Curriculum Vitae: Tokunbo Taiwo PhD, FRSC, MIBMS, FRSPH

Name: F. A. Taiwo
Rank: Professor of Biophysical Chemistry at The Federal University of Agriculture Abeokuta, Nigeria April 2011 to date.
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Qualifications

BSc (Hons Chemistry), 1973	University of Ibadan, Nigeria
PGDE, 1984	University of Lagos, Nigeria
PhD (Chemistry), 1988	University of Leicester, UK

Scholarships awarded
Fed Govt of Nigeria undergraduate scholarship for BSc at Ibadan, Nigeria 1970 to 1973
African Caribbean Pacific (ACP) Fellowship by The European Economic Commission (EEC) for PhD at Leicester UK 1985 to 1988

Previous Employment
NYSC Premier Set, Sokoto 1973-74
University of Ibadan, Ibadan Nigeria, Research Assistant 1975-78
Ogun State College of Education, Ijebu-Ode Nigeria, Lecturer 1979 to 1985
University of Leicester UK, PhD Student and Lab demonstartor1985 to 1988
University of Leicester UK , Post-doc 1988-90
University of Essex, Colchester UK, Senior Research Fellow 1990 to 1995
DeMontfort University, Leicester UK, Senior Lecturer 1995 to 2011

Membership of Academic and Professional Bodies with Letters
Fellow, Royal Society of Chemistry, UK **[FRSC]**
Chartered Chemist, Royal Society of Chemistry UK **[CChem]**
Member, International Electron Paramagnetic Resonance Society
Member, Institute of Biomedical Science, UK **[MIBMS]**
Fellow, Royal Society for Public Health UK **[FRSPH]**
Member, Chemical Society of Nigeria

Research Interests
Biochemistry of free radical mediated pathogenesis of diseases.
Radiation induced reactions in biological systems.
Antioxidant intervention in radical mediated reactions.
Drug induced reactivities of haemoglobin.
Drug metabolism.

Major Research Projects (including grants)

Project Title	Grant Agency	Amount/Period
• Electron transfer effects in metalloproteins	ACP/EEC	PhD funding in the UK 1985-1988
• EPR Study of Radiation-induced damage in DNA	Internl Assoc. for Cancer Res.	£120,000; 1989/92
• Redox-mediated repair mechanisms in DNA	Cancer Res. UK	£95,000; 1992/94
• Biological Science EPR Instrument Grant	The Wellcome Trust	£100,000; 1994
• Host – parasite defence mechanism; reactive oxygen species and superoxide dismutase.	The Wellcome Trust	£36220; 1996/97
• A mechanistic study of the metabolism of homocysteine by endothelial cells: functional consequences for the vasculature.	Biotechnology and Biological Sciences Research Council	£44680; 2002 -04

- **Field:** Free radical processes in disease. My specialization is the study of free radical mediated processes in the pathogenesis of disease, and drug metabolism using electron paramagnetic resonance (EPR) spectroscopy. EPR spectroscopy is the ideal technique for detection and measurement of free radicals and all non-radical species containing unpaired electrons.
- **My work:** Free radicals have been implicated in several disease processes e.g. diabetes, cancer, arteriosclerosis, arthritis, and immunodeficiency related conditions due to infection and ageing, via a phenomenon known as 'oxidative stress'. Oxidative stress generates free radicals, which in superfluous quantities become toxic. I study by EPR spectroscopy 1) formation and mechanisms of reactions of free radicals, and 2) pathways of destruction of free radicals by antioxidants, the detoxifying factors, many of which are synthesised in the body or derived from diet and drugs.
- **Importance and Benefit:** The prospects of cure for the above mentioned diseases (and others) rest significantly on 1) understanding the mechanisms of toxicity of free radicals responsible for their pathogenesis, and 2) identifying specific antioxidants that strategically reduce the deleterious effects of free radicals. My work seeks to understand these processes. The goal is to mitigate effects of free radicals by controlling their amounts in ambience and inhibiting excessive reactivity.

Expert Referee

- International Journal of Pharmaceutics.

- Spectroscopy Journal.
- Expert Evaluator for The European Union on EU -Funded Projects on the use of EPR Spectroscopy in biomedical science research.
- Journal of the Chemical Society of Nigeria
- Examiner for PhD examinations
- Assessor for Professorial position

Administrative positions

- Acting Director, Cancer Drug Discovery Group, De Montfort University, Leicester Nov 2005-October 2007
- Head, Biological Electron Paramagnetic Resonance Spectroscopy Lab, DeMontfort University Leicester 2002 to 2011
- Several University Boards and Committees in UK Universities and currently in Nogeria

Conferences and meetings

Many conferences and workshops in the UK, Europe, Asia and USA.

Publications

1. Okonjo,K., **Taiwo, A**, Balogun, M., and Ekisola, O.B. (1979) Reactivities of the Sulphydryl Groups of Dog Haemoglobin. *Biochim. Biophys. Acta* 1979, **576,** 30-38. [Full paper]
2. **Taiwo FA** (1988) PhD theses: Electron Transfer Effects in Metalloproteins; An EPR Study. University of Leicester, UK
3. Symons, M.C.R. and **Taiwo, F.A**. (1987) Electron-Capture by Fe(III) and FeO_2 Centres in Haemoglobin, and the Absence of Subsequent Electron-Transfer from FeO_2^- to Fe(III): An ESR Study. *J. Chem. Soc., Faraday Trans.1***,** 1987, **83**(12), 3653-3661. (Abstract)
4. Jones, G.D.D., Lea. J.S., Symons. M.C.R., and **Taiwo, F.A.** (1987) Structure and Mobility of Electron-Gain and Electron-Loss Centres in Proteins. *Nature* **330** (24/31), 772-773. [Letter]
5. Petersen, R.L., Symons, M.C.R. and **Taiwo, F.A.** (1989) Radiation Induced Electron Addition to Xanthine Oxidase. 22nd International ESR Conference, 10-14 April, 1989, University of Leeds, UK. (Abstract)
6. Petersen, R.L., Symons, M.C.R. and **Taiwo, F.A.** (1989) Application of Radiation and ESR Spectroscopy to the Study of Ferryl Haemoglobin. *J. Chem. Soc. Faraday Trans. 1,* 1989, **85**(8), 2435-2443. [Full paper]
7. Symons, M.C.R. and **Taiwo, F.A.** (1989). Electron Transfer between α- and β-Heme Groups in Haemoglobin: An ESR Study. *J. Chem. Soc. Faraday Trans. 1*

1989, **85**(8), 2427-2433. (Full paper)

8. Symons, M.C.R., **Taiwo, F.A,** and Petersen, R.L. (1989) Electron Addition to Xanthine Oxidase: An ESR Study of the Effects of Ionizing Radiation. *J. Chem. Soc. Faraday Tans. 1*, 1989, **85**(12), 4063-4074. (Full paper)
9. **Taiwo, F.A.** (1992) Oxygen-Binding Properties of Hemocyanin from the giant African Snail Arc*hachatina maginata. Comp. Biochem. Physiol. (A)*, 1992, **102**(2), 225-227. (Full paper)
10. Symons, M.C.R. and **Taiwo, F.A.** (1992) Radiation Damage to Proteins: An EPR Study. *J. Chem. Soc. Perkins Trans. 2*, 1992, 1413-1415. (Full paper)
11. Symons, M.C.R., **Taiwo, F.A,** and Svistunenko, D.A. (1993) EPR Studies of Hole Mobility and Localisation in Proteins. *J. Chem. Soc. Faraday Trans.*, 1993 **89**(16), 3071-3073. [Full paper]
12. **Taiwo, F.A.** and Symons, M.C.R. (1993) Interaction of Ethanol with Hemoglobin: Implications for Alcohol Abuse. *Free Rad. Res. Commun.*, **19**(2), 121-124. [Full paper]
13. Symons M, **Taiwo FA,** Sargeson A (1994) ESR Spectra for Low Spin CoII Encapsulated Complexes 27th Annual International Conference, ESR Group, Royal Society of Chemistry, 21st to 25th March 1994 University of Wales, Cardiff, UK. (Abstract)
14. **Taiwo, F.A.** (1995) Hemoglobin of the Lung Fish, *Clarias lazera*: Isolation and Oxygen Equilibrium Studies. *Comp. Biochem. Physiol.* 1995, **110A**(2), 147-150. [Full paper]
15. Marsh, P., Silver, J., Symons, M.C.R., and **Taiwo, F.A.** (1996) Mossbauer and EPR Studies on Some New bis-(ligated) Porphyrinatoiron(III) Complexes with aliphatic amines. Models for cytochromes b. *J. Chem. Soc. Dalton Trans.*, 2361-2369. [Full paper]
16. Symons, M.C.R., **Taiwo, T,** Sargeson, A.M., Ali, M.M., and El-Tabl A.S. (1996). EPR Spectra for High and Low Spin Co(II) Encapsulated Complexes. *Inorganica Chimica Acta* 241, 5-8. [Full paper]
17. Taiwo FA, Patterson LH, Pritchard DI, Brophy PM. (1997) Analysis of excretory-Secretory (ES) Superoxide dismutase from Necator *americanus* by Electron Paramagnetic Resonance Spectrometry. The British Society for Parasitology Spring meeting 8th to 10th April, 1997 University of Manchester, UK. (Abstract)
18. Ecclestone, T., Laurie, S.H., Symons, M.C.R, and **Taiwo, F.A.** (1998) EPR Studies

of Irradiated Group(VI) Tetrachalconide Ions. *Polyhedron* **17**(9), 1435-1438. [Full paper]

19. Cope, B.C., Hopegood, L., Latham, R.J., Linford, R.G., Reilly, J.D.,Symons, M.C.R., **Taiwo, F.A.** (1998) Studies of Equid Horn Material by EPR Spectroscopy. *Journal of Materials Chemistry, **8**(1), 43-45*. [Full paper]
20. Symons, M.C.R. **Taiwo, F.A** (1998) Solvated Electrons: Electron Paramagnetic Studies of Solutions of Lithium in Ethylamine. *Journal of the Chemical Society – Dalton Transactions*, (**8**) 1395-1396. [Full paper]
21. Ecclestone, T., Havey, I., Laurie, S.H., Symons, M.C.R, and **Taiwo, F.A**. (1998) Polymeric Ternary Metal Thiols. I. Products From Reaction of Cu(II) with MoS_4^{2-} *Inorg. Chem. Comm.* **1**(12), 460-462. [Full paper]
22. **Taiwo, FA**, Brophy, PM., Pritchard, DI., Brown, A., Wardlaw, A., Patterson, LH. (1999) Cu/Zn superoxide dismutase I excretory-secretory products of the Human hookworm *Necator americanus* – An EPR study. *Eur. J. Biochem.* **264**(2) 434-438. [Full paper]
23. **Taiwo, FA.,** Patterson, LH., Jaroskiewcz, E., Marciniec, B., Ogorodowczyk, M. (1999) Free radicals in irradiated drugs: An EPR Study. *Free Radical Research* **31**(3) 231-235. [Full paper]
24. Ali, MM., Symons, MCR., **Taiwo, FA.,** Patterson LH (1999) Effects of AQ4N and its reduction product on radiation-mediated DNA strand breakage. *Chemico-Biological Interactions*, **123**(1) 1-10. [Full paper]
25. **Taiwo, FA.,** Brophy, PM., Pritchard, DI., Brown, A., Wardlaw, A., Patterson LH. (2000) Comparative metal content profiling of parasitic helminths by EPR spectrometry: significance for metalloprotein content *Int. J. Parasit* **30**, 29-33. [Full paper]
26. Patterson, LH., **Taiwo FA**. (2000) EPR Spectrometry evidence for bioreduction of tirapazamine to oxidising free radicals under anaerobic conditions. *Biochem Pharmacol.* **60**, 1933-35. [Full paper]
27. Silva, PN, **Taiwo, F. A.**, and Curry, M., (2000). The use of electron paramagnetic resonance spectrometry to detect free radical production during short term storage of extended boar semen at ambient temperatures. *Journal of Reproduction and Fertility*, Abstract series, **26:** 67. (Abstract)
28. Fawcett, J., Laurie, SH., Simpson, C., Symons, MCR, **Taiwo, FA**., Hawkins, I (2001) Diaquabis(3,6-dioxaheptanoato)copper(II): crystal structure and EPR

characteristics. *Inorganic Chimica Acta* **312**, 245-248. [Full paper].

29. Conlon C, **Taiwo T**, Powers HJ (2002) Characterisation of the antioxidant behaviour of α-tocopherol and ascorbic acid in parenteral lipid emulsion under conditions of oxidant stress. XIth Meeting of the Society for Free Radical Research International, July 16-20, 2002. Rene Descartes University, Paris France. (Abstract).
30. **Taiwo FA**, (2003) Electron paramagnetic resonance spectroscopic studies of iron and copper proteins. *Spectroscopy* **17**(1), 53-63. [Full paper]
31. **Taiwo FA**, Nugent D, Nakano E, Powers HJ (2004) Metabolism of homocysteine is hydroxyl radical mediated. 37th Annual International Meeting of Electron Spin Resonance Group, Royal Society of Chemistry, March 2004. University of Warwick, Warwick UK (Abstract)
32. E. Nakano, D. Nugent, **F. Taiwo** and H. Powers (2003) The role of homocysteine from endothelial cells in LDL oxidation. *Atherosclerosis Supplements, Volume 4, Issue 2, 2003, Page 120*. Poster at the XIIIth International Symposium on Atherosclerosis, September 28 – Oct 2, 2003, Kyoto, Japan.[Poster abstract]
33. S.I. Ahmad, A. Hargreaves, **F.A. Taiwo** and S.H. Kirk (2004) Near-ultraviolet photolysis of L-mandelate, formation of reactive oxygen species, inactivation of phage T7 and implications on human health
Journal of Photochemistry and Photobiology B: Biology **77**; 55-62. [Full paper].
34. Nakano E, **Taiwo FA**, Nugent D, Griffiths HR, Aldred S, Paisi M, Kwok M, Bhatt P, Hill MH, Moat S, Powers HJ. (2005)Downstream effects on human low density lipoprotein of homocysteine exported from endothelial cells in an in vitro system. *J Lipid Res.* **46**, 484-493. [Full paper]
35. Griffiths HR, Aldred S, Dale C, Nakano E, Kitas G, Grant M, Nugent D, **Taiwo FA**, Powers HJ Homocysteine from endothelial cells promotes LDL nitration and scavenger receptor uptake. *Free Rad Biol Med* 2006, **40**; 488-500. [Full paper]
36. **F A Taiwo**, H J Powers, E. Nakano, H R Griffiths and D Nugent, Free radical reactions in atherosclerosis; AN EPR spectrometry study. (2006) *Spectroscopy* **20**(2) 67-80. [Full paper]
37. A. Hargreaves, **F. A. Taiwo,** O. Duggan, S. H. Kirk, S. I. Ahmad, (2007) Near-ultraviolet photolysis of β-phenylpyruvic acid generates free radicals, and results in DNA damage. *Journal of Photochemistry and Photobiology B: Biology* 89(2-3) 110-116 [Full paper]

38. **F A Taiwo** (2008) Mechanism of tiron as scavenger of superoxide ions and free electrons. *Spectroscopy* **22** (2008) 491-498. [Full paper]
39. **F A Taiwo**, K Beresford, K Ruperalia, G A Potter (2011) Antioxidant Properties of stilbene derivatives; a structure-activity relationship study. (Paper in preparation)
40. Cath Conlon, Alan Gibson, **Fatai A. Taiwo**, Hilary J Powers.(2011) Characterisation of the behaviour of α-tocopherol and ascorbic acid in parenteral lipid emulsion under conditions of oxidative stress. (Paper in preparation)