J D'A HUGHES *CURRICULUM VITAE*

Name Jacqueline d'Arros HUGHES

Nationality British

Address AVRDC-The World Vegetable Center
P.O. Box 42, Shanhua, Tainan 74199, Taiwan

Tel: +866-6-5837801 ext 120

Tertiary education

1982 - 1986	PhD Microbiology/Virology University of Reading, UK
1979 - 1982	BSc Agricultural Botany University of Reading, UK

Employment – summary

2005-present	AVRDC-The World Vegetable Center, Taiwan
1994 - 2005	International Institute of Tropical Agriculture, Ibadan, Nigeria
1990 - 1993	Cocoa Research Institute of Ghana, New Tafo, Ghana
1987 - 1990	Institute of Horticultural Research, East Malling, United Kingdom
1985 - 1987	University of Birmingham, Birmingham, United Kingdom
1982 - 1985	Glasshouse Crops Research Institute, Littlehampton, United Kingdom

Employment

2005 - present **Deputy Director General - Research**
AVRDC - The World Vegetable Center

Assist and advise the Director General on program priorities and strategies, specifically in determining visions, goals and strategies for AVRDC's research, identifying and proposing strategic alliances between AVRDC and international agencies, proposing priorities and designing research matrices for rolling plans, land identifying and defining project ideas for donor funding. Lead or facilitate multi-institutional grant proposal preparation, project implementation and evaluation. Forge strong internal research teams as well as partnerships with national research and extension systems. Balance human resources between research groups. Promote scientific excellence by encouraging professional quality. Monitor the progress of research and assign/handle the organization of annual internal review and planning. Encourage scientific publication, coordinate peer review and approve submissions, prepare the Center's rolling Medium-Term Plan and Annual Report.

1994 – 2005 **International Institute of Tropical Agriculture (IITA), Nigeria**

2003 - 2005 **Councilor – IITA's Research for Development Council**
Councilor, appointed by the Director General, on IITA's Research for Development Council (RDC) – the highest IITA research management body addressing the mission and vision of the institute.

Jan/Feb 2003 **Officer-in-Charge, IITA Nigeria and Chair of RDC**
Responsibilities as Officer-in-Charge (IITA Nigeria) include general oversight of IITA Headquarters in Ibadan (both Research for Development and Corporate Services) and stations in Kano, Abuja and Onne. During this period, in the prolonged absence of the Director R4D, chair of the RDC with full financial and management responsibility for IITA's R4D activities, with main stations in the Republic of Benin, Cameroon and Uganda as well as scientists based in other countries of sub-Saharan Africa (SSA).

1999 - 2002 **Plant Health Management Division Director's Representative (Headquarters)**
Leadership of staff working in the Plant Health Management Division at IITA's Headquarters, Ibadan, Nigeria. Presentation of institutional plant health activities to donors, national and international collaborators, regional/sub-regional organizations *etc.* Budget management for the Division at Headquarters.

2000 - 2001 **Infrastructure Manager, IITA's Cellular and Molecular Technologies Laboratory**
Integration of biotechnology, virology and tissue culture laboratories into a cross-Divisional facility. Infrastructure improvement and laboratory re-organization to facilitate biotechnology research. Streamlining of purchasing, inventory implementation.

2000 **Study leave (3 months), Centre for Applied Molecular Biology in International Agriculture (CAMBIA), Canberra, Australia**
Molecular characterization of viruses infecting IITA's mandated crops and development of molecular diagnostic tools, in collaboration with the Australian National University.

1997- 2005 **Head, Germplasm Health Unit, IITA, Nigeria**
Head of the Germplasm Health Unit, which ensures the pest-free status of all plant material/germplasm imported into IITA as well as the health of all germplasm exported by IITA. Close liaison with the Nigerian Plant Quarantine Service, to ensure national and international guidelines and regulations are observed. Collaboration with the Inter-African Phytosanitary Council (IAPSC), national Plant Quarantine Services and the International Seed Testing Association (ISTA).

1994 - 2005 **Virologist, IITA, Nigeria**
Epidemiology, characterization, diagnostics and control of viruses affecting IITA's mandate crops and associated species within the farming systems. Development of IITA's antiserum bank and a virus diagnostic capability at IITA to allow the safe international movement of IITA's improved germplasm.

Development of an effective virology research facility, comprising characterization (biological and molecular) laboratory, designated area for quarantine diagnostics, monoclonal antibody laboratory, electron microscopy suite, animal house, controlled temperature rooms, screenhouses and field plots.

Collaboration to support activities on insect-pathogenic viruses, maize pollen, protein isolation and locust microbial biocontrol agents. Collaboration with scientists from national agricultural research programs in sub-Saharan Africa (SSA), from CGIAR centres as well as advanced laboratories in Australia, Europe, South Africa and USA to ensure the most appropriate use of IITA's virology resources as well as those resources within the national programs.

Individual degree and non-degree related training; principal organizer and/or resource person for workshops, conferences and group training courses.

Co-ordination of the IITA project portfolio funded by the Gatsby Charitable Foundation, a member of the Sainsbury Family Charitable Trust.

1990 - 1993 **Technical Co-operation Officer, Cocoa Research Institute of Ghana**
Funded by the UK Overseas Development Administration (ODA) as part of the World Bank / ODA Cocoa III Rehabilitation Project

Epidemiological studies to determine the effectiveness of current control measures (*e.g.* block plantings, cutting-out) including data collection and analysis. Exploration of the potential for mild strain protection involving the identification, purification and characterization of mild strains of *Cocoa swollen shoot virus* (CSSV) and the development of sensitive serological detection methods. Assisting other researchers with isoenzyme characterization of cocoa germplasm, the plant pathogenic fungus *Phytophthora* spp., mealybugs and capsids. Detection of CSSV in mealybugs and development of rapid detection and identification/ differentiation methods for *Phytophthora* spp.

1987-1990 **Higher Scientific Officer, Horticulture Research International (then: Institute of Horticultural Research), UK**
Funded by the UK Ministry of Agriculture, Fisheries and Food

Investigation of the possible cause of 'strawberry June yellows' (pathological, environmental or genetic). Transmission of June yellows in field and pot trials. The induction and 'cure' of symptoms by nutritional factors, antibiotics, day-length and temperature. Study of pedigrees of susceptible cultivars. Examination of progeny segregation and chromosome numbers. *In vitro* micropropagation and meristem-tip culture to produce symptomless plants. Isoenzyme analyses.

1985-1987 **Research Associate/ Research Fellow, University of Birmingham, UK.**
Funded by the UK Agriculture and Food Research Council

Purification and characterization of viral proteins and ssRNA. Identification of proteins produced *in vivo* by protoplast culture and *in vitro* by translation. Purification of dsRNA and sub-genomic messenger RNA. Production of ^{32}P and ^{3}H-labelled cDNA. Investigation of protein and RNA synthesis using ^{32}P-UTP and ^{35}S-methionine. Development of ELISA for detecting viral products.

1982-1985 **Scientific Officer, Horticulture Research International (then: Glasshouse Crops Research Institute), UK**
Funded by the UK Overseas Development Administration

Characterization of viruses infecting tropical root and tuber crops (*Dioscorea* spp. and Araceae) from the potyvirus, potexvirus, rhabdovirus, cucumovirus and badnavirus groups. Use of serological techniques and electron microscopy. *In vitro* meristem-tip culture for virus eradication. Field work in the Solomon Islands, Fiji and Tuvalu.

General

1999-2001	Community Liaison Officer, British High Commission, Nigeria
2000-2003	Representative, IITA Community Council
2001-2003	Deputy Warden, UN Security System in Nigeria
2002	Chieftaincy title 'Iyalode of Isan Kingdom' conferred by the Oba of Isan Kingdom in acknowledgement of contributions through IITA's research for development activities
2010	Fellow of the Society of Biology (FSB)

Training Courses attended

Report writing (GCRI, UK; 1984)
Public speaking (IHR, UK; 1989)
Women's Leadership and Management (TRG Inc, USA; 1999)
Leadership and Management (TRG Inc, IITA; 2000)
Media Communications Training (Ian Parker, IITA; 2003)
Harvard Leadership Program for Senior Executives (LSEC) (California, USA; 2011)

Extensive travel within the Far East, Australia, Pacific, Africa and Europe.

Refereed publications since 2005

Afari-Sefa, V., A. Tenkouano, C.O. Ojiewo, J.D.H. Keatinge & J.d'A. Hughes. (2012). Vegetable breeding in Africa: constraints, complexity and contributions toward achieving food and nutritional security. *Food Security* 4:115-127

Alabi, Olufemi J, Ogbe, Francis O., Bandyopadhyay, Ranajit, Kumar, P. Lava, Dixon, Alfred G.O., Hughes, J.d'A., and Naidu, Rayapati A. (2008). Alternate hosts of African cassava mosaic virus and East African cassava mosaic Cameroon virus in Nigeria. *Archives of Virology* 153: 1743-1747

Ayo-John, E.I., Hughes, d'A.J. and Ekpo, E.J.A. (2008) Survey for CMV in field samples of *Musa* spp. In southern Nigeria. *International Journal of Pest Management* 54: 167-172

Ayo-John, E.I., Hughes, d'A.J., Ekpo, E.J.A., and Shoyinka, S.A (2008) A Survey in Southern Nigeria reveals the presence of *Cucumber mosaic virus* subgroup in *Musa* crops. *Fruits* 63: 1-9

Eni, A.O., J.d'A. Hughes, and M.E.C. Rey. (2011). Production of yam mosaic virus monoclonal antibodies in mice peritoneum. *African Journal of Biotechnology* 10: 11178-11181

Eni, A.O., J.d'A. Hughes, R. Asiedu and M.E.C. Rey. (2010). Survey of the incidence and distribution of viruses infecting yam (*Dioscorea* spp.) in Ghana and Togo. *Annals of Applied Biology* 156: 243-251

Eni, A.O., P. Lava Kumar, Rsiedu, R., Alabi, O.J., Naidu, R.A., Hughes, Jd'A., and Rey, M.E.C. (2008). First report of cucumber mosaic virus in yams (*Dioscorea* spp.) in Ghana, Togo, and Republic of Benin in West Africa. *Plant Disease* 92: 833

Eni, Angela Ob. and Hughes, J'dA. (2008). Survey of the incidence and distribution of five viruses infecting yams in the major yam producing zones in Benin. *Annals of Applied Biology* 153: 223-232

Eni, Angela Ob and Hughes, J'dA (2008). Sequence diversity among badnavirus isolates infecting yam (*Dioscorea* spp.) in Ghana, Togo, Benin and Nigeria. *Archives of Virology* 153: 2263-2272

Hughes, J.d'A. (2009) Just famine foods? What contributions can underutilized plants make to food security? In Jaenicke *et al.* (ed.) Proceedings of the International Symposium on Underutilized Plants for Food Security, Nutrition, Income and Sustainable Development, 3-6 March 2008, Arusha, Tanzania. Acta Horticulturae 806: 39-47

Hughes, J.d'A, and Keatinge, J.D.H. (2012) The Nourished Millennium: How vegetables put global goals within reach. In: Holmer R, Linwattana G, Nath P, eds. 2012. Proceedings of the Regional Symposium on High Value Vegetables in Southeast Asia: Production, Supply and Demand (SEAVEG 2012), 24-26 January 2012, Chiang Mai, Thailand. AVRDC – The World Vegetable Center, Publication No. 12-758. AVRDC – The World Vegetable Center, Taiwan.

Keatinge, John D.H., Waliyar, Farid, Jamnadas, Ramni H., Moustafa, Ahmed, Andrade, Maria, Drechsel Pay, Hughes, Jacqueline d'A., Kadirvel Palchamy, and Luther, Kartini. (2010). Relearning old lessons for the future of food – by bread alone no longer: diversifying diets with fruit and vegetables. *Crop Science* 50:S1-12

Keatinge, J.D.H., R.-Y. Yang, J. d'A. Hughes, W.J. Easdown & R. Holmer (2011). The importance of vegetables in ensuring both food and nutritional security in attainment of the Millennium Development Goals. *Food Security* 3:491-501

Keatinge, J.D.H., M.L. Chadha, J.d'A. Hughes, W.J. Easdown, R.J. Holmer, A. Tenkouano, R.Y. Yang, R. Mavlyanova, S. Neave, V. Afari-Sefa, G. Luther, M. Ravishankar, C. Ojiewo, M. Belarmino, A. Ebert, J.F. Wang and L.J. Lin (2012). Vegetable gardens and their impact on the attainment of the Millennium Development Goals. *Biological Agriculture & Horticulture* 28: 71-85

Odedara, O.O., Hughes, Jd'A., Odebode, A.C., Odu, B.O. (2008). Multiple virus infections of lablab [*Lablab purpureus* (L.) Sweet] in Nigeria. *Journal of General Plant Pathology* 74: 322-325

Odedara, O.O., Hughes, Jd'A., Tarawali, S.A., Odebode, A.C. and Winter, S. (2007). Characterisation of a potyvirus from *Centrosema pubescens* Benth. *Tropical Science* 47: 3-15

Odedara, O.O., J.d'A. Hughes, A.C. Odebode and S.A. Tarawali. (2011). Survey for viruses infecting herbaceous forage legumes in Nigeria. *Academic Journal of Plant Sciences* 4: 69-76

Odu, B.O., Asiedu, R., Shoyinka, S.A., and Hughes, J.d'A. (2006) Screening of water yam (*Dioscorea alata* L.) genotypes for reactions to viruses. *Journal of Phytopathology* 154: 716-724

Odu, B.O., Asiedu, R., Shoyinka, S.A., and Hughes, J.d'A. (2006) Reaction of white guinea yam (*Dioscorea rotundata* Poir.) genotypes to virus diseases in four agroecological zones in Nigeria. *Journal of Phytopathology* 154: 688-693

Odu, B.O., Asiedu, R., Shoyinka, S.A., and Hughes, J.d'A. (2011). Analysis of resistance to *Yam Mosaic Virus*, Genus *Potyvirus* in white guinea yam (*Dioscorea rotundata* poir.) genotypes. *Journal of Agricultural Sciences* 56: 1-13

Olufemi, J. Alabi, Francis O. Ogbe, Ranajit Bandyopadhyay, P. Lava Kumar, Alfred G.O. Dixon, Jacqueline d'A Hughes, Rayapati A. Nadu. (2008) Alternative host of African cassava Mosaic virus and East African cassava mosaic Cameroon virus in Nigeria. *Archives of Virology* 153:1743-1747

Taiwo, M.A., Kareem, Kehinde T., Nsa, Imade Y, and Hughes, Jd'A. (2007) Cowpea viruses: Effect of single and mixed infections on symptomatology and virus concentration. *Virology Journal* 4: 95 http://www.virologyj.com/content/pdf/1743-422X-4-95.pdf

Taiwo, M.A., Hughes J.d'A and Oke K.E. (2006). Studies on *Maize streak virus* and Maize mottle/chlorotic stunt virus in Lagos, Nigeria. *Plant Disease* 90: 199-202

Tripathi, L., J.N. Tripathi and J. d'A. Hughes. 2005. Agrobacterium-mediated transformation of plantain (*Musa* spp.) cultivar Agbagba. *African Journal of Biotechnology* 4: 1378-1383

Venkatesan, G. Sengoda, Wen-Shi Tsai, Robert C de la Pena, Sylvia K. Green, Lawrence Kenyon and Jackie Hughes. (2012). Expression of full length coat protein gene of Tomato leaf curl Taiwan virus is not necessary for recovery phenotype in transgenic tomato. *Journal of Phytopathology* 160: 213-219

Book chapters

Hughes, J.d'A., Gonzalez, A., Keatinge, J.D.H., Wyckhuys, K., Alvarez, E. and Luther, K. (2012). Section III: Case studies on crop-based eco-efficient research. In: An Eco-Effiiency Revolution in Tropical Agriculture., I. Climate-Smart Production Systems for Small Holders, the CIAT Flagship publication, Inaugural Issue

De la Peña, R.C., Kadirvel, P., Venkatesan, S., Kenyon, L. & Hughes, J. (2010). Chapter 8. Integrated Approaches to Manage Tomato Yellow Leaf Curl Viruses. In *Biocatalysis and Biomolecular Engineering* (eds.) Ching T. Hou and Jei-fu Shaw, John Wiley & Sons, New Jersey, USA. pp. 105-132.

Hughes, J.d'A. (2007). Leadership in agricultural research management. In G. Loebenstein and G. Thottappilly (eds.) Agricultural Research Management pp101-120, Springer.

Hughes, J.d'A., R. Bandyopadhyay, K. Makinde & S. Olembo. (2008). Institutional aspects of sanitary and phytosanitary issues on ECOWAS trade. In: J.F. Leslie et al (eds.) Mycotoxins: Detection Methods, Management, Public Health and Agricultural Trade. Chapter 29 pp 335-348, CAB International.

Ojiewo, C., A. Tenkouano, J.d'A. Hughes and J.D.H. Keatinge (2012). Diversifying Diets: Using African indigenous vegetables to improve profitability, nutrition and health. In: Jessica Franzo and Danny Hunnter (eds) "Diversifying Food and Diets: Using Agricultural Biodiversity to Improve Nutrition and Health".

Shanmugasundaram, Subramanyam, Keatinge, J.D.H., Hughes, Jacqueline d'Arros. (2009). The mungbean transformation: Diversifying crops, defeating malnutrition. IFPRI Discussion Paper 922. Chapter 14 in: David J. Spielman and Rajul Pandya-Lorch (eds.) Millions Fed: Proven successes in agricultural development. International Food Policy Research Institute.

Shanmugasundaram, Subramanyam, Keatinge, J.D.H., Hughes, Jacqueline d'Arros. (2009). Counting on Beans Mungbean improvement in Asia. Chapter 15. This chapter is based on Shanmugasundaram, S., J.D.H. Keatinge, and J. d'Arros Hughes. 2009. The Mungbean transformation: Diversifying crops, defeating malnutrition. IFPRI Discussion Paper. International Food Policy Research Institute.