



Our January 2022 UDSM Alumnus

This is a “light corner” on the UDSM portal intended to feature for one month in turns two among many of the University’s graduates— alumni—since its foundation in 1961. The corner is designed to inform the public and the University itself, without prejudice in terms of historical precedence but guided only by professional information search, on the past graduates of the University, their whereabouts, their current position or engagement, what is remembered of them as past ‘boys’ and ‘girls’ of their time and, finally, on what is reckoned about their contribution to their Alma Mater, their nation, the Africa region and/or the wider world.

Anthony M. MSHANDETE



Year of matriculation: 1988

Year of graduation: 1992

Award: B.Sc. Hons [in Chemistry, Biology&Education], University of Dar es Salaam.

More info:

- **M.Sc. in Botany(1998), University of Dar es Salaam, Tanzania;**
- **PhD in Applied Microbiology(2005), University of Dar es Salaam, Tanzania.**

This January, the UDSM Alumni Corner features Anthony Manoni Mshandete, an alumnus of the University of Dar es Salaam of the graduating class of 1992, a Scientist and Teacher by training and, until 2018, a Professor in biological sciences on the staff of the University’s College of Natural and Applied Sciences (CoNAS). He is currently Professor of Biotechnology and one of the Senior academic administrators at the Nelson Mandela African Institution for Science and Technology (NM-AIST) in Arusha. He was born on 16th August 1963 in a village Tabarukain Sengerema district, Mwanza region. In 1971, at the age of eight, he was enrolled at Nyanchenche Primary School and completed primary education in 1977. In 1978, he proceeded to Kazima Secondary School in Tabora for the four years (Form I-IV) of ordinary-level secondary education, followed by another two years of advanced-level secondary education (Forms V-VI) from 1982 which were completed in 1984 at Mkwawa Teachers College in Iringa. Mkwawa had at that time been converted by Government into a high school-cum-teacher training facility, giving the students an advantage of professional teacher training at the same place and same time. Thus, at Mkwawa, Anthony earned both the Advanced Certificate of Secondary Education (in Chemistry, Biology and Education) and a concurrent three-year Diploma in Science Education (Chemistry & Biology) (1982-1985), which certified him as a teacher.

Allowing for a two year post-diploma period of professional school practice at Kantalamba Secondary School in Sumbawanga, Rukwa region, and one year of compulsory National Service (June 1985-June 1988), Anthony obtained admission, in 1988, to pursue a 3¼-years bachelor degree programme at the University of Dar es Salaam, majoring in Chemistry and Biology in the Faculty of Science, with Education in the Faculty of Education. He successfully completed his programme in 1992, earning a B.Sc. (Ed) honours and getting posted to Kilakala High School in Morogoro. After two years of his school teaching career, in 1994, Mr. Mshandete was released by his employer in order to undertake postgraduate training in Botany at the University of Dar es Salaam. It was during his Master’s programme that he developed specialist interest in mushroom science and technology. The programme earned him a M.Sc. award in Botany in 1998, with a committed interest in the different aspects of the science of mushrooms, such as cultivation of commercial varieties of mushrooms, nutrient and medicinal composition, etc.

The fully-charged researcher and teacher stepped into an even more engaging doctoral research programme in the field of applied microbiology, a course that took him five years from 2000 to 2005 in a sandwich programme arrangement between UDSM and the Department of Biotechnology of Lund University in Sweden. He obtained his PhD at the University of Dar es Salaam in 2005.

Anthony had earlier been promoted to the professional rank of Senior Education Officer while serving as an educator with the Ministry of Education. He formally joined UDSM towards the end of 2005 and grew up through the academic ranks from Lecturer on 30th December 2005, to Senior Lecturer on 1st July 2009, to Associate Professor on 1st July 2012 and finally Professor on 1st July 2015. And throughout these years of association with the University, Professor Mshandete played a clearly dynamic role behind one or the other of several dedicated research thrusts in the growing, testing, adaptation or domesticating of viable nutritional and medicinal mushrooms, as well as production of organic nutrients and products such as bio-fertilisers. He has, on record, tens of undergraduate and postgraduate students he has successfully supervised and mentored, with some of their projects graduating to levels of upscale production and commercialisation. “Nitrogen bio-fortified and pelletized commercial grade organic fertilizer to improve soil productivity and livelihoods of smallholder farmers” is one such product that has to be traced back to innovations and experiments by Mshandete and

research colleagues in academia.

In May 2018, Prof. Mshandete left the University of Dar es Salaam upon accepting an appointment from the Nelson Mandela African Institution for Science and Technology (NM-AIST) to serve in the position of Deputy Vice-Chancellor (Academic, Research and Innovation). From that time, Anthony has embarked on his academic and research schedule in accordance with his new employer but still as a teacher, researcher and agent in scientific innovations, obviously also as an academic administrator overall. In this position, Professor Mshandete is on hand in the supervision and guidance of academic, research and innovation matters of the University (NM-AIST). In addition to routine matters, he is spearheading the research and innovation policy review effort in order to mainstream incubation, technology transfer and commercialization within a balanced yet integrated approach.

In the light of a wide ground of scientific research, coupled with a visible inner drive, Anthony Mshandete is one of the most prolific and productive scientific writers. In 2021, he was listed among top best scientists in Tanzania. He is credited with not less than 60 publications, alone or jointly with other authors. These include: ‘Anaerobic batch co-digestion of sisal pulp and fish wastes’, with A Kivaisi, M Rubindamayugi, BO Mattiasson (2004). *Bioresource Technology*, 95 (1), 19-24; ‘Effect of particle size on biogas yield from sisal fibre waste’, with L Björnsson, AK Kivaisi, MST Rubindamayugi, BO Mattiasson (2006). *Renewable Energy*, 31 (14), 2385-2392; Cultivation of three types of indigenous wild edible mushrooms: *Coprinus cinereus*, *Pleurotus flabellatus* and *Volvariella volvacea* on composted sisal decortication residue in Tanzania with Cuff, J (2008). *African Journal of Biotechnology*, Vol. 7, (24), 4551-4562; ‘Biogas technology research in selected sub-Saharan African countries—A review’, with W Parawira (2009). *African Journal of Biotechnology*, 8 (2); and ‘Characterisation and evaluation of a novel feedstock, *Manihot glaziovii*, Muell. Arg, for production of bioenergy carriers: Bioethanol and biogas’, with AP Moshi, CF Crespo, M Badshah, KMM Hosea (2014). *Bioresource Technology*, 172, 58-67. These are quite apart from his many reports based on experiments and innovations at laboratory and pilot scale concerned with biogas production, mushroom cultivation, and biotechnology tests with organic fertilizers for improving soil productivity and livelihoods of small-holder farmers. *Bravo!*



Commercial ‘Oyster’ mushroom at a Pilot Commercial Farm Facility at Alavi Sisal Estate site in Coast region, Tanzania (left). Anthony and his mentor, Prof. Amelia Kivaisi, celebrating a bumper Oyster mushroom harvest from the farm (right), 2000s.



Hakika: Biofertilizer Commercial Product. Launching of the bio-fertilizer in July 2021 in Njombe (Tanzania). An evidence of commercialization of research outputs.

Anthony M. MSHANDETE is Our January 2022 Alumnus, and his great stories begin here!

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