

CURRICULUM VITAE

Prof. Dr. : Ahmed Ibrahim Ibrahim Agamy

PERSONAL DATA

Name: Ahmed Ibrahim Ibrahim Agamy

Date of Birth: 15/11/1956

Nationality: Egyptian

Marital Status: Married and has five children

Address: Benha faculty of medicine, Benha University, Benha, Egypt

Phone No. : Egypt: 002 010 23400966 (mobile).

002 040 3416060

Fax No. : 002 040 2441179

E-Mail: dr.a.agamy@gmail.com

Present Job: Professor of Physiology, Benha faculty of medicine, Benha University, Benha, Egypt

QUALIFICATIONS & JOB ESCALATION

- 1. M.B.B.CH.** Tanta Faculty of Medicine. Tanta University, Tanta, Egypt (December 1980) with total grade very good with Honor.
- 2. Internship (House officer):** Hospital of Tanta Faculty of Medicine & Ministry of public Health (1981-1982).
- 3. General Practitioner in Ministry of public Health, Egypt and Registrar, Military Hospitals, Egypt (1982).**
- 4. Demonstrator of physiology:** Benha Faculty of Medicine, Benha University, Benha, Egypt (1982-1986).
- 5. Master degree in Physiology:** Benha Faculty of Medicine, Benha University, Benha, Egypt. Thesis title: "Observations of the Role of Opiate Receptors on Myometrial Contractility Experimental Animals" (1986).
- 6. Assistant Lecturer of Physiology:** Benha Faculty of Medicine, Benha University, Benha, Egypt (1986-1989).
- 7. M.D. in Physiology: Benha Faculty Medicine).** Benha Faculty of Medicine, Benha University, Benha, Egypt. Thesis title: "Observations on the Effects of Some Neurotransmitters on Some Stress-induced Metabolic and Endocrine Changes" (1989).
- 8. Lecturer of Physiology:** Benha Faculty of Medicine, Benha University, Benha, Egypt (1989-1990).
- 9. Lecturer of Physiology:** Benha Faculty of Medicine, Benha University, Benha, Egypt and Tripoli Faculty of Medicine, Tripoli, LYBIA (1990-1995).
- 10. Assistant Professor of Physiology:** Benha Faculty of Medicine, Benha University, Benha, Egypt and Tripoli Faculty of Medicine, Tripoli, LYBIA (1995-1996).

11. Assistant Professor of Physiology: Benha Faculty of Medicine, Benha University, Benha, Egypt (1996-2000).

12. Professor of physiology: Benha Faculty of Medicine, Benha University, Benha, Egypt (2000-2006).

13. Professor of Physiology: Faculty of Medicine, Taiba University, Al-Madina Al-Monawara, Saudia Arabia and Benha Faculty of Medicine (2006- August-2020).

14. Professor of physiology: Benha Faculty of Medicine, Benha University, Benha, Egypt (August-2020-Current).

COURSES, CONFERENCES AND WORKSHOPS ATTENDED

1. **"The fifth Annual Conference of Benha Faculty of Medicine"** Organized by the Faculty of Medicine Benha University, Benha, Egypt 9-10/10/1996.
2. **"The first Delta conference on hepatitis and GIT"** Organized by Kharbia Medical Syndicate, Tanta, Egypt 24-25/7/1997
3. **"The twentieth annual conference of Egyptian Society for Basic Medical Science"** Organized by the Egyptian Society for Basic Medical Sciences, Cairo, Egypt April 1999
4. **"The twenty two annual conference of Kharbia medical syndicate on cardiovascular risk factors"** Organized by Kharbia Medical Syndicate, Tanta, Egypt 9-10/8/2000
5. **"The twenty fifth annual conference of Kharbia medical syndicate on hepatology gastroenterology updates"** Organized by Kharbia Medical Syndicate, Tanta, Egypt 25-28/8/2001
6. **"Curriculum Development"** Workshop organized by the Medical Education Development Centre. Faculty of Medicine Bena University, Egypt 2005.
7. **"Medical education"** Workshop organized by the Medical Education Department.

Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia
17/6/2006.

8. **"First Annual Symposium of Diabetes"** Organized by the Medical Department.
Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia
15/1/2007.

9. **"Development of teaching skills for the staff members, teaching strategy"**
Workshop organized by the Deanship of university development, Taiba University,
Al-Madina Al-Monawara, Saudia Arabia 23-25/4/2007.

10. **"Development of teaching skills for the staff members, development of cognitive skills "** Workshop organized by the Deanship of university development,
Taiba University, Al-Madina Al-Monawara, Saudia Arabia 26-28/4/2007.

11. **"Development of teaching skills for the staff members, teaching strategy"**
Workshop organized by the Deanship of university development, Taiba University,
Al-Madina Al-Monawara, Saudia Arabia 28-30/4/2007.

12. **" Curriculum design and development"** Workshop organized by the Deanship
of university development, Taiba University, Al-Madina Al-Monawara, Saudia
Arabia 16/4/1432 H.

13. **" Curriculum design and development"** Workshop organized by the Deanship
of university development, Taiba University, Al-Madina Al-Monawara, Saudia
Arabia 19/4/1432 H.

14. **"First Taiba University Clinical Toxicology Workshop"** Organized by the
Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia
30/3/2010.

15. **"Medical Malpractice Conference, Medical and Legislative Perspectives 2011"** Organized by the Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia 4/6/2011.

16. **"First International Symposium on Updates on Genetics and Inherited**

Diseases " Organized by the Center of Genetics and Inherited Diseases, Taiba University, Al-Madina Al-Monawara, Saudia Arabia 10/11/2012.

**Member of the Organizing Committee OR Chairperson of the
following Conferences**

1. **"The fifth Annual Conference of Benha Faculty of Medicine"** Organized by the Faculty of Medicine Benha University, Benha, Egypt 9-10/10/1996.
2. **"First Taiba University Clinical Toxicology Workshop"** Organized by the Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia 30/3/2010.
3. **"Medical Malpractice Conference, Medical and Legislative Perspectives 2011"** Organized by the Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia 4/6/2011.
4. **First International Integrated Conference, Ninth Annual Medical Conference of Benha Faculty of Medicine:** Organized by The Scientific Council of Egyptian Medical Association (SCEMA), At Grand Nile Tower, Cairo, Egypt, 10-11 March 2022.
5. **Ninth Annual Conference of Medical Physiology Department Mansoura faculty of medicine under title "Brain Stimulation from Bench to Bedside":** at Prof. Ibrahim Abou Elnaga Convention Center, Faculty of Medicine Mansoura university Mansoura city 14-16 September 2022.
6. **Tenth Annual Medical Conference of Benha Faculty of Medicine:** At Venue: Benha university Al Obour campus and Benha National university Campus, 16-17 March 2023.
7. **Eleventh Annual Medical Conference of Benha Faculty of Medicine:** At Benha university, Benha, Egypt 4-5 March 2024.

- 8. Tenth Annual Conference of Medical Physiology Department Mansoura faculty of medicine under title “Updates in neuroscience: Neurodegenerative disorders from Bench to Bedside”:** at Prof. Ibrahim Abou Elnaga Convention Center, Faculty of Medicine Mansoura university Mansoura city 31 jully-1 august 2024.
- 9. Third Physiology Conference of Physiology Department, Faculty of Medicine, Cairo university: (Decoding of Brain-Body Crosstalk, Molecular Keys to clinical Progress and Research Breakthouts)** At Venue: Main Conference Hall, Faculty of Medicine Kasr Al-Ainy, Cairo University, Egypt, 21 November 2024.
- 10. The African Association of Physiological Sciences & The Egyptian Society of Physiological Sciences (AAPS – ESPS) Congress 2025 (Towards a New Horizon of Physiology in Africa)** 13 – 15 February 2025, At Ismailia Egypt.

TEACHING AND SUPERVISION EXPERIENCE

- ❖ Experience in teaching all branches of Medical Physiology for under and postgraduate students (lectures & Seminars and laboratory activities) in Benha Faculty of Medicine, Benha, Egypt.
- ❖ Experience in teaching all branches of Medical Physiology for under postgraduate students (lectures & Seminars and laboratory activities) in Tripoli Faculty of Medicine, Tripoli, LYBIA (1990-1996).
- ❖ Experience in teaching all branches of Medical Physiology in Taiba University, Al-Madina Al-Monawara, Saudia Arabia (lectures & Seminars and laboratory activities) (2006-2020) for:
 - First and second year medical students
 - Dental students
 - Pharmacy students
 - Applied medical sciences students
 - Physiotherapy and rehabilitation students

- ❖ Special long term experience in teaching:
 - Physiology of Nerve & Muscle
 - Physiology of Autonomic Nervous System
 - Physiology of Central Nervous System
 - Physiology of Special Senses
 - Physiology of the Kidney
- ❖ Experience in teaching Medical Ethics and professionalism for third year medical students in Taiba University, Al-Madina Al-Monawara, Saudia Arabia (2010-2015).
- ❖ Experience in teaching problem-based learning in Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia (Tutors , teaching lectures and practical and coordinator for nutrition and metabolism course, Induction week, Essential Medical Foundation course and life cycle course) (2014-2020).
- ❖ Visiting Professor and External Examiner several times to Tripoli Faculty of Medicine, Tripoli, LYBIA (1997-2005).
- ❖ Visiting Professor and External Examiner several times to Zawiya Faculty of Medicine, Zawiya, LYBIA (1997-2005).
- ❖ Visiting Professor and External Examiner several times to Sorman Faculty of Medicine, Sorman, LYBIA (1997-2005).
- ❖ External Examiner several times to Benghazi Faculty of Medicine, Benghazi, LYBIA(1997-2005).
- ❖ Supervised many theses for the MSc and PhD post-graduate students in Benha Faculty of Medicine, Benha, Egypt.

RESEARCH EXPERIENCE

- Experience with experimental animals, research design, and data analysis.
- Experience in electro-physiologic researches, cardiovascular

- Experience in working on certain isolated organs of animals as isolated heart and isolated uterus.
- Experience in certain research techniques as working on organ bath and oscillograph.

ADMINISTRATIVE DUTIES

- Member of Faculty and Department Boards, Benha Faculty of Medicine, Benha, Egypt.
- Member of Faculty Higher Education Committee, Benha Faculty of Medicine, Benha, Egypt.
- Member of Faculty Cultural Relations Committee, Benha Faculty of Medicine, Benha, Egypt.
- Member of Faculty Environment Committee, Benha Faculty of Medicine, Benha, Egypt.
- Member of Faculty Postgraduate Examination Control Committee, Benha Faculty of Medicine, Benha, Egypt.
- Head of Faculty Undergraduate Examination Control Committee, Benha Faculty of Medicine, Benha, Egypt.
- Organizer of second year physiology course in Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia
- Organizer of physiology course for physiotherapy and rehabilitation students in Taiba University, Al-Madina Al-Monawara, Saudia Arabia
- Member of conferences committee in Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia (2009-2013)
- Member of laboratory committee in Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia
- Member of the committee preparing the student guide in Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia
- Member of the recruitment committee in Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia (2013-2015)
- Coordinator of the recruitment committee in Faculty of Medicine Taiba

University, Al-Madina Al-Monawara, Saudia Arabia 2016-2017)

- Coordinator of the physiology curriculum in problem-based learning mind and movement course, Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia (2013-2017)
- Coordinator of nutrition and metabolism course for second year medical students problem-based learning, Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia (2015-2016)
- Coordinator of induction week and essential medical foundation skill courses for second year medical students problem-based learning, Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia (2016-2017)
- Coordinator of induction week, essential medical foundation skill and life cycle courses for second year medical students problem-based learning, Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia (2017-2018)
- Coordinator of induction week, essential medical foundation skill and life cycle courses for second year medical students problem-based learning, Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia (2018-2019)
- Member of the committee preparing the self-study report of the standards 2 and 4 for academic accreditation of the MBBS program, Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia (2019-2020).
- Member of the Curriculum and Teaching Methods Development Committee, Benha Faculty of medicine (2022-2023).

REVIEWER FOR PROJECTS

1-King Khalid University: The effect of Quercetin on renal $\text{Na}^+ \text{K}^+$ ATPase activity In Diabetes Induced Nephropathy in Rats

2-King Khalid University: Clinically relevant study to use induced pluripotent stem cells (iPSCs) in the repair of Spinal cord injury in rat model.

3-King Khalid University: The protective effect of some plant extracts on the neurotoxicity induced by insecticides (diazinon)

4-Taiba University: Early diagnosis of diabetic neuropathy in AL-Madinah AL-AL-Munawarah, SA.

5-Taiba University: Quality Assurance and development in College of Medicine

Editorial Board Membership for Journals

1-Bulletin of Egyptian Society for Physiological Sciences journal.

REVIEWER FOR MEDICAL JOURNALS

1- Journal of Basic and Applied Scientific Research:

Journal published by International Society of Applied Sciences and TextRoad Journals.

2- Acta Physiologica: Journal published by Wiley (Oxford,UK).

3- Journal of Biosciences and Medicines (JBM): Journal published by Scientific Research Publishing.

4- Bulletin of Egyptian Society for Physiological Sciences journal.

5- Benha Medical Journal: Journal of Benha faculty of medicine, Benha, Egypt.

6-Tanta Medical Journal: Journal published by Tanta faculty of medicine, Tanta, Egypt.

7-Journal on Advanced Physiology Research (JAPR): Journal published by Global Science & Technology Forum (GSTF), headquartered in Singapore.

8-Journal of Translational Medicine (JTRM): Journal published by BioMed Central (BMC), Part of Springer Nature.

9-Translational Medicine Communications (TRMC): Journal published by BioMed Central (BMC), Part of Springer Nature.

MEMBERSHIP

1- Egyptian Physiological Society

2- Egyptian Society for Basic Medical Sciences

AWARDES

- 1- Selected as “**BEST TEACHER**” for second year medical students academic year 2009-2010
- 2- Selected as “**BEST TEACHER**” for second year medical students academic year 2010-2011
- 3- Selected as “**BEST TEACHER**” for second year medical students academic year 2012-2013
- 4- Selected as “**BEST TEACHER and TUTOR**” for third year medical students problem based learning academic year 2015-2016
- 5- **Certificate of Appreciation**, Medina Media Museum at AL-Madinah AL-Munawarah, SA. For contribution as a “lecturer” in “Human Body Museum” 2007.
- 6- **Certificate of Appreciation**, Taibah Medical club and Taibah Faculty of Medicine at AL-Madinah AL- AL-Munawarah, SA. For contribution as a “Speaker” in “Basic Sciences and clinical correlations Symposium” 2008.
- 7- **Certificate of Appreciation**, King Fahd Hospital at AL-Madinah AL-Munawarah, KSA. For contribution as a “Speaker” in “Basic and clinical Neurology course” 2018.
- 8- **Certificate of Appreciation**, for contribution in achieving the full unconditional academic accreditation of the MBBS program Faculty of Medicine Taiba University, Al-Madina Al-Monawara, Saudia Arabia, through National Center for Academic Accreditation and Evaluation at The Saudi Education & Training Evaluation Commission (ETEC-NCAAA) (2020-2021).
- 9- **Certificate of Appreciation**, as one of the organizing committee of the First International Integrated Conference, Ninth Annual Medical Conference of Benha Faculty of Medicine: Organized by The Scientific Council of Egyptian Medical Association (SCEMA), At Grand Nile Tower, Cairo, Egypt , 10-11 March 2022.
- 10- **Certificate of Appreciation** as attending and actively participated as a CHAIRPERSON in Ninth Annual Conference of Medical Physiology Department Mansoura faculty of medicine 14-16 September 2022.

11- Certificate of Appreciation as attending and actively participated as a CHAIRPERSON in Tenth Annual Medical Conference of Benha Faculty of Medicine: At Venue: Benha university Al Obour campus and Benha National university Campus, 16-17 March 2023.

PUBLICATIONS

BOOKS:

Physiology Made Easy Series: A series of books in all branches of medical physiology for under and postgraduate medical students.

The last edition (fourth edition) is presented in 3 volumes:

Volume I: Introduction and Physiology of Autonomic nervous system, Blood, Renal and acid base, Nerve and Muscle and Digestion and metabolism

Volume II: Physiology of Cardiovascular system and respiration

Volume III: Physiology of Central Nervous System, Endocrine and Special Senses

LIST OF PUBLISHED PAPPERS:

1. Observations on the role of opiate receptors on myometrial contractility in mice.

Al-Hamady M., Haidrara M.A. and Agamy A.I.

Benha Medical Journal 1986: Vol.3 No.3. (101-111).

2. The role of histamine receptors in the stress-induced changes in plasma glucose and free fatty acid level.

Haidrara M.A. and Agamy A.I.

Bull. Egypt. Soc. Physiol. Sci., 1990: Vol.10 No. 1, (225-239).

3. Use of placental membranes for ureteral replacement (experimental work).

El Mettet M.S., Ghoraba H., Magdy M., Agamy A.I. and Madi M.

The New Egyptian Journal of Medicine 1992: Vol. 7 No.1. (189-193).

4. Effects of protein diet on progression of chronic renal failure in rats.

Agamy A.I., Salem M. and Rahoma M.

Benha Medical Journal 1992: Vol.9 No.3. (181-189).

5. Pattern of T and B lymphocytes after splenectomy.

Bahgat O., Agamy A.I., and El Shenawy F.

Benha Medical Journal 1992: Vol.9 No.3. (67-74).

6. Plasma fibrinogen, fibrinogen/fibrin degradation products and plasminogen levels in patients at risk of development of ischemic heart disease.

Shawki M., Youssef M. S., El Hindy M. and Agamy A.I.

Benha Medical Journal 1992: Vol.9 No.3. (211-225).

7. Study of antithrombin III activity in diabetic patients.

Shawki M., Youssef M. S., El Hindy M. and Agamy A.I.

Benha Medical Journal 1992: Vol.9 No.3. (227-239).

8. Salt intake and blood sugar levels in pregnant diabetic women.

Elkholy G. and agamy A.I.

Benha Medical Journal 1992: Vol.9 No.1. (155-159).

9. Role of testicular androgens in some fasting induced metabolic changes in rats.

El- Talees A., Agamy A.I., Belacy N.A. and Arafat W.

Benha Medical Journal 1992: Vol.9, No.2. (103-109).

10. Pulmonary index score assessment for asthmatic children treated with bronchodilators.

Aboul ella I. and Agamy A. I.

Benha Medical Journal 1992: Vol.9, No.2. (71-78).

11. Study of plasma fibronectin concentration in diabetic children.

Aboul ella I., El-shaer O., Zidan M., Dabour S. and Agamy A. I.

Benha Medical Journal 1992: Vol.9 No.2. (61-69).

12. Electrocardiographic and some electrolyte changes in diabetic patients with autonomic neuropathy.

Abd El-Moniem A., Mansour H.A., Ibrahim A., Mowafy T.A., Khalil F.M., Sanad O. and Agamy A.I.

Benha Medical Journal 1993: Vol.10, No.1. (263-274).

13. Adrenoreceptors in rat uterus and possible relation to prostaglandin synthesis.

Agamy A.I., Mukhtar M.R. and Kamel M. M.

Benha Medical Journal Vol.11 No.3 1994(177-197).

14. A study on the effect of prostaglandin F_{2α} on blood glucose in normal, diabetic and stressed rats.

Agamy A.I., Mukhtar M.R., Basbasi F.S. and Kamel M. M.

Mansoura Medical Journal 1994: Vol. 24, No.1. (1-9).

15. Prostaglandin induced myometrial contractility and relation to adrenoreceptors and calcium channels.

Agamy A.I. and Salem M.A.

Benha Medical Journal 1996: Vol.13, No.3 (149-159).

16. Effect of melatonin on O₂ free radical production and some metabolic changes induced by stress.

Agamy A.I. and El-Abd A.M.

Bull. Egypt. Soc. Physiol. Sci., 1997: Vol.17(2-Suppl.).

17. Alpha-1 microglobulin is a good predictor of early nephropathy and glycemic control in type 2 diabetes mellitus.

Ibrahim S.A. and Agamy A.I.

Tanta Medical Journal 1997: Vol. 25, No. 1, (1075-1091).

18. Effect of fetal membranes on basal and stimulated uterine contractions.

El-Bagoury E.M., El- Talees A., Agamy A.I. and El-Gamal A.

Benha Medical Journal 1998: Vol.15, No.1, (585-598).

19. Role of opioid receptors and potassium channels in myocardial infarction and their interrelation.

Agamy A.I. and Belal A.

Benha Medical Journal 1998: Vol.15, No.1, (329-346).

20. The role of oxidant stress and prostaglandin in myocardial infarction and possible relationship.

Agamy A.I., El- Talees A., Belacy N.A. and Salem M.A.

Benha Medical Journal 1999: Vol.16, No.1, (225-243).

21.Effect of acute and chronic stress on the hemostatic balance and the role of renin-angiotensin system.

Agamy A.I., El-Abd A.M. and Belal T.H.

Benha Medical Journal 1999: Vol.16, No.3, (9-22).

22.The role of angiotensin converting enzyme, prostaglandins and nitric oxide in acute renal failure and possibility of their interaction.

Agamy A.I.

Tanta Medical Journal 1999: Vol. 27, No. 1, (275-291).

23.Study on the effect of stimulated ischemia on the response of guinea-pig ileum and the role of nitric oxide as a mediator: in vitro study.

Al Afify M., Tawfik N.A., Sanad R.A. and Agamy A.I.

J. Egypt. Soc. Pharmacol. Exp. Ther. 1999: Vol.18,No.1, (223-253).

24.The role of antioxidant vitamins (C&E) on experimentally induced gastric ulcer.

Belacy N.A., El- Talees A., Agamy A.I., El-Hamady M.S. and Kasem E.M.

Benha Medical Journal 1999: Vol.16, No.1, (245-263).

25.The effect of electromagnetic field on fetal cardiac output.

Agamy A.I., Mostafa R.M., Al-Hemedi M.A., Afan A.M. and Youssef A.

Benha Medical Journal 2004: Vol.21, No.1, (581-592).

26.Effect of pioglitazone on Hepatic ultrastructure and metabolic changes induced by a high sucrose diet in rats.

Mohamed D. Morsy, Ahmed S. Khashaba, Ahmed I. Agamy and Refaat A. Eid

American Journal of Applied Sciences 2014: 11 (7): 1087-1098,

27.Impact of High Altitude on Maternal Serum Leptin Level and Its Correlation with Oxidative Stress and Endothelial Inflammatory Markers in Preeclamptic Women.

Salah Omar Bashir, Mohamed Darwesh Morsy, Abass Omar Elkarib, Humeda Suekit Humeda, Abdalla Abdelrahim Abusham, Moutasem Salih Aboonq, and Ahmed Ibrahim Agamy

Chinese Journal of Physiology 2018: 61(1): 50-56,

28. Effect of Dipeptidyl Peptidase-4 Inhibitor and angiotensin II type 1 receptor blocker on renal function in D-galactose induced Aging in male rats and possible relation between their effects.

Enas M. Kasem, Eman S. Abdelghany¹, Mona A. Said, Ahmed I. Agamy, Naglaa Y. Nafia.

Bull. Egypt. Soc. Physiol. Sci. 2025: Vol. (45), Issue (3), 315-331.

29. Possible protective effect of vitamin D on age related cognitive impairment and synaptic dysplasticity in rats.

Mona K. Alawam¹, Wessam A. Abouhammad¹, Mona M. Allam¹, Ahmed I. Agamy¹, Hala M. Anwer¹.

Bull. Egypt. Soc. Physiol. Sci. 2025: Vol. (45), Issue (4), 409- 428.