

# **DEPARTMENT OF BIOLOGICAL SCIENCES**

## **UNIVERSITY OF NAMIBIA**

### **ANNUAL REPORT 2012**

#### **Introduction**

#### **Mission & Vision**

The mission for the Department of Biological Sciences is to train and produce high quality biological scientists, both at undergraduate and postgraduate levels who will play crucial roles in the national development, especially in areas of education, health, agriculture, environment, natural resources and industries. Recognizing that learning is a lifelong endeavor, the Department of Biological Sciences admits both young and mature students. Our Vision is to become a department of high international repute and centre for excellence in training biological scientists in the region, at both undergraduate and postgraduate levels.

#### **Activities**

During the academic year 2012, activities undertaken in the Department of Biological Sciences included teaching of undergraduate and postgraduate students. A curriculum review of the undergraduate program was undertaken and presented to APC and senate and was approved. The main changes affected were a reduction of the number of credits, the major-minor system was abolished and the three degree programmes were reduced to two programmes to avoid repetition of teaching matter. The number of students in the various degree programmes was taken into consideration during the review as well as the needs of stakeholders which were obtained during a very successful stakeholder workshop during March 2012. The revised and approved curriculum will be implemented in January 2013, while the old curriculum will gradually be phased out on a year-to-year basis.

An Advisory board has been established for the Department and consists of 8 members from outside UNAM who represent the Central Veterinary Laboratory, City of Windhoek – Scientific Services, Directorate of Research Science and Technology in the Ministry of Education, Namibia Botanical Research Institute, GENMED, Gobabeb Research and Education Center, NAMDEB and the Ministry of Environment and Tourism. Members have been active in research and the production of publications.

### **Staff matters**

Staff members who left the Department during the year include:

- Mr. V.M. Haakuria who moved to the School of Pharmacy
- Mr. M. Hedimbi who moved to the School of Medicine
- Dr. N. Shiponeni who moved to the Multi-disciplinary Research Centre (MRC)
- Mr. A. Faul who resigned

All the vacancies could be filled soon and the following people joined the department:

- Mr. S. Eiseb appointed as lecturer on the 15<sup>th</sup> November 2012
- Ms. F. Kangombe appointed as lecturer on the 1<sup>st</sup> October 2012
- Dr. E. Kwembeya appointed as Senior lecturer on the 1<sup>st</sup> September 2012
- Mr. J. Uzabikahiro a senior technologist in the department was appointed as lecturer to replace Mr. Hedimbi
- Ms. R. Shifa joined the department as Tutor

The vacancy for lecturer (position of Mr. Faul) was advertised and shortlisting of candidates took place as well as interviews. The successful candidate will join the department in April 2013. The vacant position for technologist that came about as a result of Mr. Uzabikahiro's appointment as lecturer was also advertised and shortlisting was done. This position will be filled in the beginning of 2013.

The vacancy for the Professor position was advertised in the field of Microbiology, but no suitable candidate was found. Therefore headhunting will be done in 2013 in order to fill the position.

Ms. M. Morkel was on her second year of staff development to do her MSc on a full time basis and is expected to finish at the end of 2012 to join the department again in the beginning of 2013. Two part-time technicians were appointed on a part-time basis as her

replacement and they were paid from money which was equivalent to 50% of her salary. They were Ms. J. Hoveka (MSc student in the Department) and Ms. J. Sheehama (unemployed graduate of the Department). In addition to the 3 part-time technicians, there were 6 full-time technical staff (3 males and 3 females) employed in the Department during 2012. There was 16 full time lecturing staff (11 males and 5 females) in the Department during most of 2012. Prof. Mapaure continued his duties as UNAM's Research Coordinator. Dr. Chimwamurombe was appointed as deputy director of the School of Post-graduate Studies and Ms. P. Muandingi was appointed as Manager of ZERI in addition to their responsibilities in the Department.

### **Staff names, positions and gender**

#### *Full-time academic staff:*

	<b>NAME</b>	<b>POSITION</b>	<b>GENDER</b>	<b>Left or joined department</b>
1	Dr. E. Julies	Lecturer & Head of Department	Female	
2	Dr E. Kwembeya	Senior Lecturer	Male	Joined 1 September
3	Dr J.K.E. Mfunne	Senior Lecturer	Male	
4	Prof. I. Mapaure	Associate Professor	Male	
5	Dr P.M. Chimwamurombe	Senior Lecturer	Male	
6	Dr. R. Bock	Lecturer	Male	
7	Dr N. Shiponeni	Lecturer	Female	Left 1 April
8	Mr B. Kaonjua	Lecturer	Male	
9	Mr K.C. Chinsembu	Lecturer	Male	

10	Mr A.K. Faul	Lecturer	Male	Left 31 December
11	Mr V.M. Haakuria	Lecturer	Male	Left 1 August
12	Ms W.C. Mukaru	Lecturer	Female	
13	Mr. H. Eiman	Lecturer	Male	
14	Mr. M. Hedimbi	Lecturer	Male	Left 1 July
15	Ms. C. Deelie	Assistant-Lecturer	Female	
16	Mr. A. du Plessis	Assistant-Lecturer	Male	
17	Ms R. Shifa	Tutor	Female	Joined 1 October
18	Mr. S. Eiseb	Lecturer	Male	Joined 15 November
19	Ms. F. Kangombe	Lecturer	Female	Joined 1 October
20	Mr. J.D. Uzabakahiro	Lecturer	Male	1 October

***Technical staff:***

	<b>NAME</b>	<b>POSITION</b>	<b>GENDER</b>	<b>STATUS</b>
1	Mr J-D. Uzabakiriho	Technologist	Male	Appointed as lecturer on 1 October
2	Mrs M. Morkel	Technologist	Female	Study leave
3	Mr A. Hijarunguru	Technologist	Male	
4	Ms. M. Johnson	Technologist	Female	
5	Mr A. Mbangu	Technologist	Male	
6	Mrs R. Shimwooshili	Assistant Laboratory Technician	Female	
7	Ms. J. Hoveka	Technologist	Female	Part-time

8	Ms. J. Sheehama	Technologist	Female	Part-time
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### ***Detailed staff statistics***

- i. Total number of full-time staff at the end of 2012 = 21
- ii. Ratio of female to male staff = 8:13
- iii. Number of Namibians = 15; Number of Non-Namibians = 6; % Namibians = 71.4%
- iv. Number of Resignations: 4
- v. Number of new Appointments = 4
- vi. Number of Promotions = 1
- vii. Number on study leave = 1

### ***Research and Consultancies***

#### **Prof. Mapaure**

- Assessing the effect of herding on livestock performance in semi-arid communal rangelands in South Africa and Namibia. Period: 2012-2014. Funded by Ministry of Education, Namibia Participating Researchers are Mrs W.C. Nesongano (Department Biological Sciences-UNAM), Dr F.P. Graz (MRC-UNAM); with South African collaborators from ARC and UWC (RSA).
- Understanding the dynamics of arid savanna ecosystems experiencing various disturbance regimes in highland biomes of central Namibia: Implications for local management for economics and conservation objectives. Period: 2011-2013. Funded by UNAM Research & Publications. Participating researchers Mrs W.C. Nesongano (Department Biological Sciences-UNAM), Dr. N. Shiponeni (MRC-UNAM), Ms M. Johnson (Department Biological Sciences-UNAM).
- Population dynamics of *Moringa ovalifolia*: Population structure, recruitment and reproductive vigor in different habitats Period 2011-2013. Funded by UNAM Research & Publications Office. Participating researchers are Dr. N. Shiponeni (MRC-UNAM), Ms M. Johnson (Department Biological Sciences-UNAM), Dr E.G. Kwembeya (Department Biological Sciences-UNAM).

- Rainfall and herbivory: characterizing the transmission route for anthrax in grazing wildlife, Etosha National Park. 2011-2014. Funded by National Science Foundation (NSF) USA. Participating researchers Dr W. Turner, Prof. Nils Chr. Stenseth
- The combined use of groundwater, honey bees and soil in the assessment of climate change and adaptation strategies among communities of the Omusati, Oshana-Namaland, Okavango and Caprivi Regions of Namibia. Period: 2011-2014. Funded by Ministry of Education, Namibia, and UNAM Research & Publications Office. Participating researchers Dr B.S. Mapani (Department of Geology – UNAM), Dr. Jodie Ann Miller (University of Stellenbosch), Dr. Marta Mileusnic, Dr P.M. Chimwamurombe (Department of Biological Sciences- UNAM), Mr I.K. Kaholongongo (Department of Biological Sciences- UNAM)

#### **Dr. Shiponeni**

- Population dynamics of an endemic tree species, *Moringa ovalifolia* Dinter & Berger. Period: from March 2011. Funded by UNAM Research & Publications. Participating researchers in the department is Prof. I. Mapaure
- Estimation of biomass production in the rangelands of the Caprivi Region. 2010-2011. Funded by UNAM Research & Publications.
- Mined Substrate Rehabilitation Solutions. Period: 2011-2013. AngloGold Ashanti – Navachab Mine. Field trip was conducted to work out research approach, logistics with the mine, and to refine research questions.
- Vegetation changes in ‘Lake’ Liambezi floodplains –application of Remotely sensed data. Period: 2011. DAAD funded. 2 Month-stay in Germany to carry out data analysis
- Assessments and monitoring ecological changes in ‘Lake’ Liambezi floodplains. SASSCAL -RSSC-call for proposals (Southern African Science Service Centre for Climate Change and Adaptive Land Use - a Regional Science Service Centre in Southern Africa). Pre-proposal accepted and revised proposal submitted for funding consideration.

**Dr. Chimwamurombe**

- Indigenous Ganoderma value addition through cultivation, harvesting and processing: Empowering society through innovative science and technology (IGC-ESTIST) CPP/UNEP/GEF. Period: 2009-2011. Funding by CPP/UNEP/GEF.

**Cultivation of Marama Bean: A new crop for Cash and Sustainable Land Management (COMB-CSLM). Period: 2009-2011. Funding by CPP/UNEP/GEF**

- Domestication of Marama bean: Agronomy and molecular genetic characterization for its improvement. Period 2010-2013. Funding by Kirkhouse Trust
- Increasing Community Awareness And Utilization Of Indigenous Grains To Improve Nutrition Security And Livelihoods In Botswana And Namibia. Period: 2011-2013. Funding by SIDA-Sweden.
- The future Okavango Project. Period: 2011-2014. Funding by BMBF, Germany.
- Development of Marama bean cultivars with desirable agronomic traits using Mutation Breeding. Period: 2011-2012. UNAM RPC.

**Mr. Chinsembu**

- Validation of traditional medicines for treatment of HIV/AIDS in Namibia 2008 to date UNAM, NEPAD SANBio. In collaboration with Mr. Hedimbi, Dr. Hans and others.

**Dr. Maass**

- Floral Biology of Hydnora. Funded through Unam RPC.

**Dr. Julies**

- Water quality. Funded through UNAM's RPC. In collaboration with Prof. Pool (University of Western Cape), Mr. J. Menge (Municipality of Windhoek) and Mr. A. Faul (UNAM)
- Presence of endocrine disrupting chemicals in surface water of Namibia. Joint funding from Ministry of Education and NRF, South Africa. In collaboration with Prof. Pool (University of Western Cape), Prof. Van Wyk (University of Stellenbosch), Mr. A. Faul (UNAM) and Mr. A. du Plessis (UNAM)
- SPACES Program. Research Cruise off the Namibian coast. Funded by the SPACES program.
- Formation of a Regional Centre of Expertise (RCE) in Environmental Education/Education for Sustainable Development. Funding partly through UNESCO and SADC REEP. Leading in the establishment of RCE are Dr. E. Julies UNAM), Mr. C. Lawrence (Municipality of Swakopmund), Mr. P. Shimalumba (NIED) and Dr. A. Wienecke (HRDC).
- Awareness of waste problems at UNAM in collaboration with the Ministry of Environment and Tourism, UNAM Natural Resources and Environmental Society (UNNRESS) and the SRC.

### **Dr. Mfunne**

- Emerging viruses in western and southern Africa: Molecular identification and characterization of rodent- and shrew-borne Hantaviruses and assessment of their public health potential. Period: from 2009. Funded through German Government under German-Africa Cooperation Projects in Infectology. In collaboration with Prof. D. Kruger, Dr L. Koivogui, Dr S. Mathee, Prof. W. Preiseir and Dr J. Meulen
- Impact of Tourism on Natural Resources in Etosha National Park and Human Wildlife Conflict along the Boundaries of the Park. Period: from 2009. Funded through MET (NDP3 funding) in collaboration with Ms M. Angula, Dr M. Hipondoka, Prof. I. Mapaure, Dr Graaz, and Ms Selma Lendelvo



- Eco-physiological responses of ungulates towards heat and drought in Namibian desert. In collaboration with Leibniz Institute for Zoo and Wildlife Research, Berlin, Germany: Dr C. Voigt and David Lehmann. Period: 2010-2013.
- Assessment of the effects of variation in vegetation structure due to bush encroachment on the species composition and diversity of small mammals and ground-dwelling invertebrates at selected sites in Omaheke Region.

#### **Mr. Faul**

- Water Quality Assessment of Important Water Sources in Namibia. Funded through UNAM's RPC. Period: 2010-2011. In collaboration with Dr. E Julies.
- The development and implementation of biomarker assays to monitor environmental water. Funded through South Africa / Namibia Joint Science and Technology Research Agreement – via the Ministry of Education. Period: 2011 - 2012. In collaboration with Prof E. Pool (University of Western Cape/South Africa) and Dr. E Julies (UNAM)

#### **Mr. Hedimbi**

- A survey of indigenous plants that are used to treat malaria and ailments with symptoms similar to those of malaria in Otjikoto and Ohangwena region, Namibia. Funded through UNAM's Multidisciplinary Research Center. In collaboration with Dr. Renate Hans, Dr. Davis Mumbengegwi and Dr. Ronnie Bock
- Evaluation of Namibian plants as sources of potential anti-malaria products. Funded through UNAM's RPC. In collaboration with Dr. Renate Hans, Dr. Davis Mumbengegwi and Dr. Ronnie Bock

#### **Dr. Bock**

- MRC Pharmaceuticals programme. Funded through UNAM's RPC, MRC and Ministry of Education. Further funding to be solicited. In collaboration with Dr. D. Mumbengegwi, Prof. E. Kiremire and Dr. H. MuAshekele

- Applying Molecular Techniques to Interventions against the Major Poverty Related Diseases (HIV, TB and Malaria) for Improving Disease Control. African Regional Co-operation Agreement (AFRA) project; International Atomic Energy Agency. Project Proposal accepted under the African Regional Co-operation Agreement (AFRA) Project Code: RAF/6/040 Project supports predominantly Technical Assistance and Capacity building. In collaboration with Dr. D. Mumbengegwi
- MRC IKS Programme lead by Dr. A. Cheikhyousef. Funded through UNAM's RPC, MRC and Ministry of Education. Further funding to be solicited. Also in collaboration with Dr. E. Naomab and others
- A study on the relationship between nutritional status and clinical outcomes of malaria in order to strengthen interventions for the elimination of the disease in Namibia. Project Concept accepted by IAEA NAM2010003 IAEA. In collaboration with Dr. D. Mumbengegwi, Mr. S. Katokele, Dr. P. Uusiku and Ms. M. van Wyk (MoHSS), Ms. C. Keyter (UNAM) and others.
- Southern African Research Network for Roll Back Malaria (SARN): Malaria Operational Research. Funded through WHO, SADC, MoHSS. In collaboration with Dr. D. Mumbengegwi, Dr. P. Uusiku, Mr. H. Angula, Mr. S. Katokele, Ms. C. Narib, Dr. B. Noden, WHO and others.

**Ms. Nailoke Pauline Kadhila-Muandingi**

- Assessment of the effects of variation in vegetation structure due to bush encroachment on the species composition and diversity of small mammals and ground dwelling invertebrates at selected sites in the Omaheke Region. Period: 2011-2012. Funded by UNAM RPC.

**Ms. W.C. Mukaru**

- Understanding the dynamics of arid savanna ecosystems experiencing various disturbance regimes in highland biomes of central Namibia: Implications for local

management for economic and conservation objectives. Period: 2011-2012.  
Funded by UNAM RPC.

**Mr. A. du Plessis**

- Heavy metals and their endocrine disrupting potential in surface water sources of Namibia. Period: 2011-2012. Funded by Ministry of Education.

**Mr. B. Kaonjua**

- Comparing embryonic development between indigenous and genetically engineered chickens. Period: from 2011. Namibia Chicken Breeding Society.
- Isolation and characterization of desert bacteria. Period: From 2010. Not funded.
- Molecular analysis of drug resistance genes. Period: From 2010. Funded by EU – F7 for Poverty Related Diseases.

***Papers published, submitted or presented at workshops/conferences***

**Refereed journal articles**

- Cheikhyoussef, A., Mapaure, I. and Shapi, M. (2011). The use of some indigenous plants for medicinal and other purposes by local communities in Namibia with emphasis on Oshikoto Region: A Review. *Research Journal of Medicinal Plants* 5(4): 406-419.
- Chimwamurombe PM. 2011. Domestication of [*Tylosema esculentum* (Burchell) Schreiber] (Marama bean): a work in progress in Namibia *Bioscience Biotechnology Research Asia* 8(2): 723-730
- Chinsembu K.C., Marius Hedimbi and Wellencia C. Mukaru. (2011). Putative medicinal properties of plants from Kavango region, Namibia. *Journal of Medicinal Plant Research* 5(31), 6787-6797
- Chinsembu, K.C., Shomwooshili-Shaimemanya, C., Kasanda, C.D. & Zealand, D. (2011). Indigenous knowledge of HIV/AIDS among High School students in Namibia. *Journal of Ethnobiology and Ethnomedicine* 2011, 7: 17  
doi:10.1186/1746-4269-7-17

- Chinsembu, K.C., Kasanda, C.D. & Shomwooshili-Shaimemanya, C. (2011). Prevalence, distribution and behavioural determinants of coital activity among High School students in Namibia: a cross-sectional study. *Journal of Public Health and Epidemiology* 3(6): 308-316
- Chinsembu, K.C., Kasanda, C.D. & Shomwooshili-Shaimemanya, C. (2011). Impacts of HIV/AIDS on secondary school science teachers and learners in Namibia. *Journal of Public Health and Epidemiology* 3(11): 540-549
- Chinsembu, K.C., Kasanda, C.D., Shomwooshili-Shaimemanya, C. & Zealand, D. (2011). Analysis of coital activity, number of sexual partners, and non-use of condoms among Namibian High School students: implications for the ABC approach. *Journal of AIDS and HIV Research* 3(11): 203-216
- Garas SL, Uzabakiriho JD and Chimwamurombe PM. Isolation and identification of fungal species associated with gall formation on *Acacia mellifera* in the western Windhoek. (*Journal of Pure and Applied Microbiology* , Accepted)
- Hedimbi M., Godwin P. Kaaya and Kazhila C. Chinsembu. (2011). Mortalities induced by entomopathogenic fungus *Metarhizium anisopliae* to different ticks of economic importance using two formulations. *International Research Journal of Microbiology* 2(4), 141-145.
- Hedimbi M. and Godwin P. Kaaya. (2011). Pathogenicity of entomopathogenic fungi to ticks: An analysis. Lambert Academic Publishing.
- Hedimbi M., Diana K. Kaputjaza, Renate H. Hans, Davis R. Mumbengegwi, Ronnie Böck. (2011). Phytochemical analysis and antimicrobial screening of *Pechuel-Loeschea leubnitziae* (Kuntze) O. Hoffm. (Asteraceae) crude extracts. *Journal of Research in Microbes*. Accepted.
- Hedimbi M., Ebba Ndeuyeka and Kazhila C. Chinsembu. (2011). Effects of sunscreens on germination of fungi *Metarhizium anisopliae* with a view to enhance conidia survival under field conditions. *Journal of Microbiology and Antimicrobials* 3(9), 248-253.
- Hedimbi M., Godwin P. Kaaya, Michael Samish, Galina Gindin and Itamar Glazer. (2011). Pathogenicity of the entomopathogenic fungus *Metarhizium*

- anisopliae* to the red-legged tick, *Rhipicephalus evertsi evertsi*. *Journal of Entomology and Nematology* 3(7), 68-72.
- Ilonga SK and Chimwamurombe PM 2011. Molecular identification of a fungus associated with galls formation on *Ficus cordata* in the Otavi Mountains of Namibia." *Bioscience Biotechnology Research Asia* 8(2):200-205
  - Kaaya GP, Samish M, Hedimbi M, Gindin G and Glazer I. (2011). Control of tick populations by spraying *Metarhizium anisopliae* conidia on cattle under field conditions. *Experimental and applied acarology* 55(3), 273–281.
  - Kadhila-Muandingi N. P. (2011). *Ganoderma Mushrooms: Uses in Namibia*. Lambert Academic Publishing: Germany
  - Kadhila-Muandingi, N. P., Kaaya, G. P., Lotfy, H. R., and Mshigeni, K. E. (2011): Determination of optimum seaweed concentration for mushroom cultivation and the ability of mushrooms to absorb iodine. Accepted for publication by the African Journal of Agricultural Research.
  - Kadhila-Muandingi, N. P. and Mubiana F. S. (2009): *Mushroom Cultivation: A Beginners Guide*. ZERI/University of Namibia
  - Kido LR, Uzabakiriho JD and Chimwamurombe PM. 2011. Isolation and identification of pathogenic fungi associated with *Aloe zebrina* flower malformation. (*Journal of Pure and Applied Microbiology*; Accepted).
  - Lotfy, H. R., Kadhila-Muandingi N. P. and Eises, E O. (2010). Bioremediation using the species *Pleurotus ostreatus*. *Journal of Environmental Sciences: Vol.39, no.3.S*
  - Nashidengo E, Uzabakiriho JD and Chimwamurombe PM Fungi associated with bizarre gall formations on *Acacia reficiens* in the Numas river area in Namibia. *Journal of Pure and Applied Microbiology* 5(2): 617-621
  - Kaholongo I.K. and Mapaure I. (in prep). Environmental determinants of diversity, composition and structure of the vegetation of Uukolonkadhi Community Forest, north western Namibia. (Submitted, *Namibia Development Journal*).
  - Kamwi, R. M., Mfunne, J.K., Jonazi, J, and Kaaya, G.K. (In Press) seasonal variation in the prevalence of malaria and vector species in northern Namibia.

Journal of Entomology and Nematology. Paper has been reviewed and is being revised by the authors for publication.

- Mapaure, I., Chimwamurombe, P.M., Mapani, B.S. & Kamona, F.A. (2011). Impacts of mine dump pollution on plant species diversity, composition and structure of a semi-arid savanna in Namibia. *African Journal of Range & Forage Science* 28(3): 149-154
- Mapaure, I. and Ndeinoma A. (2011). Impacts of local-level utilization pressure on the structure of mopane woodlands in Omusati Region, northern Namibia. *African Journal of Plant Sciences* 5 (4): 305-313.
- Mapaure, I. (2011). I: Climate change in Namibia: Projected trends and effects. Chapter 11: Climate Change by Mapaure, I., Ruppel, O.C. & von Bassewitz, N. In: Ruppel, O.C. and Ruppel-Schlichting (Eds). *Environmental Law and Policy in Namibia*. Co-published by Orumbonde Press. & Welwitschia Verlag Dr. A. Eckl, Essen. Pages 289-307.
- Mapaure I, PM Chimwamurombe, BS Mapani and FA Kamona. 2011. Impacts of mine dump pollution on plant species diversity, composition and structure of a semiarid savanna in Namibia. *African Journal of Range & Forage Science* 28(3): 149–154
- Mukaru, W. C., 2011. Impacts of large herbivores on vegetation and soils around water points: Waterberg Plateau Park, central Namibia. Lambert Academic Publishing
- Ndeinoma, A., Gondo, T. and Mapaure, I. (in prep). Institutional arrangements for community forestry in mopane woodlands in Omusati Region in Namibia. (Submitted, *Namibia Development Journal*).
- Shiponeni, N.N., Allsopp, N., Carrick, P.J, and Hoffman, MT. 2011. Competitive interactions between grass and succulent shrubs at the ecotone between an arid grassland and succulent shrubland in the Karoo. *Plant Ecology*, 212:795–808.
- Uzabakiriho JD, Martin PL and Chimwamurombe PM. Molecular identification of leaf endophytic fungi affecting marama bean leaves in Otjiwarongo area of Namibia. (*Journal of Pure and Applied Microbiology* , Accepted).

## Published conference proceedings and Conference papers delivered

- Chinsembu, K.C. (2011). Regional survey: how communities identify benefits, and how are they going to benefit? Paper presented at the Traditional knowledge and indigenous natural products policy workshop, funded by SABINA/POL-SABINA and the University of Namibia, 27 October 2011, Safari Hotel, Windhoek, Namibia.
- Chinsembu, K.C. (2011). Quantitative data analysis strategies. Paper presented at the University of Namibia (UNAM) workshop on Postgraduate Studies Programmes, Teaching, Research and Student Supervision, 21-22 September, 2011, GZ Function centre, Windhoek, Namibia
- Chinsembu, K.C. & Hedimbi, M. (2011). Towards indigenous antiretroviral drugs for HIV/AIDS treatment in Namibia. Paper presented at the Indigenous Knowledge Systems (IKS) conference, 25<sup>th</sup> March, 2011, UNAM Library, Windhoek, Namibia.
- Chinsembu, K.C. & Kasanda, C.D. (2011). HIV/AIDS risk factors among secondary school Life Science and Biology learners in Namibia. Paper presented at the 19<sup>th</sup> Southern African Association of Research in Mathematics, Science and Technology Education (SAARMSTE) regional conference, North-West University, South Africa, 17-22 January 2011.
- Chinsembu, K.C. (2011). A multiple perspective approach for Education for Sustainable Development and water. Paper presented at the UNESCO workshop to pilot the tool-kit for Multiple Perspective Approach for Education for Sustainable Development and water. Habitat research centre, Katutura, Windhoek, 16<sup>th</sup> September 2011
- Du Preez, I., Mumbengegwi, D. & **Böck, R.** (2011). Anti-plasmodial properties of Indigenous Namibian plants and their potential use as complementary medicines for malaria in a pre-elimination setting. *Proceedings of the American Society of Tropical Medicine and Hygiene (ASTMH) 60<sup>th</sup> Annual Conference 2011*, Philadelphia, USA
- Faul, A.K., Julies, E., & Pool, E.J. Endocrine disrupting potential of water from the Gammams sewage treatment plant and Goreangab water reclamation plant in

- Windhoek, Namibia. 15<sup>th</sup> International Symposium on Toxicity Assessment, Hong Kong, 3-8 July 2011.
- Kaaya G. P., Mshigeni, K. E., Kadhila-Muandingi, P. N. and Lotfy, H. R. *{Optimum concentrations of seaweed in mushroom cultivation substrates and absorption of iodine by mushroom}*, 13th Agricultural scientific society of Namibia (Agrission) congress. Climate change and food security challenges in sub-Saharan Africa
  - Mapaire, I., Graz, F.P. and Ihula, R. (2011). Changes in vegetation composition, richness and diversity mediated by large herbivores along a distance-gradient at selected water points in Etosha National Park, Namibia. Paper presented at the 46<sup>th</sup> Congress of the Grassland Society of Southern Africa (GSSA), Grootfontein Agricultural College, Middelburg, South Africa; 11-15 July, 2011.
  - Mukakalisa C, Mapaire I and Kandawa-Schulz M. (2011). Environmental and Nutritional Evaluation of Bambara groundnut (*Vigna subterranea* (L.) Verdc.) for food production in Namibia. Poster presented at the 2nd International Symposium on Under utilised plant species. Theme was Crops for the Future: Beyond Food security, held in Kuala Lumpur, Malaysia. 27th June to 1st July 2011
  - Mukaru, W.C. and Mapaire, I. (2011). Impacts of large herbivores on vegetation structure, composition and diversity around water points in Waterberg Plateau Park, central Namibia. Paper presented at the 46<sup>th</sup> Congress of the Grassland Society of Southern Africa (GSSA), Grootfontein Agricultural College, Middelburg, South Africa; 11-15 July, 2011.
  - Hedimbi M. (2011). The potential of entomopathogenic fungus, *Metarhizium anisopliae*, as a bio-control agent of agricultural pests. 3<sup>rd</sup> Biopesticide International Conference, Crop protection Research Center, Manonmaniam Sundaranar University, Tamil Nadu, India. 28-30 November 2011

### **Study Guides and Training Manuals**

Julies, E, & Faul, A.K. 2011. Environmental Biology for Educators. Centre for External Studies, UNAM.



Eiman H. 2011. Study guide for CES. Module Cell Molecular Biology, Microbiology and Genetics for Educators

*Undergraduate teaching, student statistics and pass rates*

<b>YEAR</b>	<b>MODULE</b>	<b>TOTAL NUMBER OF STUDENTS</b>	<b>PASS RATE (%)</b>
I	BLG3411 Introduction to Biology	507	46.7
	BLG3512 Diversity of Life	473	44.2
	<i>Mean pass rate 1<sup>st</sup> Year</i>		<b>45.5</b>
II	BLG3611 Animal Form & Function	197	88
	EBL3631 Introduction to Ecology	27	100
	MBL3631 Cell Molecular Biology & Genetics	123	75
	BLG3612 Plant Form & Function	191	90.6
	EBL3632 Ecological Field Techniques	23	82.6
	MBL3632 Introduction to Microbiology	121	79.3
	MBL3652 Human Biology	100	92
	<i>Mean pass rate 2<sup>nd</sup> Year</i>		<b>86.8</b>
III	EBL3731 Population Ecology	18	100
	EBL3700 Field Ecology I	17	82.4
	EBL3711 Fresh water & Marine Ecology	16	93.8
	MBL3711 Microbiology	31	96.8
	MBL3731 Recombinant DNA Technology	60	47
	MBL3751 Plant Physiology	96	48.9
	MBE3771 Cell Molecular Biology, Microbiology and Genetics for Educators	38	97.4

	EBL3732 Conservation Biology & Biodiversity	16	100
	EBL3712 Ecosystem Ecology	14	100
	EBE3772 Environmental Biology for Educators	42	85.7
	MBL3752 Comparative Animal Physiology	83	83.1
	BLG3702 Research Methodology	50	98
	MBL3712 Biotechnology	74	64
	MBL3732 Genetics	56	94.6
	<b><i>Mean pass rate 3<sup>rd</sup> Year</i></b>		<b>85.1</b>
IV	EBL3800 Field Ecology II	9	100
	BLG3810 Research Project	41	97.6
	EBL3811 Environmental Management	8	87.5
	EBL3831 Biosystematics	9	77.8
	EBL3851 Biogeography	7	85.7
	MBL3811 Immunology	34	94.1
	MBL3831 Applied Molecular Biology	35	70
	MIC3811 Mycology	38	78.9
	MOL3811 Bioinformatics	2	100
	MIC3802 Parasitology	36	88.9
	EBL3802 Disturbance and Restoration Ecology	6	83.3
	EBL3832 Management of Natural Resources	11	63.6
	EBL3812 Behavioural Ecology	7	100
	MIC3822 Medical Microbiology	29	100
	MIC3812 Environmental and Industrial Microbiology	29	77
	MIC3832 Virology	28	96.4
	MOL3812 Applied Genetics	1	100

	MOL3832 Plant Growth and Development	41	97.5
	MOL3852 Animal Growth and Development	2	100
	<i>Mean pass rate 4<sup>th</sup> Year</i>		<b>89.4</b>
	<b><i>OVERALL MEAN FOR DEPARTMENT</i></b>		<b>76.7</b>

## Postgraduate Supervision

### PhD Students

- **Catherine Amoo:** A study of the apparent immunity to malaria of the San people in the Oshikoto Region of Namibia. [Dr. Bock: Co-supervisor]
- **Devota Kavishe:** An ecological study of selected *Porphyra capensis* populations from the Namibian coast. [Prof. Mapaure: Main supervisor]
- **Sydney Chikukwa:** Developing a guide for baseline *Salmonella* agglutinin titres according to age, gender and HIV status in patients attending at hospitals in northern Namibia. [Dr. Chimwamurombe: Co-supervisor]. Proposal accepted.
- **Renatus Peter Shilangale:** Prevalence, Serotype And Antimicrobial Resistance Pattern Of *Salmonella* Spp. in Namibia's Abattoirs. [Dr. Chimwamurombe: Main-supervisor]. Proposal accepted.
- **Emmanuel Nepolo:** Molecular characterization of *Tylosema esculentum* starch biosynthesis and related aspects. [Dr. Chimwamurombe: Main-supervisor]. Proposal accepted.
- **Mutsa Takundwa:** Breeding for reduction of reproductive life cycle in *Tylosema esculentum*. [Dr. Chimwamurombe: Main-supervisor]. Proposal accepted.
- **Charline Kamburona:** Phylogenetic characterization of devil's claw (*Harpagophytum procumbens* and *Harpagophytum zeyheri*) in Namibia. [Dr. Chimwamurombe: Co-supervisor].
- **Jean-Damascene Uzabakiriho:** Analysis of microbial community structures and their nifh gene expression in *Tylosema esculentum* (marama bean) endophytic diazotroph bacteria. [Dr. Chimwamurombe: Main-supervisor]. Proposal accepted.
- **Hedimbi M.** Evaluation of selected Namibian plants for anti-HIV properties. [Dr. K. Chinsebu: Main Supervisor] Proposal submitted.

## MSc Students

- **Tabitha Ndumba:** Impact of mine pollution on composition, diversity and structure of plant and ground dwelling invertebrates' communities around Otjihase mine. (Prof. Mapaure: Main supervisor)
- **Mandene Morkel:** Diversity, structure and dynamics of *Acacia erioloba* woodlands in the Windhoek area: insights for the management of urban habitats. (Prof. Mapaure: Main supervisor)
- **Carolyn T:** Biodiversity in metropolis – plant diversity, management and social integration issues of community based urban agriculture projects: case studies in the city of Windhoek, Namibia and Berlin, Germany.
- **Julia Hoveka:** Molecular identification and characterization of rodent- and shrew-borne hantaviruses and other viruses and the prevalence of ecto- and endo-parasites on small mammals in selected areas in Namibia. [Dr. Mfuno: Main supervisor and Dr. Chimwamurombe: co-supervisor]
- **Claudine Cloete:** How soil type affects the distribution of infectious sites and the incidence of elephant (*Loxodonta africana*) mortalities due to anthrax in Etosha national park. [Dr. Mfuno: Main supervisor]
- **Josephine Iipinge:** Waste Management in Etosha National Park, the case of Okaukuejo. [Dr. Mfuno: Main Supervisor]. This student is registered with the University of Free State, South Africa.
- **Gottlieb Aikukutu:** Application of Nucleic Acid Diagnostics in clinical Chemistry for early Detection of Bovine Campylobacteriosis in Namibia. [Dr. Bock: Main supervisor]
- **Iwanette du Preez:** In vitro assessment of antimalarial activity of medicinal plants used by traditional healers for the potential treatment of malaria. [Dr. Bock: Co-supervisor]. Proposal accepted.
- **Josefina N. Nelongo:** Evaluation of the usefulness of the quantiferon TB gold in-tube test in the diagnosis of tuberculosis disease and as a tool for evaluating the response to tuberculosis chemotherapy in Namibian patients. [Dr. Bock: Co-supervisor] In progress.

- **Laimy Shikongo:** Analysis Of The Biologically Active Compounds In The Namibian Ganoderma isolates. [Dr. Chimwamurombe: Main supervisor]. Proposal accepted.
- **Lempie Ekandjo:** Genetic diversity of Ganoderma lucidum in North Eastern Namibia. [Dr. Chimwamurombe: Main supervisor]. Proposal accepted.
- **Margret Mkandawire:** The effect of bush encroachment on the species composition, diversity and abundance of ground-dwelling invertebrates in Omaheke region, Namibia. [Dr. J. Mfuno: Main supervisor] Research Proposal drafted and submitted to Postgraduate Committee. Data collection started December, 2011
- **Nanguai Karuaera:** Assessing effects of bush encroachment on the species abundance, diversity and composition of small mammals in Khomas Region. Completed and defended thesis Feb. 2011, Graduated May 2011 [Dr. J. Mfuno: Main supervisor]
- **Ndina-Tate Imasiku:** Seasonal variation in species diversity and composition of small mammals in selected vegetation types of Etosha National Park. Completed and defended thesis Feb. 2011, Graduated May 2011 [Dr. J. Mfuno: Main supervisor]
- **Oscar Mulonda:** Estimation of biomass production in the rangelands of the Caprivi Region. [Dr. N. Shiponeni: Main supervisor] Thesis passed
- **Rauna Hamukwaya:** Investigations on type of humoral immunity against anthrax in predators and scavengers in Namibia. [Dr. Chimwamurombe: Main supervisor]. Proposal accepted.
- **Sylvia Nafuka:** Bioassay Guided Fractionation of Medicinal Plants in Namibia for potential Anti-plasmodial Compounds. [Dr. Bock: co-supervisor] Proposal stage
- **Tabitha Dumba:** Impact of mining and processing waste on plant species structure and diversity and on composition and abundance of ground dwelling invertebrates on selected sites on Otihijase copper mine Namibia. [Dr. J. Mfuno: Co-supervisor] Research Proposal drafted and submitted to Postgraduate Committee

- **Zepee Havarua:** Seasonal foraging behavior of the plain zebra (*Equus quagga*) and the african elephant (*Loxodonta africana*) and occurrence of anthrax in Etosha National Park. [Dr. J. Mfuno: Main supervisor]. Completed and defended thesis in November 2011, To graduate in May 2012

## **Prof. I. Mapaure**

### UNAM Service

- Active member of the PVC Academic Forum.
- Active member of Academic Planning Committee.
- Active member of the Research & Publications Committee.
- Active member of the UNAM Senate.
- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.
- Member of a UNAM Audit Task Force mandated to audit Centres and Units at the university.
- A member of the Committee of Admission & Examinations for the MSc Biodiversity Management & Research.
- Research Coordinator for the University of Namibia.
- Member of the UNAM Book Store Task Group.
- Member of the Teaching & Learning Improvement Unit Advisory Committee.
- Chairperson of the UNAM Task Force on Research Ethics.
- Member of the UNAM Institutional review Board (IRB).
- Board Member of the Multidisciplinary Research Centre (MRC).
- Active member of the UNAM Press Committee
- Active member of the Advisory Committee of the Scholarly Communication in Africa Programme (SCAP).
- Active member the Editorial Board of the Journal for Studies in Humanities & Social Studies (UNAM).
- Active member of the UNAM Senate

## External Service

- Representing the University on the Southern African Research & Innovation Management Association (SARIMA).
- Representing the University on the Southern African Nordic Centre (SANORD) Conference and Council Meeting.
- Represented the University on the Southern African Regional Universities Association (SARUA) Programme for Climate Change Capacity Development across the SADC Higher Education Sector.
- Representing the University on the Technical Advisory Committee of the RESSESA of the Organisation for Social Science Research in Eastern and Southern Africa (OSSREA).
- January 2011: External examiner for Doctor of Philosophy Thesis (Mr Lota Lesoli), Faculty of Agriculture, University of Fort Hare, South Africa.
- March 2011: External examiner for Doctor of Philosophy Thesis (Mr Cuthbert Katsvanga), Department of Environmental Science, Bindura University of Science Education, Zimbabwe.
- External examiner for the Department of Nature Conservation, Polytechnic of Namibia
- External examiner for the Department of Environmental Science, Bindura University of Science Education, Zimbabwe.
- Member of a number of Professional bodies including the Degradation Network, AFRIFIRENET (African Fire Research Network), Southern African Mopane Research Association (SAMRA), Biodiversity Foundation for Africa (BFA), Association for the Taxonomic Study of the Flora of Tropical Africa (AETFAT), Grassland Society of Southern Africa, Namibia Environment & Wildlife Society (NEWS) and the Botanical Society of Namibia (BOTSOC); Society for Conservation Biology; International Association of Wildland Fire; Environmental Research Web; Southern African Research & Innovation Management Association (SARIMA); Leadership for Environment and Development (LEAD); Ecological Society of America.

- I regularly review articles submitted for publication in *Environmental Conservation* journal, *Dinteria*, *African Journal of Range & Forage Science*, *Africa Journal of Ecology*, *African Journal of Plant Science*, RAEIN Africa, IUCN, SARDC (Harare). Also reviewed few book chapters and Research Proposals submitted to various organizations (e.g. International Foundation for Science, Sweden).
- I represent the University on the Southern African Universities Association (SARUA).

### **Dr. Chimwamurombe**

#### UNAM Service

- Faculty Rep to CES Board.
- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.

#### External Service

- Member of the Interim Bioprospecting Council of Namibia.
- Kirkhouse Trust Marama Bean Project coordinator.
- Reviewer for African Journal of Agricultural Research.
- Executive secretary: African Society for Edible and Medicinal Mushrooms.
- Treasurer of the Agricultural Scientific Society of Namibia.
- IPTT Management committee

### **Dr. Mfunne**

#### UNAM Service

- Coordinator, MSc Biodiversity Management and Research Program, joint UNAM and Humboldt University Postgraduate training Programme.
- Member of the MSc Biodiversity management and Research Admissions and Examinations Committee
- Leader. MSc Biodiversity Management and Research Programme, curriculum Review.



- Acting HOD, Department of Biological Sciences, 20<sup>th</sup> August 2010 and 18-19 November 2010
- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.
- Seminar Coordinator, Department of Biological Sciences
- Faculty of Science Representative on the Faculty of Economics and Management Science Board. Since 2007 to present.

#### External Service

- Executive Committee Member of the Windhoek Adventist Clinic Committee. Instrumental in the establishment of the now running Windhoek Adventist health Clinic, the first and only SDA health Clinic in Namibia
- Vice Chairperson, Namibia Wildlife and Environment Society (NEWS).
- Reviewer appointed by the Country Pilot Partnership Program. Reviewed research proposals for Young Professional Research
- Member, INSAKA CONSORTIUM (University of Montana, USA, UNAM (MRC), University of Kwazulu Natal, RSA, University of Copperbelt, Zambia and Monash University).
- Team leader, Impact of Tourism on Natural Resources in Etosha National Park and Human Wildlife Conflict along the Boundaries of the Park research project. This is an NDP3 Implementation Project as assigned to MRC at UNAM in the NDP3.
- Vice Chairperson, Namibia Wildlife and Environment Society (NEWS).
- Member, Human Wildlife Conflict (HWC) Grant Review Committee (GRC) MCA Namibia

#### **Mr. Hedimbi**

##### UNAM Service

- Active member of the Faculty of Science committee for Fund Raising
- Member of faculty of Science Faculty award committee, University of Namibia 2011.

- Member of Science Faculty career fair committee, University of Namibia 2011.

#### External

- Reviewer of journal article: Antibiotic Activity of Bacterial Isolates Associated with Entomopathogenic Nematodes. *African Journal of Microbiology Research*. 2011.
- Reviewer of journal article: Selection of *Beauveria bassiana* strains against the two spotted spider mite, *Tetranychus urticae* Koch in laboratory and greenhouse trials. *African Journal of Microbiology Research*. 2011.
- Reviewer of journal article: Antioxidant and anti-HIV-1 protease (PR) activities of two Clusiaceae plants endemic to Tanzania. *International Journal of Biological and Chemical Sciences*. 2011.
- Reviewer of journal article: The Impact of the Pharmaceutical Regulations on the Quality of Medicines on the Sudanese Market: Importers' Perspective. *African Journal of Pharmacy and Pharmacological Research*. 2011.
- Reviewer of journal article: Review on Applications and Development Trends in Biopesticides. *African Journal of Biotechnology*. 2011

#### **Mr. Kaonjua**

##### UNAM Service

- Represented the Faculty of Science at the Faculty of Agriculture Board Meetings
- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.

##### External Service

- Seminar presentation about the life cycle of HIV at the National Institute of Pathology (NIP)
- Acted as a judge for science students projects presented at Augustineum High School

#### **Mr. Chinsebu**

#### UNAM service

- Chairperson, UNAM/NEPAD steering committee on validation of traditional medicines for HIV/AIDS treatment
- Active member of task force appointed by UNAM Management. Speech writing: requested by the UNAM Acting Vice-Chancellor to write the UNAM Chairperson of Council's statement for the 2010 Annual Report; and part of the graduation ceremony speeches.
- Active member of Faculty committee Military Sciences
- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.

#### External service

- Validation of traditional medicines for HIV/AIDS. Representative on National Organizing Committee
- Reviewer of journal articles -Public Health. African Journal of Microbiology
- Developer / presenter of radio programmes. Interviewed by the British Broadcasting Corporation (BBC) World Service radio programme (London) on why Africa has not produced a Nobel prize in science, 5<sup>th</sup> October 2011
- Developer / presenter of radio programmes Namibia Broadcasting Corporation TV programme on "The 50 by 15 HIV prevention movement and human rights discussion roundtable", panelist and television appearance, Windhoek country club, 21<sup>st</sup> March 2011.

#### **Mr. Faul**

##### UNAM Service

- Website Content Committee Member, Faculty of Science Representative and Contribute Manager
- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.

##### External Service

- Judge, St. Georges School Science Fair
- Reviewer for Namibia development Journal

### **Dr. Julies**

#### UNAM Service

- Active member of Faculty RPC committee
- Active member of Bursary and Award Committee
- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.
- Acting HOD for 1 week

#### External Service

- Executive member (treasurer) of the Namibian Environmental Education Network
- Secretariat of the Regional Center of Expertise: Khomas-Erongo Region
- Active member of the National task force for the year International Year of Biodiversity
- External Examiner of Phd thesis UWC
- External Examiner of MSc thesis UWC
- Judge at Science fair at the Windhoek International Schools (April 2011)
- Awareness of waste problems at UNAM in collaboration with the Ministry of Environment and Tourism, UNAM Natural Resources and Environmental Society (UNNRESS) and the SRC.

### **Dr. Shiponeni**

#### Internal Services

- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.

#### External Service

- Reviewed a journal articles, for the Journal of Arid Environment (JAE),

- External examiner for Ecology 1 and 2 modules for Polytechnic of Namibia

### **Ms. Mukaru**

#### UNAM Service

- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.
- Member of the MSc. Biodiversity Management and Research Examination Committee.
- Organizing UNAM workshop / seminar / launch (Part of the team of organizers for the international summer school hosted by the University of Namibia, Department of Biological Sciences, from the 24 to 28 October 2011.)

### **Dr. Bock**

#### UNAM Service

- Faculty of Science Committee of Facilities
- Chair of Department of Biological Sciences Committee on space
- Chairperson of Department Board
- Member Faculty of Science Management
- Member Faculty of Science Board
- Deputy Chair: Examination and Admissions Committee: MSc Biodiversity Management and Research Programme
- Member of the MSc. Biodiversity Management and Research Examination Committee.
- Member MRC Board
- Member of the University of Namibia Senate
- Member: UNAM PRESS
- Member UNAM Task Force for the Development of the PreVet Programme

## External Service

- Board Chairperson of TUCSIN
- Judge: Windhoek International School Science and Mathematics Fair

## Conclusions

We experienced an increase in student numbers in most of our modules, which is a result of our increase in student numbers in first year on an annual basis. Furthermore, the number of post-graduate students also increased in the Department. Despite the challenges of resources and equipment, physical space, a very high workload on staff members and ever increasing numbers of students, the Department continued to deliver a high quality service to both our students and the community at large as well as improved on research and publications output. The low pass rate in first year is evidence for the Department's call for more tutors, technicians and support staff in the Department. This low pass rate in first year is an issue of concern and will be made a priority in the Department to address in 2012.