

CURRICULUM VITAE

Edward Elliston Farmer

DOB: 17.4.1958, Llangefni, Wales.
Married, one child.

Childhood: mostly in Dorset, England. Wonderful parents got me interested in natural history. Left school at age 16, but returned quickly to studies after brief unemployment. Discovered an interest in chemistry.

University: Undergraduate in Biochemistry at Liverpool University. During this time became aware that plants had powerful chemical defences. PhD (1983) in the Liverpool University Biochemistry Department with J.S. Easterby on 'Regulation of hexokinase' (kinetics of hexokinase from heart tissue). During this time did some rock-climbing. 1983-1984, switched to plant science thanks to a Royal Society postdoctoral fellowship at the University of Freiburg, Germany with K. Hahlbrock and H. Grisebach. Moved to the University of Wisconsin-Madison, USA.

Career break: Co-organisation of the 1986 British Kishtwar Expedition to the Himalaya with Bob Reid. First ascent of 'Dandagopurum' 6230m. E. Farmer *Am. Alpine J.* 1987; B. Reid and E. Farmer, *Himalayan Journal* (1988) 44,19. Second ascent was in 1989.
<https://www.himalayanclub.org/hj/44/19/british-kishtwar-expedition-1986/>

Further research: Returned to Madison. Listened to a seminar on wound responses of plants and decided that more work needed to be done on this. Moved to Washington State University to work with C.A. 'Bud' Ryan.

Leg break: Broke leg mountaineering in Canadian Rockies. Mountaineering curtailed, career chances improved. Found that jasmonate controls leaf defences against herbivores. This generated lots more work. Moved to Switzerland where there are many mountains but also excellent research conditions.

Career: 1992-1998, directed the Plant Biology and Physiology Institute, University of Lausanne, Switzerland. At present, Professor, Department of Plant Molecular Biology. Found that plants lacking jasmonates are considered to be dead by detritivores which are animals that don't normally eat living tissues. Learned about jasmonate pathway regulation (co-discovered JAZ proteins with 2 other groups) and jasmonate synthesis (discovered a new jasmonate: dinor-OPDA). Found that the lipoxygenase necessary for jasmonate synthesis distal to a wound. This generated still more work. In parallel worked on non-enzymatic lipid oxidation. Found evidence for a biochemical cycle in which thylakoid fatty acids are oxidized to malondialdehyde which is then quickly converted back to thylakoid fatty acids. Proposed that tri-unsaturated fatty acids are 'structural antioxidants' that are sacrificed to protect thylakoid proteins from singlet oxygen. Then focused entirely on why leaves are difficult to eat.

Other career breaks: First sabbatical Oct. 2001-March 2002. Field work on plant defences in New Caledonia (with T. Jaffré), New Zealand and Borneo. Amazed at what evolution has produced (e.g. *Urtica ferox*). Second sabbatical Oct. 2010 - August 2011. Field work in Ethiopia, Socotra (Yemen), Saudi Arabia (Farashan Islands) and northern Gabon. Amazed at what other cultures can do. Follow-up work funded by an EU Synthesis grant to work at Edinburgh Royal Botanic Garden (with A.G. Miller). Book writing.

Book: *Leaf Defence*. Oxford University Press, 2014 (paperback 2016).

Recent career: Found that the role for long-distance wound-response electrical signals in plants is to activate jasmonate synthesis leading to leaf defence. Also found that glutamate

receptor-like proteins mediate electrical signaling and leaf micromovements when insects feed. Now working to find more genes underlying electrical signals in plants.

Current teaching: Obligatory third year course in Molecular Biology (c.100 students)
Master's course '*Why is the earth green?*' Co-responsible for biology student International Exchange programmes.

PhD Theses: Chairman or expert for c. 77 theses. 16 theses so far directed and co-directed, more in progress.

Responsibilities: Past editorial work with *Plant Physiology*. The usual committees and advisory boards. Founding and organisation of interdepartmental seminar series.

Meetings organized: Several international meetings including the 2019 Regulatory Oxylipins, Ghent, Belgium co-organised with A. Goossens.

Public outreach: *Jean Senebier's thoughts on experimentation and their relevance for today's researcher*. Archives des Sciences (2010) 63, 185-192. (Written to explain the importance of experimentation on living organisms to educated non-scientists). Essay on N. Vavilov published in '*Seeds of the World : The Vavilov Institute*' by Mario del Curto, 2016 (Actes Sud). Essay on the evolution of the colour green in '*Humanité végétale*' by Mario del Curto, 2019 (Actes Sud). Talks about plant science for public.

Distinctions:

2014	J.-M. Delwart prize, Académie Royale des Sciences de Belgique (jointly with I.T. Baldwin)
2010-2012	King Saud University Distinguished Research Scientist
2009	W.E. Loomis lecture, Iowa State University, 27 April
2006	Pirie lecturer, Rothamstead Research Institute, 12 June
2005	ISI highly cited researcher
2004	N. E. Tolbert Endowed Lectureship, Michigan State Univ. Biochemistry.

Distractions: Spending time above 2000 m. Growing plants. Etc.