

## PERSONAL BIOGRAPHY

**NAME:** Mabrouk Abdul Salam El-Sharkawy

**DATE OF BIRTH:** 7 April, 1937

**PLACE OF BIRTH:** Shobratana, Gharbiah Governate, Egypt.

**FATHER:** Abdul Salam Ahmed Khadr El-Sharkawy (deceased).

**MOTHER:** Farah Ali Ghorab (deceased).

**MARRIED TO:** Stella Navarro (Colombian)

**CHILDREN:** One daughter: Farah El-Sharkawy

**OCCUPATION:** Scientist, Educator, Researcher, Agronomist, Consultant.

**OFFICE ADDRESS:** P.O. Box 26360, Cali, Valle, Colombia, South America.

**HOME ADDRESS:** Parcelacion La Riverita, Ave. La Riverita, Casa No. 2C. Cali, Valle, Colombia.

e.mail: [elsharkawy@telesat.com.co](mailto:elsharkawy@telesat.com.co)

Phone: (57-2) 3258838

**EDUCATION:** (1) BSc with honor (Agriculture), Alexandria University (Egypt), 1958; (2) MSc (Agronomy/Plant Breeding), Louisiana State University, Baton Rouge, La, USA, 1962; (3) Ph.D. (Agronomy/Crop Physiology), University of Arizona, Tucson, AZ, USA, 1965.

## **CAREER AND PROFESSIONAL ACTIVITIES:**

1. Consultant, agriculture research and development, 1998--
2. Crop physiologist, International Center for Tropical Agriculture (CIAT), Cali, Colombia, South America, 1980-1997 (retired).
3. Project manager (Cassava Integrated Production Systems), CIAT, Cali, Colombia, 1988-1996.
4. Consultant Agronomist & Head Dept. Plant Production, Arab Organization for Agriculture Development, (Arab League, Tripoli, Libya), 1977-1980.
5. Professor, Univ of Tripoli, Libya, 1968-1978.
6. Head, Dept. of Plant Production, 1970-72; Head Agronomy Div. 1972-75, Tripoli University, Libya,
7. Head Technical follow-up Dept., Agriculture Dev. Council, Tripoli, Libya, 1975-1976.
8. Co-Founder and Consultant, Agricultural Studies Office (Private firm), Tripoli, Libya, 1975-1980.
9. Crop Physiologist, Ministry of Agriculture, Giza, Cairo, Egypt, 1966-1968.
10. Associate Plant Physiologist, Univ of California, Davis, USA, 1965-1966.
11. Graduate Student, Louisiana State Univ., Baton Rouge, La, USA, 1960-1962.
12. Graduate Student, Univ. of Arizona, Tucson, AZ, USA, 1962-1965.
13. Research Assistant, National Research Center, Dokki, Cairo, Egypt, 1958-1960.

## **PUBLICATIONS:**

Over 130 publications in professional journals, research bulletins, chapters in books, proceedings and technical reports on crop physiology, plant breeding, crop production and plant-soil relationships including cotton species, cereal and root crops.

## **SHORT LIST OF SOME PUBLICATIONS:**

1. "Citation Classics". Current Contents, Vol. 17, No.27, 7 July, 1986, Institute of Scientific Information (ISI), Pennsylvania, USA.
2. "Photosynthesis among species in relation to characteristics of leaf anatomy and CO<sub>2</sub> diffusion resistances". Crop Sci. 5: 517-21, 1965. (This paper received the Citation Classics Award, ISI, PA, USA 1986).

3. "Leaf photosynthetic rates and other growth characteristics among 26 species of *Gossypium*." *Crop Sci.* 5: 173-75, 1965.
4. "Relationships among rate of leaf area development, photosynthetic rate, dry matter production among American cottons and other species". *Crop Sci.* 5: 163-66, 1965.
5. "Apparent reassimilation of respiratory carbon dioxide by different plant species". *Physiologia Plantarum*, 20: 171-86, 1967.
6. "Photosynthetic and respiratory exchanges of carbon dioxide by leaves of the grain amaranth". *J. Appl. Ecology* 5: 243-51, 1968.
7. "Response of wheat to Cycocel application, Part I". *Libyan J. Agric.* 2: 13-20, 1973; Part II, *Libyan J. Agric.* 2: 21-26, 1973.
8. "Crop Research in Kufra Oasis, Libya". *Res. Bulletin*, pp. 126, Agric. Devl. Council, Tripoli, Libya, 1975.
9. "Investigation on maize in the Libyan Arab Republic. Part I". *Libyan J. Agric.* 5: 1-8, 1976; Part II *Libyan J. Agric.* 5: 9-16, 1976.
10. "Response of a newly developed variety of dwarf wheat to nitrogen level and supplementary irrigation". *Libyan J. Agric.* 5: 17-26, 1976.
11. "Studies on chemical control of weeds in broadbean". *Libyan J. Agric.* 5: 59-64, 1976.
12. "Effect of phosphorus and potassium on yield of two potato cultivars". *Libyan J. Agric.* 6: 127-137, 1977.
13. "Influence of antitranspirant on leaf water content and transpiration of sunflower". *Libyan J. Agric.* 6: 181-86, 1977.
14. "Observations on the parasitic behavior of *Thesium humile* Vehl.". *Libyan J. Agric.* 6: 173-180, 1977.
15. "Water use efficiency of cassava. I. Effect of air humidity and water stress on stomatal conductance and gas exchange". *Crop Sci.* 24: 497-502, 1984.
16. "Water use efficiency of cassava. II. Differing sensitivity of stomata to air humidity in cassava and other warm-climate species". *Crop Sci.* 24:503-507, 1984.
17. "Water use efficiency of cassava. III. Influence of air humidity and water stress on gas exchange of field grown cassava". *Crop Sci.* 25:265-272, 1985.
18. "Photosynthetic response of cassava cultivars (*Manihot esculenta* Crantz) from different habitats to temperature". *Photosynthesis Research* 5:243-250, 1984.
19. "Stomatal characteristics among cassava cultivars and their relation to gas exchange". *Experimental Agriculture* 20:67-76, 1984.
20. "Response of cassava to water stress". *Plant and Soil* 100: 345-60, 1987.

21. "C<sub>3</sub>-C<sub>4</sub> Intermediate photosynthetic characteristics of cassava (*Manihot esculenta* Crantz). I. Gas exchange". *Photosynthesis Research* 12: 219-35, 1987.
22. "Physiological characteristics for cassava selection". *Experimental Agriculture* 24:443-448, 1988.
23. "Photosynthesis of cassava (*Manihot esculenta*)". *Experimental Agriculture* 26:325-340, 1990
24. "Relationships between biomass, root-yield and single-leaf photosynthesis in field-grown cassava". *Field Crops Research*, 25: 183-201, 1990.
25. "Yield stability of cassava during prolonged mid-season water stress". *Experimental Agriculture* 28:165-174, 1992.
26. "Potential photosynthesis of cassava as affected by growth conditions". *Crop Sci.* 32: 1336-1342, 1992.
27. "Photosynthesis of cassava and its relation to crop productivity". *Photosynthetica* 28:431-438, 1993.
28. "Drought-tolerant cassava for Africa, Asia and Latin America". *Bioscience* 43: 441-51, 1993.
29. "Cassava varietal response to phosphorus fertilization. I. Yield, biomass and gas exchange". *Field Crops Research* 35:1-11, 1993.
30. "Cassava varietal response to phosphorus fertilization. II. Phosphorus uptake and use efficiency". *Field Crops Research* 35:13-20, 1993.
31. "Increasing crop productivity in cassava by fertilizing production of planting material". *Field Crops Research* 44:151-157, 1995.
32. "Grass barriers in cassava hillside cultivation: Rooting patterns and root growth dynamics". *Field Crops Research* 43:131-140, 1995.
33. "Cassava varietal response to fertilization: growth dynamic and implications for cropping sustainability". *Experimental Agriculture* 33: 353-365, 1997.
34. "Losses of organic matter and nutrients by water erosion in cassava-based cropping systems". *Experimental Agriculture* 33:487-498, 1997.
35. "Photosynthesis and yield performance of cassava in seasonally dry and semiarid environments". *Photosynthetica* 33:249-257, 1997.
36. "Response of cassava (*Manihot esculenta* Crantz) to water stress and fertilization". *Photosynthetica* 34:233-239, 1997.
37. "Leaf gas exchange of cassava as affected by quality of planting material and water stress". *Photosynthetica* 34:409-418, 1997.
38. "Long term effects of mulch, fertilization and tillage on cassava growth in sandy soils in northern Colombia". *Field Crops Research* 57: 45-56, 1998.

39. "Nutrient use efficiency of cassava differs with genotype architecture". *Acta Agronómica (Colombia)* 48: 23-32, 1998.
40. "Genetic variation within cassava germplasm in response to potassium". *Experimental Agriculture* 36: 323-334, 2000.
41. "The effect of pre-harvest pruning of cassava upon root deterioration and quality characteristics". *Journal of the Science of Food and Agriculture* 80:1866-1873, 2000.
42. "Natural erosion and scalping effects on productivity of an Andean Inceptisol". *Agronomy Journal* ( in press), 20002.
43. "The use of grain and forage legumes for soil fertility maintenance and erosion control in cassava in Colombia". *Field Crops Research* ( in press), 2002.
44. Response of cassava to prolonged water stress imposed at different stages of growth. *Experimental Agriculture* 38 (in press), 2002.

### **ACHIEVEMENTS:**

1. Discovery of the many aspects of C<sub>3</sub>/C<sub>4</sub> syndrome of plant photosynthesis in about 40 species including the whole cotton germplasm, tropical grasses, cool and warm climate crops including maize, sorghum, sugarcane, wheat, barley , sunflower , sugarbeets and amaranthus species. This work received the Citation Classic Award, 1986, Institute of Scientific Information (ISI), PA, USA.
2. Development of novel farming systems in sandy soils of the Sahara desert, North Africa.
3. Conducted feasibility studies and soil survey; evaluated farming systems and water resources management for irrigation in several agricultural development projects including al-Kufra Oasis project, Great Sand Sea al-Sarir project, Shat al-Badeen project and Marada Oasis project, Libya.
4. Photosynthesis and physiological characterization of the cultivated and wild species of cotton.
5. Selection of cassava cultivars tolerant to water stress and poor soils in the tropics.
6. Physiological characterization of leaf photosynthesis of cassava germplasm in relation to crop productivity in the humid, seasonally dry and semi-arid environments; discovered positive association between cassava productivity and single leaf photosynthesis under field conditions; identified and selected cassava cultivars with high storage root yield and high leaf photosynthesis, particularly under water stress and poor soils; research on cassava plant nutrition, soil conservation and management in marginal lands and in hillside cassava farming systems in the tropics; selection of cassava cultivars for high yields and high nutrient use efficiency, particularly under water stress conditions.

7. Selection of barley and wheat cultivars for desert conditions of Libya.
8. Research on plant-soil relationships, irrigation and cropping systems in the Sahara desert of Libya.
9. Discovery of physiological mechanisms underlying cassava tolerance to drought including stomatal sensitivity to atmospheric and soil water stress, deep rooting systems and long leaf duration.
10. Discovery of leaf "Kranz" anatomy and its association with high leaf photosynthesis, very low CO<sub>2</sub> compensation point and photorespiration re-assimilation in C<sub>4</sub> species including maize, sorghum, sugarcane, tropical grasses and weedy and cultivated amaranthus species.
11. Development of method to measure plant photorespiration in CO<sub>2</sub>-free air now in use in photosynthesis research.
12. Determination of mode of genetic inheritance and number of controlling genes of fiber strength and elongation in upland cotton.
13. Established two agricultural experiment stations for research under irrigation and rain-fed conditions, Libya.
14. Supervised pre- and post-graduate programs for BSc, MSc and PhD students in Libya and in Colombia, Latin America.
15. Took a leading role as professor and head of department in establishing the first Faculty of Agriculture, University of Libya, Tripoli, 1968-1978.
16. As Head of Plant Production Department, Arab Organization for Agriculture Development, Arab League, Tripoli, Libya, co-ordinated and participated in identification of, wrote terms of references and conducted feasibility studies for several agriculture projects in North African Arab countries, 1978-1980.

#### **HONORS AND AWARDS:**

1. ISI Citation Classics Award for the discovery of the C<sub>3</sub>/C<sub>4</sub> Syndrome in plant photosynthesis, Institute of Scientific Information (ISI) Pennsylvania, USA., 1986.
2. More than 600 citations in literature, ISI Citation Index, PA, USA.
3. Grants for cassava research from USAID, Swiss Government, German Government, Colombian Government and Australian Government, 1986-1996.
4. Award for Kufra Oasis research, Agriculture Development Council, Tripoli, Libya, 1975.
5. Research Awards, University of Libya, Tripoli, 1973-1978.
6. Fellow, University of California, Davis, CA, USA., 1965-66.

7. Award for Excellence, Faculty of Agriculture, University of Alexandria, Egypt, 1956.
8. Award for Excellence , University of Arizona, Tucson, Az, USA, 1964.
9. Fellow, University of Alexandria, Egypt, 1955-58.
10. Egyptian Government Scholar in Egypt and in USA, 1958-65.
11. Visiting Professor, American University of Beirut, Lebanon, 1971.
12. Student Senator, University of Arizona Senate, Tucson, AZ, USA, 1964-65.
13. President, International Students Club, University of Arizona, Tucson, AZ, 1964-65.
14. Vice President, Arab Students Club, University of Arizona, Tucson, AZ, 1963-64.
15. Vice President, Arab Students Club, Louisiana State University, Baton Rouge, La., 1961-62.
16. Vice President, Muslim Students Association, University of Arizona, 1963-64.
17. Member, Sigma XI Honorary Scientific Society, University of Arizona Chapter and the International Chapter, Washington, DC, USA.
18. **Listed in:** Who`s Who in the World (Marquis, USA); Who`s Who in Science and Engineering (Marquis); Dictionary of International Biography, IBC, Cambridge, UK; Men of Achievements, IBC, Cambridge, UK; Five Thousand Personalities of the World, ABI, USA; International Who`s Who of Professionals, Who`s Who Historical Society, USA; Outstanding People of the 20th Century, IBC; 2000 Outstanding Scientists of the 20<sup>th</sup> Century, IBC; 2000 Outstanding Scientists of the 21<sup>st</sup> Century, IBC; World`s Who`s Who of Men and Women of Distinction, IBRF, India; Asia/Pacific Who`s Who, RI, India.

**AVOCATIONS:** Farming, gardening, traveling, reading, writing, oriental music, social and charity works, Islamic Sufism.

#### **SOCIAL AND COMMUNITY ACTIVITIES:**

1. Co-Founder and teacher, as a young high school student, of a free evening school for the abolition of the then widespread illiteracy, Shobratana Village, Gharbiah Governate, Egypt, 1953.
2. Co-Founder and donor, as a senior research scientist, Centro Internacional de Agricultura Tropical (CIAT), of Fundación

- Voluntarios Charity Organization for taking care of abandoned children and old people, Palmira, Colombia, 1992.
3. Organized and led very active international student club, University of Arizona, Tucson, AZ, USA, 1964-65.
  4. Student Senator, representing the graduate school, University of Arizona Senate, Tucson, AZ, USA, 1964-65.
  5. Permanent donations to support resource-limited young students, Shobratana Village, Gharbiah Governate, Egypt.
  6. Human rights activist and advocate of democracy, freedom, equity and self-expression.

#### **EDITORIAL ACTIVITIES:**

- Editor & Author, Crop Research, Kufra Oasis, Libya, (bulletin), Agric. Dev. Council, Tripoli., 1975.
- Co-Editor, Plant and Soil Interfaces and Interactions, Martinus Nijhoff Pub., The Netherlands, 1987.
- Editor, Libyan Journal of Agriculture, 1974-1978.
- Consulting Editor, Plant and Soil, Martinus Nijhoff Pub., the Netherlands, 1980-90.
- Reviewer, several scientific journals in the area of plant physiology, botany, plant breeding, field crops production, plant nutrition and soil-plant management.

#### **SOCIETIES:**

Member Sigma XI Scientific Society, American Society of Agronomy, Crop Science Society of America, American Association for the Advancement of Science (AAAS), American Institute of Biological Sciences (AIBS) and New York Academy of Sciences.