DOI : 10.5958/2277-8934.2026.00025.2 *Vol 33 No 2, p 205-206*

MY JOURNEY TO CAMEL SCIENCE: FROM MOROCCO TO TUNISIE

Mohammed Bengoumi

Animal Production and Health Officer, Coordinator of the Programme in Support to Professional Organisations Focal point Emergency, FAO Subregional Office for North Africa 1, rue du Lac Winnipeg - Les Berges du lac 1 , 1053 Tunis-Tunisie

ABSTRACT

This autobiographical account chronicles my professional journey in camel science, from my early inspiration in Morocco to my international engagement through the Food and Agriculture Organisation of the United Nations (FAO) in Tunisia. Growing up in a country where camels are central to the livelihoods and cultural heritage of arid and semi-arid regions, I developed a lasting interest in understanding the remarkable biological adaptations of these animals. My academic and research career at the Agronomic and Veterinary Institute Hassan II initially focused on animal physiology and health but gradually evolved toward camel physiology, clinical biochemistry, mineral metabolism, nutrition, dehydration, stress physiology, and adaptation to desert environments. Over the years, my work expanded to encompass camel health, reproduction, disease management, milk quality, and sustainable production systems through multidisciplinary research and international collaborations. Participation in FAO-led programmes provided opportunities to promote camel development through research, technical cooperation, capacity building, policy dialogue, and scientific networking across Africa and the Middle East. This journey also reflects the remarkable evolution of camel science from a relatively neglected discipline to a rapidly advancing field driven by innovations in genomics, precision livestock management, nutrition, health, and value addition of camel products. Beyond scientific achievements, the article highlights the vital role of camels in enhancing food security, climate resilience, and sustainable pastoral livelihoods in dryland ecosystems. It concludes by emphasising the importance of continued investment in research, innovation, and international collaboration to fully harness the potential of camels as strategic livestock species capable of addressing emerging global challenges related to climate change, sustainable agriculture, and rural development.

Key words: Camel science; *Camelus dromedarius*; camel physiology; clinical biochemistry; dehydration physiology; mineral metabolism; desert adaptation; food security; climate resilience; sustainable livestock systems; FAO; pastoral development; camel research; Morocco; Tunisia

My journey into camel science began with a profound fascination for the remarkable adaptation of camels to some of the world's harshest environments. Growing up in Morocco, where camels have always been an integral part of the cultural heritage and pastoral economy of arid and desert regions, I became increasingly aware of their unique biological characteristics and their crucial role in the livelihoods of millions of people.

As a veterinarian and researcher at the Agronomic and Veterinary Institute Hassan II, my early scientific interests focused on animal physiology and health. However, I soon realised that while considerable scientific attention had been devoted to conventional livestock species, camels remained relatively understudied despite their extraordinary capacity to thrive under challenging environmental conditions. This realisation inspired me to dedicate

SEND REPRINT REQUEST TO MOHAMMED BENGOUMI email: Mohammed.Bengoumi@fao.org

an important part of my professional life to understanding these exceptional animals.

Over the years, I pursued research aimed at uncovering the physiological and biochemical mechanisms that allow camels to withstand extreme heat, dehydration, and nutritional stress. Their unique adaptation strategies represented not only a fascinating scientific challenge but also a source of valuable knowledge for addressing the growing impacts of climate change on livestock production systems worldwide.

My work gradually expanded beyond basic research into broader issues related to camel health, production, and sustainable development. I became involved in multidisciplinary studies exploring camel nutrition, metabolism, reproductive performance, disease management, and the quality and safety of camel-derived products. Throughout this journey, I had the privilege of collaborating with scientists, veterinarians, and development specialists from different countries, all united by a common interest in advancing camel research and supporting pastoral communities.

One of the most rewarding aspects of my career has been contributing to the growing recognition of camels as strategic livestock species for food security and resilience in arid and semi-arid regions. As environmental pressures and climate variability continue to affect traditional agricultural systems, camels are increasingly acknowledged for their ability to provide milk, meat, transport, and income under conditions where other livestock species may struggle to survive.

My engagement with international organisations, particularly the Food and Agriculture Organisation of the United Nations (FAO), has provided opportunities to promote camel development at regional and global levels. Through technical cooperation projects, capacity-building initiatives, policy dialogue, and scientific networking, I have worked to strengthen the role of camels in sustainable livestock systems and to support countries seeking to enhance the productivity and resilience of their camel sectors.

Throughout my professional journey, I have witnessed a remarkable transformation in the field of camel science. What was once a relatively niche area of research has evolved into a dynamic and rapidly growing discipline attracting increasing scientific interest worldwide. Advances in genetics, genomics, animal health, nutrition, precision livestock management, and camel product valorization are opening new horizons for research and development.

Yet, beyond the scientific discoveries, camels and camel pastoralist continue to teach us valuable lessons about resilience, adaptation, and coexistence with fragile ecosystems. They remind us that sustainable livestock production is not merely a technological challenge but also a matter of understanding and respecting the biological wisdom that nature has developed over centuries.

Today, my passion for camel science remains as strong as ever. I continue to advocate for greater investment in research, innovation, and knowledge sharing to unlock the full potential of camel production systems. I firmly believe that camels will play an increasingly important role in addressing future challenges related to food security, climate change adaptation, and sustainable rural development.

Looking back, my journey into camel science has been both a professional endeavor and a personal commitment. It has allowed me to contribute to a field that combines scientific excellence, practical relevance, and meaningful impact on the lives of pastoral communities. It is a journey that continues, driven by curiosity, innovation, and an enduring respect for one of nature's most extraordinary animals.

Prof. Mohammed Bengoumi (Morocco/FAO) is internationally recognised as one of the leading camel physiologists and clinical biochemists. His research has focused primarily on camel clinical biochemistry, mineral and trace element metabolism, nutrition, stress physiology, dehydration, and metabolic adaptation to desert environments. He has authored or co-authored more than 100 scientific publications, many in collaboration with Dr. Bernard Faye and other leading camel scientists.

Important Publications

Bengoumi M, Essamadi AK, Tressol JC and Faye B. Comparative study of copper and zinc metabolism in cattle and camel. Biological Trace Element Research. 1998; 63:81-93.

Bengoumi M, Riad F, Giry J, De La Farge F, Davicco M-J, Safwate A and Barlet J-P. Hormonal Control of water and sodium in plasma and urine of camels during dehydration and rehydration. General and Comparative Endocrinology. 1993; 89:378-386.

Faye Bernard, Althamma Ossamah, Musaad Mustafa, Abdelgadir, Konuspayeva Gaukhar and Bengoumi Mohammed. Effect of Selenium injection in pregnant camels on selenium status of their new-born and milk. Emirates Journal of Food and Agriculture. 2013; 26:10.9755/ejfa.v26i4.17272.

Faye B and Bengoumi M. Camel Clinical Biochemistry and Hematology. Springer Nature. 2018; DOI: 10.1007/978-3-319-95562-9 ISBN: 978-3-319-95560-5