Professor Patricia Berjak (1939–2015): World-renowned plant scientist and exceptional mentor

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HOW TO CITE:
Mycock D. Professor Patricia Berjak (1939–2015): World-renowned plant scientist and exceptional mentor. S Afr J Sci. 2015;111(5/6), Art. #a0106, 1 page. http://dx.doi.org/10.17159/sajs.2015/a0106

Professor Patricia (Pat) Berjak, a prominent South African scientist, died on 21 January 2015. Pat was a world-renowned botanical scientist who achieved remarkable breakthroughs in the understanding of recalcitrant seeds. Pat obtained her BSc Hons from the University of the Witwatersrand, Johannesburg, and her MSc and PhD from the University of Natal, Durban. After 3 years at the University of Leeds in the UK, she returned to South Africa in 1972 and worked at the University of KwaZulu-Natal in Durban for the rest of her career, during which she held various academic titles, including Head of Department and Chair of the Electron Microscope Unit.

Pat will be remembered for her substantial contributions to the field of non-orthodox seed biology (the so-called recalcitrant seeds), the problems associated with the storage of such seeds and germplasm cryopreservation of species producing such (non-storable) seeds. This research interest stemmed from her earlier PhD studies on the ultrastructural and biochemical aspects of deterioration of air-dry (orthodox) seeds during long-term storage and age-accelerating conditions.

Recalcitrant seeds were originally considered to be produced predominantly by tropical and sub-tropical tree species, but it is now clear that the phenomenon is also found in some temperate species. Using germplasm from a diverse selection of species and provenances, Pat's research was aimed at developing a comprehensive understanding of the consequences of the storage manipulations on the fundamental biology of species that produce recalcitrant seeds. This research included studies on the impacts of storage on ultrastructural integrity (e.g. cytoskeletal status) and biochemical interactions (e.g. roles of Ca^{2+} and Mg^{2+}) and studies at biophysical levels. These studies led to widespread recognition of the scientific merits of her laboratory's endeavours. For example, the International Plant Genetic Resources Institute identified her Plant Germplasm Conservation Research laboratory as an international centre of excellence. Further acknowledgement came from the UK government DEFRA's Darwin Initiative for a cryoconservation centre of excellence, in conjunction with the Millennium Seed Bank, Kew.

Pat's association with the International Seed Testing Association (ISTA) was also substantial – she was a member of the Seed Storage Working Group of the Moisture and Storage Committee from 1977 to 1980, and was thus a founding member of the Storage Committee from 1980. She was the Vice-Chair of the Storage Committee between 1992 and 1995, Chair between 1995 and 2001 and remained a member until her death. Her major contributions to ISTA were the development of the fundamental understanding of the difference between orthodox and recalcitrant seeds. In this regard, she participated in numerous workshops and contributed to ISTA handbooks.

It was her personal drive, exemplary work ethic and desire to make a difference that established her research group as one of the most respected in the field of recalcitrant seed biology worldwide. Patricia also understood the necessity for cross-disciplinary science and she consistently, and enthusiastically, collaborated with other people. She always maintained that her achievements resulted from those collaborations – most especially those with her life partner, Professor Norman Pammenter, with whom she shared many other passions including aerobatics, ballroom dancing, classic cars and cooking.

Pat's innovative research was recognised globally and her numerous accolades include being elected a member of the Academy of Science of South Africa (she was Vice-President at the time of her death), a member of The World Academy of Sciences, a Fellow of the Royal Society of South Africa and a Fellow of the University of Natal. During her career she was also president of the International Society for Seed Science. The South African Association of Botanists recognised Pat's contribution to the plant sciences with both their silver and gold medals. Pat also received the Order of Mapungubwe (silver), the highest honour granted by the President of South Africa.

Pat held a South African National Research Foundation (NRF) 'A' rating, signifying world leadership in her field, and received the NRF's President's Award for Lifetime Achievement.

On occasion Pat was called 'The Iron Lady', a title which she coveted. Many undergraduate students would agree with the statement and even go as far as to say 'move over, Margaret Thatcher'. However, beneath the steely demeanour and highly focused eyes was a person who had an unwavering belief in the uniqueness of other human beings and their ability to achieve. Over the years she helped many people in their quest for personal development and this was generally at the expense of her own private time and resources. Using her demanding yet exemplary supervisory skills, Pat gave South Africa, and indeed the international community, numerous academics, entrepreneurs and scientists. At whatever level of postgraduate training, students under Pat's guidance were stimulated towards self-improvement and a deep understanding of their research subject.

Pat was a socially aware scientist and was involved in numerous urban projects, such as the rehabilitation of the mangroves in the Durban area and the maintenance of the Hawan coastal forest north of Durban. She also served as a trustee on the board of the Durban Botanic Gardens. In those arenas, Pat was often a key player and it was her ability to bring her science and solid common sense together that led to fruition.

Associated with this generous nature was a delightful and often wicked sense of humour. At tense times, Pat could be counted on for her dry observation and sense of the ridiculous of any situation.

The South African botanical community has lost a dear friend, colleague and driving force.