between USAID and the Egyptian Government (US\$23 million and 10 million LE).
3. Serving on the technical committee responsible for selecting the technical assistance for the development of Bardaweel Lagoon, North Sinai (Funded by the European Commission; about LE 60 million)
4. Serving on the technical committee of the "Integrated Pilot Project for Development of Aquaculture Fish Production in Lake Manzala Area" (Funded by Italian Government). This project includes a fish farm, a hatchery and a feed mill.
5. Participating in the development of the Arabic version of AGROVOC (Fishery/aquaculture glossary) sponsored by FAO (1988).
6. Providing advisory services to the General Authority for Fish Resources Development (GAFRD), (Egypt) from 1989 until 1992.
7. Participating in the scientific team for the preparation of the feasibility study of the biological treatment of Lake Manzala (Engineered Wetland) sponsored by UNDP/GEF (1992).
8. Serving as the principal Investigator for Pond Dynamics/Aquaculture (CRSP) from 1992 to 1994 in collaboration with American Universities (Auburn. Hawaii and Oregon) and a research institute from Thailand (Budget US\$1.6 million).
9. Heading an expert team for developing aquaculture projects required for Arab World. This mission was sponsored and its report was published by the Arab Organization for Agricultural Development (AOAD) (Khartoum; 1995).
10. Carrying out a review on Aquaculture in regard to Status and Development Requirements in Egypt. (FAO - May 1996).
11. Participating in a study on research capacity and needs in the area of aquaculture in Arab countries. The study has been sponsored and its report was published by the Arab Organization for Agricultural Development (AOAD) (October 1997).
12. An advisor to National Agricultural Research Project (NARP) from 1992-1995. The advisory services focused on aquaculture (evaluation of research & extension proposals and progress).
13. For Ministry of Agriculture (Egypt): Directing the establishment of marine finfish/shrimp hatchery project which is supported by Egyptian/French

- governments; starting July 1997 up to the end of 1998 (the project budget 3.2 million LE).
14. Upon the request of the Strategic Research Unit (National Water Research Center) jointly with Italian Cooperation in Cairo, I finished a study on **“Fish Production in Egypt in Regard to: Sources, Development, and Potential – with special emphasis on lake fishery, River Nile and aquaculture”**. The study brought together broad historical data sets which have been analyzed for the long-term trends in fish production and changes in the water resource use. A final report has been produced in May 1999.
 15. In a follow-up study, and upon the request of the Strategic Research Unit (National Water Research Center) jointly with Italian Cooperation in Cairo, I finished another study integrating the information already produced in the first phase focusing on the relationship between water quality and fishery production as well as on human health. A final report has been produced in December 1999 with a title **“Fish Production from Main Resources in Egypt; with special emphasis on the factors affecting its development, its relationship with water quality and human health”**.
 16. For FAO, a regional review of aquaculture: status and development trend in Near East Countries. A report has been produced in October 1999 and presented in Bangkok during February 2000. The link to the internet:
<http://www.fao.org/DOCREP/003/AB412E/ab412e22.htm>
 17. For FAO, carrying out an advisory mission in Iran (November/December 2000). The task of the mission was the establishment of national mariculture center.
 18. For FAO, carrying out a regional review on “Biotechnology applications in Fish Genetics in The Near East”. October 2001. 5 pp.
 19. For FAO, reformulating the proposal “Providing the locals of Southern Sinai with simple fishing gears” for FAO-Egypt 2001. 14 pp.
 20. For Dutch Embassy (Cairo) providing advisory services in organizing a workshop that was held in Ain Sokhna, Egypt during 23-24, February, 2005, and to coordinate a task force team towards a national plan of action for fisheries development in Egypt (March/April, 2005).
 21. For Egyptian Government (Ministry of Agriculture & Ministry of Trade & Industry, carrying out a 3-month study on the potential export of Nile and farmed fish to EU Countries. The citation of the study report: **“El Gamal, A.A., 2005. Scope for exporting farmed and Nile fish to EU Countries”**. Ministry of Agriculture and Land Reclamation, Egypt. 137 pages.
 22. For NIRAS Consulting Engineers and Planners (Denmark). I carried out the fishery/aquaculture part in the Business Plan for the Lake Manzala Engineered Wetland, Egypt. August 2007.
 23. For Palestinian Agricultural Relief Committees (PARC) and Belgium’s Association for Promoting Education and Training Abroad (APEFE): Providing advisory services to Fish Culture Project in Gaza during 2006/2007.

24. For Fish Export Council and Industrial Modernisation Centre (IMC): Carrying out a 3-month advisory services on fishery and aquaculture, (March-May, 2008).
25. For Egyptian Fish Council (EFC), carrying out a study on cage aquaculture in River Nile. The citation of the study report is presented under Books in this CV. (2008). The study has been developed into a book.
26. For Egyptian Fish Council (EFC), carrying out a study on the establishment of an accredited laboratory for fishy products. The citation of the study report: **“El Gamal, A. A. 2008. Establishment of an Accredited Laboratory for Fish and Fish Products: (Rationality – Requirements – Business Plan), 184 pages.**
27. Contributing to a review study for International Union for Conservation of Nature (IUCN)- Centre for Mediterranean Cooperation – IUCN Species Program (Spain). January/February 2009.
28. Co-organizing a regional workshop “Adapting to climate change: the Ecosystem Approach to Fisheries and Aquaculture in the Near East and North Africa Region. FAO/WorldFish Workshop, Abbassa, Egypt, 10-12 November 2009. (Curtis, L.; Beveridge, M.C.M.; El-Gamal, A.R.; Mannini, P. (eds). Adapting to climate change: the Ecosystem Approach to Fisheries and Aquaculture in the Near East and North Africa Region – Workshop Proceedings. FAO Fisheries and Aquaculture Circular. No. 1066. Rome, FAO. 2011. 130p.).
29. Carrying out a sector review for Egyptian fishery and aquaculture during 2009/2010 for Industrial Modernisation Centre (IMC) through the consulting company (LOGIC). The 4-chapter review included local assessment, global assessment, benchmarking, SWOT analysis and strategic planning.
30. Contributing to a national mission sponsored by the “Advisory Panel Project on Water Management” on fish farming in Egypt focusing on water resources (January/February, 2010).
31. Contributing in UNDP sponsored project “Cairo Agenda for Action on Aid Effectiveness (CAA); 2010.
32. Contributing as an aquaculture expert in the “Agriculture Reviewing Panel” sponsored by Science & Technology Development Fund (STDF), October-November, 2010.
33. Contributing to a study sponsored by the Danish Government’s Business- to-Business Programme in Cairo and carried out by Andersen Consult, February – March, 2011.
34. Providing –as the project fishery expert- the technical information for the fish portal in Egypt. Egyptian Fish Council is the implementing agent of the project which is funded by “EC/UN Joint Migration & Development Initiative in Egypt”. (2011-2012).
35. Carrying out a feasibility study on aquaculture enterprises in Egypt; a 160-ha marine fish farm and a marine shrimp hatchery of 80-million post larvae as annual production capacity (2014).

36. Upon the invitation of FAO, I contributed to the mission on the “Independent Evaluation of the Agricultural and Fisheries Development Fund (AFDF)” in the Sultanate of Oman during 2013. Four international experts contributed to the mission which covered four different agriculture sectors whereas aquaculture & fishery was my full responsibility. The expert team worked physically in the Sultanate of Oman from 17 January – 10 February, 2013 while working on the report took place in home countries.

Contributions to Research/Developmental Programs

1. Upon the invitation of World Aquaculture Conference: Presenting an invited paper on fish genetics. The conference was conducted in Sydney (Australia) during 27 April-2 May, 1999.
2. Has served as the Aquaculture Technical Advisor to “Lake Manzala Engineered Wetland Project” during the monitoring and evaluation periods. The project is sponsored by: Global Environmental Facility (GEF); United Nations Development Program (UNDP) and Egyptian Environmental Affairs Agency (EEAA).
3. Has served on the Board of Trustees (Chief of Aquaculture Sector) in the Multi-Sector Support Program (MSSP). This program has a development mandate for promoting four agricultural sectors including agriculture. This program which has started in April 1997 has been sponsored by Ministry of Agriculture and European Commission. After the conclusion of MSSP, Agricultural Sector Development Program (ASDP) has been created for carrying out the same activities. I continued to serve as a Board of Trustees Member on ASDP till the end of 2008. The budget of this program exceeded 1 billion Egyptian pounds.
4. A member in the Research Council for Fishery Resources (Academy of Scientific Research and Technology - Egypt).
5. Has served since 1997 as a technical advisor to Fulbright Commission in the evaluation of research proposals fellowship process of candidates for post-doctoral programs in U.S.A.
6. A Steering Committee member of Egyptian Fish Council (EFC)
7. A Steering Committee member of Fish Committee (Agricultural Export Council).
8. A technical team member in the “Agricultural Research and Development Fund – ARDF”, then after “Agricultural Support Development Program-ASDP” from March 2011 till present.
9. A member in a 5-member national committee which has the mandate of ensuring the implementation of the national strategy of the fishery sector. (2014)

Contribution to capacity building carried out in Egypt

Starting 1988, I actively contributed to training programs organized by national institutes. Of particular importance the ones organized by the Egyptian International Center for Agriculture (EICA). My contribution to this program started in 1988 and continues till the present including the 12-year work in the World Fish Center. During the period (1988-2012), I have actively to the training of about 700 Egyptian trainees and about 1000 participants from Africa, Asia, Latin America and Common Wealth Countries (about 100 countries).

Overseas Lecturer & Expert Consultations

1. Upon the invitation of FAO and Kuwait Institute for Scientific Research (KISR), I presented a keynote lecture in the Mariculture training program held in Kuwait during 17-26 April, 2000. The course was tailored for trainees from the Gulf countries.
2. Upon the invitation of Arab Organization of Agricultural Development (AOAD) and the State of Qatar, I presented series of lectures in the training program on aquaculture which has been held in Doha, Qatar during 25-29 May, 2002.
3. Upon the invitation of FAO and the Government of Iran, I presented a keynote lecture on shrimp genetics in the shrimp training course which has been held in Bosheir, Iran during 18-31 May, 2002. The course was tailored for trainees from the Gulf countries.
4. Participating and presenting in the Expert Consultation on Land and Water Use in Aquaculture, organized by FAO and held in Rome 7-10 October 2002.
5. Upon the invitation of the Arab Organization of Agricultural Development (AOAD) and Sultanate of Oman, I presented series of lectures on (small scale aquaculture – Fish preservation and processing) in the training program on rural development which has been held in Muscat, 17-21, September, 2006. The course was tailored for trainees from the Arab countries.
6. Upon the invitation of Afro-Asian Rural Development Organization (AARDO) and Sultanate of Oman, I have provided an expert paper and contributed to the International Workshop on “Promotion of Aquaculture in Family Farming”, held in Muscat, Oman during 08-12 September 2007.

Academic Activities:

1. List of publications is presented in Annex 1
2. Teaching fish Breeding & Genetics course at Al Azhar University for 5 years.
3. Supervising several research projects for M.Sc and Ph.D programs.
4. Serving on the editorial board of “Journal of Applied Aquaculture”, USA for about two years.

5. Representing Egypt as a steering committee member in the International Network on Genetics in Aquaculture (INGA) sponsored by WorldFish since its establishment until joining WorldFish in 1998.
6. Scientific reviewing for several national and international scientific journals.
7. Carrying out scientific reviewing for aquaculture projects funded by the Academy of Scientific Research and Technology.
8. International examiner for Doctoral program (Burdwan University, India)
9. Serving on the editorial board of “**Oceanography and Fisheries open access Journal (OFOAJ)**”, effective February, 2016.
<http://juniperpublishers.com/foaj/editorialboard.php>

Books (Published)

In Arabic:

Co-authoring a 2-part book titled “**Scientific and Technical Aspects for Hatchery and Husbandry Technology of Fin Fish and Crustaceans**”. Published in 1996 and 1997. (Part one 872 pages; Part two 435 pages).

Sole authoring: “**Biodiversity of Aquatic Organisms: Importance, limitation, and Conservation**”. Copyright: 2005. I.S.B.N: 977-17-2367-7.

In English:

Sole authoring: “**Environmentally Friendly Cage Piloting Project in River Nile**”. Copyright: 2008. I.S.B.N. 977-17-5894-2

Publications prepared for publishing:

An Arabic-English glossary on fishery related terms (aquaculture, fishery, legislations, food safety, and environmental issues). A sample of the glossary has been posted on my website: www.fishconsult.org

Translated from English into Arabic:

1. FAO Fisheries Technical Paper No 352. **Selective Breeding Programs for Medium-Sized Fish Farms**, by: Douglas Tave.
2. FAO Fisheries Technical Paper No 392. **Inbreeding and Broodstock Management**. By: Douglas Tave.
3. FAO GESAMP Reports and Studies 68. **Planning and Management for Sustainable Coastal Aquaculture Development**.

ANNEX 1

List of Publications

- 1- **El Gamal, A. A.**, Smitherman, R.O. and L.L. Behrends. 1987. Viability of red and normal-colored *Oreochromis aureus* and *O. niloticus* hybrids. The second International Symposium on Tilapia in Aquaculture. Bangkok, Thailand, PP 153-158.
- 2- El Serafy, S.S., **El Gamal, A. A.**, Al Zahaby, A.S., and Abdel Nasser, G. 1991. Plankton in the traditional and improved technique of fish culture. Egyptian Journal of Applied Science. 6(10):429-440.
- 3- **El Gamal, A. A.** 1992. Predation by Nile perch on *Oreochromis niloticus*, *Cyprinus carpio*, *Mugil* sp. and its role in controlling tilapia recruitment in Egypt. Journal of Fish Biology, 40:351-358.
- 4- El Serafy, S.S., **El Gamal, A. A.**, and Abdel Razek, E. 1993. Persistence of Ametryne in cultivated *Cyprinus carpio* (L.) and its pond culture. 1993. Bulletin of Faculty of Science, Zagazig University, 15(2):554-564.
- 5- El Serafy, S.S., **El Gamal, A. A.**, Al Zahaby, A.S., and Abdel Nasser, G. 1993. Polyculture of six fish species under different management systems in Egypt. Bulletin of National Institute of Oceanography and Fisheries, 19:363-377.
6. **El Gamal, A. A.**, 1994. Training and extension in aquaculture. Presented in the Regional workshop for the Near East on Fisheries Development Policies (Training and Extension). Organized by Institute of national Planning and FAO (12-21 June 1994).
- 7- Green, B.W., El Nagdy, Z., and **El Gamal, A. A.** 1994. Validation of PD/A CRSP Pond Management Strategies. Twelfth Annual Technical Report, Pond Dynamics/Aquaculture Collaborative Research Support Program, Oregon State University, Corvallis, Oregon, USA. PP 12-17.
- 8- Green, B.W., El Nagdy, Z., and **El Gamal, A. A.** 1994. Yield characteristics of two species of tilapia under two different pond environments. Twelfth Annual Technical Report, Pond Dynamics/Aquaculture Collaborative Research Support Program, Oregon State University, Corvallis, Oregon, USA. PP 18-20.
- 9- Green, B.W., Rizkalla, E.H., and **El Gamal, A. A.** 1994. Use of 17 alpha-Methyltestosterone for tilapia sex reversal. Twelfth Annual Technical Report, Pond Dynamics/Aquaculture Collaborative Research Support Program, Oregon State University, Corvallis, Oregon, USA. PP 91-93.
- 10- Shelton, W.L., Hopkins, K.D., Soliman, A., and **El Gamal, A. A.** 1994. Bioconversion of gastropods by black carp in Egyptian fish culture ponds. Twelfth Annual Technical Report, Pond Dynamics/Aquaculture Collaborative Research Support Program, Oregon State University, Corvallis, Oregon, USA. PP 97-99.

- 11- Shelton, W.L., Hopkins, K.D., Mostafa, A., and **El Gamal, A. A.** 1994. Bioconversion of nuisance aquatic plants by grass carp in Egyptian fish culture ponds. Twelfth Annual Technical Report, Pond Dynamics/Aquaculture Collaborative Research Support Program, Oregon State University, Corvallis, Oregon, USA. PP 100-102.
- 12- Shelton, W.L., Hopkins, K.D., Soliman, A., and **El Gamal, A. A.** 1994. Interaction of grass carp and black carp in Egyptian fish culture. Twelfth Annual Technical Report, Pond Dynamics/Aquaculture Collaborative Research Support Program, Oregon State University, Corvallis, Oregon, USA. PP 103-104.
- 13- Hebicha, H.A., **El Gamal, A.A.**, and Green, B.W. 1994. Economic analysis of different tilapia pond culture systems in Egypt. Twelfth Annual Administrative Report, Pond Dynamics/Aquaculture Collaborative Research Support Program, Oregon State University, Corvallis, Oregon, USA. PP 181-189.
- 14- Green, B.W., Hopkins, K., El Nagdy, Z., and **El Gamal, A.A.** 1994. Effect of stocking rate on growth and yield of Nile tilapia. Twelfth Annual Technical Report, Pond Dynamics/Aquaculture Collaborative Research Support Program, Oregon State University, Corvallis, Oregon, USA. PP 190-191.
- 15- Green, B.W., Rizkalla, E.H., and **El Gamal, A.A.** 1994. Mass production of Nile *Oreochromis niloticus* and blue *O. aureus* tilapia fry. Twelfth Annual Technical Report, Pond Dynamics/Aquaculture Collaborative Research Support Program, Oregon State University, Corvallis, Oregon, USA. PP 192-195.
- 16- El Sheikh, A.A., **El Gamal, A.A.**, and Diab, A.S. 1995. Influence of low water temperature on fat content, phospholipids, neutral lipids and lipases activity and their relationship with cold tolerance in tilapias fish. *Journal of Productivity and Development*. 3(1), 44-48.
- 17- Abdel-Hakim, N.F., El-Nemaki, F.A., **El-Gamal, A.A.**, and Abdel-Warith, A.A. (1995). Effect of different stocking rates on growth performance of *Tilapia nilotica* (*Oreochromis niloticus*) fingerlings. *Egyptian Journal for Agriculture Research* 73(3), 873-888.
- 18- Magouz, F.I., **El Gamal, A.A.**, El Telbany, M.M., and Salem, M.F. 1996. Effect of some heavy metals on growth performance and chromosomal behaviour of blue tilapia (*Oreochromis aureus*). *Proceeding of Conference on Food-Borne Contamination and Egyptian Health*. University of Mansoura, pp 181-196.
- 19- **El Gamal, A.A.** 1996. Winter growth of common carp, *Cyprinus carpio*; silver carp, *Hypophthalmichthys molitrix*, and Nile tilapia, *Oreochromis niloticus* in polyculture system in Egypt. *Egypt. J. Agric. Res.* 74(4):1081-1091.
- 20- **El Gamal, A.A.** 1996. Winter growth of six fish species of carp, tilapias and mullets in polyculture system in Egypt. *Egypt. J. Agric. Res.* 74(4):1093-1104.
- 21- **El Gamal, A.A.**, Abdel-Halim, Abdel Razek, E., and Soliman, A. Biological studies on Nile perch *Lates niloticus* (L.) and African catfish *Clarias gariepinus* (T.) in reference to their food habits and predation patterns in culture ponds. Accepted on April 23, 1997 for publication in *Egypt. J. Agric. Res.*

- 22- El Gamal, A.A.** 1997. Aquaculture Development in Egypt: research needs and activities. P 41-42. In J.H. Annala (ed.). Fisheries and aquaculture research planning needs for Africa and West Asia. ICLARM Conf. Proc. 80 pages.
- 23- Sadek, S., and El Gamal, A.A.** 1997. Egyptian aquaculture with special emphasis on mariculture in regard to status, constraints and potential. Fish Farming International. July 1997.
- 24- El Gamal, A. A.** 1997. Egyptian aquaculture: status and development requirements with special emphasis on tilapias and their potential in aquaculture. In: (Fitzsimmons, K. editor), Proceedings from the Fourth International Symposium on tilapia in Aquaculture, Vol. 2, Pages:441-452.
- 25- Rizkalla, E.H., El Gamal, A.A., Mahmoud, A.A., Shawky, A.S., and Ramadan, A.A.** 1997. Effect of some pesticides on the sarcoplasmic protein fractionation of common carp (*Cyprinus carpio*). Egypt. J. Agri. Res., 75(1), 1997. PP. 225-246.
- 26- El Gamal, A.A.** and Abdel Gawad, A.S. 1998. Study of coastal areas for aquaculture development in relation to human health. Pages 99-108. In: Proceedings of workshop of aquaculture development and human health protection. Union of Arab Biologists. (In Arabic)
- 27- El Gamal, A.A., Davis, Kenneth, B., Jenkins, J., and Torrans. E.L.** 1999. Induction of triploidy and tetraploidy in *Oreochromis niloticus* (L.). World Aquaculture Society, Volume 30(2):269-275.
- 28- El Gamal, A.A.** Enhancing fish farm productivity through improved management. A case study in Egypt. Presented in the Fifth International Symposium on Tilapia in Aquaculture (ISTA V). Rio, Brazil 3-7 September 2000.
- 29. Elghobashy, H., El Gamal, A. A, and A. M. Khater.** Genetic evaluation of four local strains of Nile tilapia, *Oreochromis niloticus* under different farming conditions in Egypt. Presented in the Fifth International Symposium on Tilapia in Aquaculture (ISTA V). Rio, Brazil 3-7 September 2000.
- 30- El Gamal, A. A.,** The role of scientific research in the development of aquaculture in Egypt. 2001. Pages 19-32. In: Scientific Symposium on Fish Culture and Fisheries Development in Egypt. Faculty of Agriculture (Saba Pacha), Alexandria University. (Arabic).
- 31. El Gamal, A.A.** 2002. Status and Development Trends of aquaculture in the Near East. Pages 357-376. In: Aquaculture in the Third Millennium - Technical Proceedings of the Conference on Aquaculture in the Third Millennium, Bangkok, Thailand. 20-25 February 2000. Subasinghe, R.P., Bueno, P., Phillips, M.J., Hough, C., McGladdery, S.E., & Arthur, J.E. (Eds.) NACA, Bangkok and FAO, Rome. 471pp. <http://www.fao.org/DOCREP/003/AB412E/ab412e22.htm>
- 32- Elghobashy, H., El Gamal, A. A, and A. M. Khater.** 2002. Growth and Survival of four stocks of Nile tilapia (*Oreochromis niloticus*) During Two Consecutive Winter Seasons in Egypt. Journal of Egyptian Academic Society for Environmental Development, Vol. 2 (1) 71-81.

- 33-** Ismail, Nahed M., and **El Gamal, A.A.**, 2003. Correlation between snails and fish in fish ponds of WorldFish Center (ICLARM) with special reference to snail vectors of Schistosomiasis and Fascioliasis. *Journal of the Egyptian Society of Parasitology*, Vol. 33, No. 2. PP: 413-424.
- 34. El Gamal, A.A.** 2004. Fishery Resources Policies in the Arab Countries. Contribution to the annual report of Arab Organization for Agricultural Development (AOAD). 15 pages (Arabic).
- 35- El Gamal, A.A.**, 2004. Features of Egyptian Aquaculture Development Compared to the Arab World (With special Focus on some trade Indicators). Presented in Fish Trade Workshop. Abbassa, 24 February, 2005. 11 pages (Arabic/English).
- 36- El Gamal, A.A.** and Ismael, Nahed. 2005. Food composition and feeding habits of some fresh water fishes in various water systems at Abbassa, Egypt, with special reference to snail transmitting diseases. *Journal of the Egyptian Society of Parasitology*, Vol. 35 (2): 637-652.
- 37- El Gamal, A.A.**, 2005. Aquaculture in the Arab World (development, challenges – potential). Presented in an expert meeting (coordination among marketing systems for fish production inputs in the Arab World. Muscat, Oman, 14-16 August, 2005. 20 Pages. (Arabic).
- 38- El Gamal, A.A.**, 2011. Review of Training for the Period 1999 – 2009. WorldFish Aquaculture and Training Center, Abbassa, Egypt. The WorldFish Center, Penang Malaysia. Brief **2132**. 14 pp.
- 39-** Beveridge M C M, Phillips M J & **El Gamal A R.** 2011. Aquaculture and climate change. In: (Curtis, L.; Beveridge, M.C.M.; El-Gamal, A.R.; Mannini, P. (eds). *Adapting to Climate Change: The Ecosystem Approach to Fisheries and Aquaculture in the Near East and North Africa Region*. Proc. FAO/WorldFish Center Workshop, Abbassa, Egypt, 10-12 November 2009.