



African Union



Southern Africa Network for Biosciences (SANBio)

SPECIAL EDITION

Celebrating four years of BioFISA 2009–12

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From the Director's Desk

In this special issue of the SANBio Newsletter which is dedicated to the events of the closure of BioFISA Programme, I have two addresses to give to you esteemed stakeholders and friends of SANBio; a short one and a long one. I don't know which one to give. But I have decided to give both. The short speech is, "Thank you". The long one is "Thank you, very much".

On a serious note, whatever success we have achieved in the past four years of BioFISA would not have been possible without the dedication and devotion of the various individuals and organisations. It is difficult for me to mention all by name but it will be remiss on my part if I did not at least mention you all in categories. Special tribute goes to the funders of BioFISA, the Department of Science and Technology of South Africa and the Ministry for Foreign Affairs of Finland. The management of NEPAD and the CSIR-Biosciences who are the host for the SANBio Hub and the SANBio Secretariat are also fully recognised and appreciated for their contributions. SANBio countries and their representatives, Node Coordinates, Principle

Investigators of the various projects and their organisations are also thanked. Let me also take the opportunity to thank most sincerely all those who made the BioFISA Closure events a big success. I would like to thank the members of the organising committee who worked so tirelessly to put the event together. All the keynote speakers and participants are thanked for coming in spite of their busy schedules. Special thanks to our international delegates from Finland, Kenya and the United States of America. A special vote of thanks goes to the BioFISA students and fellows and the adjudicators of the poster session who made the exhibition such a success. Lastly but not the least, the staff and management of Irene Country Lodge in Centurion are also much appreciated for the warm hospitality extended to all the conference participants.

As we exit BioFISA I and usher in BioFISA II, I wish each and everyone one of you God's Blessings and all the very best in your future endeavours.



MINISTRY FOR FOREIGN
AFFAIRS OF FINLAND



science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

Meet the BioFISA Conference Organising Committee Members



Prof. Luke Mumba



Ms. Manana Mashologu



Mr. Modikoe Patjana



Ms. Eeva Linnala



Ms. Victorine Bikie



Mr. Aki Enkenberg



Ms. Abiola Ajayi

OFFICIAL OPENING

KEYNOTE SPEECH BY:

H.E. Dr. Ibrahim Assane Mayaki, CEO, NEPAD Planning and Coordinating Agency (delivered on his behalf by his Special Assistant, Mr Abdoul Salaam Bello)

- The Director General of the Department of Science and Technology of the Republic of South Africa, Dr Phil Mjwara;
- The Representative of the Ministry for Foreign Affairs of Finland, Mr Jan Koivu;
- Chairman of the SANBio Steering Committee and & Pro-Vice Chancellor at University of Namibia, Prof Osmund Mwandemele;
- SANBio Network Director, Prof Luke Mumba;
- Senior government representatives from the SADC region and development partners present;
- Members of the Diplomatic corps;
- Distinguished invited Guests, Members of the Press, Ladies and Gentlemen.

Distinguished Conference delegates,

I am honoured and grateful for the opportunity to officially open the BioFISA Conference under the theme "Celebrating Four Years of BioFISA 2009-2012".

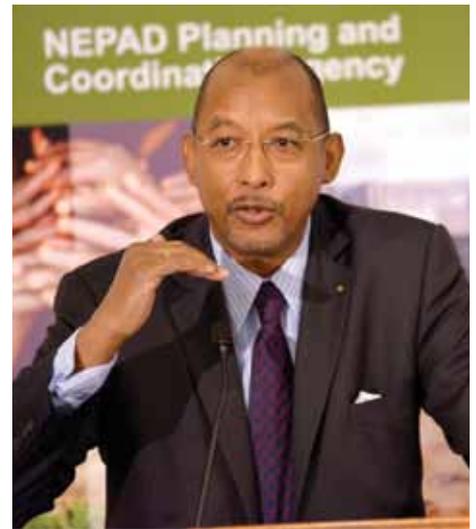
Before we proceed, I would like to pay tribute to a great leader whom Africa has lost, the Prime Minister Meles Zenawi of Ethiopia, who as you know passed away recently.

The late Prime Minister was a staunch believer in the NEPAD Vision and Agenda. We will miss his intellectual insights, strategic leadership and guidance as well as his demonstration of unwavering support for the NEPAD Agency and its mandate.

I request a minute of silence in his honour.

Ladies and Gentlemen,

I want to thank the SANBio Secretariat and the Governments of South Africa and Finland for putting together this international conference and for the commendable work of promoting



H.E. Dr. Ibrahim Mayaki

biosciences in the sub-region. Let me also extend NEPAD's greetings to all participants and I join other speakers before me in warmly welcome you all to this conference.

As you know, NEPAD is a technical programme of the African Union, with the mandate to facilitate and coordinate the implementation of continental and regional programmes and projects. From 2009 NEPAD in partnership with the governments of South Africa through the Department of Science and Technology (DST) and Finland through the Ministry for Foreign Affairs (MFA) has been financing the SANBio network. I would like to acknowledge the financial support from the two governments of about Euro 3.9 million which was used to support eight projects in the 12 countries of SANBio and for building capacity.

One of the biggest challenges to technology-based development in Africa is the lack of institutional capacity. However, we also realise that this lack is not always absolute. In many cases deficiencies in one country can be alleviated by expertise from another nearby country. Sometimes practitioners within the same country are not linked together. Therefore for

us in NEPAD, networking and partnerships are key. NEPAD views SANBio as a strategic virtue network in the provision of affordable and accessible shared biosciences facilities for the SADC region.

It is in this context that we welcome the support from DST and Finland through the BioFISA programme. BioFISA aims to build the capacity of countries in Southern Africa region in the area of biosciences and bring new products and services to the market in order to eradicate poverty and achieve sustainable development. This vision is in line with the vision of the AU and NEPAD.

Ladies and Gentlemen,

Let me now directly address the scientists: You have often been judged unfairly by society that you are not responsive to the needs and challenges that confront the community. It is also said that you do not demonstrate value for money in many of your research projects - your work ends up in mere publications and not products and services. I can vouch that this has not been the case under BioFISA. In its short period of time, BioFISA has demonstrated its relevance to the region and to the community in several ways. The SANBio network has been successful in establishing itself as a credible programme and can claim some achievements in the areas of human capital development, infrastructure development for STI and in research and development projects. For the next three days you will be provided information about the success stories from the 8 projects that have been implemented through BioFISA in the various countries in the SADC region. In the interest of time, I will just cite three brief examples stated in the SANBio progress reports provided through Prof Mumba

First, the Mushroom Farming Project

This project has improved the lives of more than 600 small-scale mushroom growers in Malawi, Namibia and Swaziland. Further, more than 100 Agriculture extension officers and researchers from Angola, Namibia, Malawi, Mozambique, Swaziland and Zambia have been trained in mushroom farming. Through reliable methods for producing mushroom seed (spawn), through training and facilitated marketing networks, mushroom production activities have improved in many communities in the region.

Second, Fisheries Project

Activities to enhance the livelihoods of small-scale and resource poor farmers were implemented during the period under review. Aquaculture and pond fish farming facilities were established in Dowa District, Malawi. The farmers have acquired the technical know-how to effectively grow fish using very simple techniques.

Third, Human Capital Development

With respect to human capital development, through BioFISA, SANBio network has in four years trained 30 PhD and MSc level scientists from the region with an appreciable increase in female research scientists.

Distinguished Ladies and Gentlemen,

It is these kinds of success stories that NEPAD and its partners should escalate in the entire sub-region and to other parts of the continent.

Clearly, in its short life span, the SANBio network has made big strides. We believe that the network has provided a good model for collaborative research projects in the sub-region and that this model needs to be supported and nurtured. SANBio provides a model that can be expanded and replicated to other regions on the continent.

I should also admit that the network was faced with challenges in certain areas such as slow buy-in from member states which impacted negatively on resource mobilisation for the network; integration of the network into the AU/NEPAD procedures and processes; realignment of SANBio Business Plan to the broader NEPAD agenda for Africa, (e.g. CAADP); and challenges of communication of the programme to the broader biosciences community in the region and in Africa as a whole.

The above notwithstanding, I have no doubt that the many lessons that have been learned during BioFISA Phase I, if taken forward, will help to build a formidable network for the future. It is in this connection that NEPAD welcomes the commitment of our two development partners (DST-SA and MFA of Finland) to support a second phase of the programme. We acknowledge the investment from the government and peoples of South Africa and Finland which has made it possible for SANBio to accomplish so much in such a short time.

I would also like to acknowledge the pivotal

contributions that have been made by the SANBio Steering Committee, BioFISA SC and the BioFISA Supervisory Board in guiding the "ship" over the years. The tremendous support from the member states, the Node-hosting institutions, the CSIR-hub and all the participating organisations in the region is also fully acknowledged and appreciated.

NEPAD remains committed to this tripod partnership between DST, Finland and NEPAD which has made SANBio a reality. Let me use this opportunity to invite other developing partners, national governments, Regional Economic Communities, private sector and NGOs to come to the party. Let us join hands to support SANBio. After all, NEPAD is about partnerships for Africa's development. We need to scale-up the success stories. It is only when we scale-up these activities that we can realise the desired socio-economic impacts on the lives of our people. Someone once said that, "Success and economic growth does not take place overnight but in steps". We have taken the first steps, let us not relent.

In conclusion,

I am reliably informed that this conference has attracted over 70 scientists, farmers, industrialists, health practitioners, and students from within and outside the region. I also note from the programme that over 20 papers, posters and exhibits by various experts have been lined-up. It's good to note that recommendations of this conference will inform the planning for the second phase of BioFISA which is expected to run from 2013-2016. Furthermore, you have a full schedule ahead of you this week in the sense that this conference is being held back-to-back with two other events: BioFISA Phase II Planning Workshop and the BioFISA Supervisory Board Meeting.

We will keenly follow the deliberations of this conference and look forward to the recommendations. I am optimistic that with the level of commitment and dedication I am seeing here, BioFISA Phase II will become a reality. I wish you a very successful network-building and information sharing conference during the next three days and look forward to meeting you soon to launch BioFISA Phase II.

With these few words, I now declare this Conference open. I thank you.

Remarks by the SANBio/BioFISA Steering Committees Chairperson Prof Osmund Damian Mwandemele, during the opening session of the BioFISA Conference, Pretoria, 03 September 2012.

- Director of Ceremonies;
- The CEO of the NEPAD Planning Agency, H.E. Dr. Ibrahim Assane Mayaki;
- The Director General of the DST of RSA Government;
- Representative of the Finnish Ministry of Foreign Affairs, Mr. Jan Koivu;
- Executive Director of the CSIR Biosciences, Dr. Joe Molete;
- Prof. Yasmina Fakim, University of Mauritius;
- Distinguished Invited Guests;
- Dear Conference Participants;
- Colleagues and Friends;
- Ladies and Gentlemen,

On behalf of the Steering Committee of the Southern Africa Biosciences Network (SANBio), and on my own behalf I wish to join the others before me, to most sincerely welcome you all to this very important BioFISA conference, that marks the end of four years of the implementation of one of the most successful regional projects, if I may be allowed to say so, implemented by SANBio, a regional network of 12 countries in the SADC region.

The Southern Africa Network for Biosciences (SANBio) is one of four networks on the African continent established by NEPAD as part of its African Biosciences Initiative (ABI) which focuses on harnessing biological applications in the health, agriculture, environment and mining sectors. The other three Biosciences networks are: The Eastern and Central Africa Biosciences Network; the Western Africa Biosciences Network; and the Northern Africa Bioscience Network. SANBio brings together twelve Southern Africa countries, namely, An-

gola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Swaziland, South Africa, Zambia and Zimbabwe.

A Regional Steering Committee comprising one member from each of the participating twelve countries was established to oversee the implementation of programmes of SANBio. I was privileged to have been elected among the country representatives to serve as the first chairperson of the Steering Committee of SANBio, and I have been doing so for the past seven (7) years. I wish to most sincerely thank the colleagues for the trust they have had in me for the past seven years as Chairperson of the SANBio Steering Committee.

The Council for Scientific and Industrial Research (CSIR) of South Africa was unanimously designated as the Regional Hub that will coordinate activities from the region but will work closely with Nodes (Centres of Excellence) which will be identified in the participating countries depending on their strengths and capacities in identified scientific and technological fields or disciplines. On behalf of the SANBio Steering Committee I wish to take this opportunity to thank the CSIR Management for the great role the institution has played in the development and growth of this network to where we are today. Let us give CSIR Management a thunderous round of applause.

SANBio started from a very humble beginning. During the meeting of the Steering Committee (SC) of SANBio held 27-28 June 2005, it was decided that Canadian dollars 45 000.00 be made available to SANBio by CIDA through NEPAD to be used to prepare a Business Plan which would be marketed to Donors for funding support. The Chairperson of SC was mandated to liaise with the NEPAD Secretariat and CSIR to develop the Business Plan. The Business Plan was to come out with projects covering the flagship areas identified during the regional consultative meeting held in Johannesburg in November 2004, namely,



Prof Osmund Damian Mwandemele

- Indigenous Knowledge Systems (IKS)
- Biodiversity, and
- Biotechnology

The Business Plan was also to address other issues of importance to SANBio such as capacity building; private sector involvement; regional balance and by-in; international linkages; communication and marketing strategies; governance and management of SANBio; monitoring and follow up on projects; environmental impact and bio-safety; financial management; fund raising, and preparation of an action or implementation plan. The Business Plan was the mother of BioFISA that brought us here today.

In October 2005 the Finnish Government expressed interest to support SANBio and provided an Expert to work with the NEPAD Secretariat, CSIR and the Department of Science and Technology of RSA to develop a project document along similar lines as the Business Plan. The following projects were identified as of regional priority following consultations with SANBio Steering Committee members.

1. Scientifically Validated Affordable Remedies for the Treatment of Opportunistic Infections (OI) for People Living with HIV/AIDS.
2. Integrating Existing Regional Programmes on Conventional and

Traditional Herbal Medicine to Prevent and Treat HIV Infection.

3. Reducing the Negative Impact of Tick Borne Diseases, Trypanosomiasis, and their vectors on livestock production in the Southern Africa Region.
4. Establishment of a network on fish biodiversity of inland water bodies of Southern Africa.
5. Southern Africa Indigenous Knowledge Systems in Biosciences Initiative for Networking and Research.
6. Enhancement of Capabilities of Gene Banking Facilities in Southern Africa.
7. Development of Techno-parks for Producing Mushrooms in Southern Africa.
8. Development of Nutritionally Enhanced Sorghum and Millet for Arid and Semi-Arid Areas of Southern Africa.

The Business Plan was submitted to the SC and got approved during its meeting held from 23-24 February 2006.

Seed Money from the Department of Science and Technology (DST) and Canadian International Development Agency (CIDA)

We are very grateful to the Department of Science and Technology of the South African Government (DST) and Canadian International Development Agency (CIDA) for providing seed money for SANBio, about ZARs 1.3million and CAD450, 000, respectively, to support the activities of SANBio Business Plan.

The DST funds were allocated to research in three projects, namely,

1. Scientifically validated affordable remedies for the treatment of opportunistic infections for people living with HIV/AIDS.
2. Indigenous Knowledge Systems in Biosciences Initiative for Networking and Research in Southern Africa.
3. Application of Bio-informatics in the management and processing of data, information and knowledge to promote R&D in Southern Africa.

The SANBio Director, Prof. Luke Mumba, and Secretary or PA were recruited in mid-2006, but started working in September 2006 following a very transparent, rigorous screening and interview processes. The appointment of the Director was supported by all the SANBio member states.

Nodes of SANBio

During the SC meeting of 23-24 February 2006 three applications were received for consideration as SANBio Nodes to serve as Centres of Excellence for the region. These were:

1. Bunda College of Agriculture, University of Malawi, applying to serve as Node for Inland Fisheries Research and Development.
2. University of North West Node for Indigenous Knowledge Systems in Southern Africa.
3. Sam Nujoma Marine and Coastal Resources Research Centre jointly with the Project Management Unit of the ZERI Africa Regional Project, University of Namibia, as Node for Mushrooms Research and Development in Southern Africa.
4. Livestock Research Node hosted by National Institute for Scientific and Industrial Research (NISIR) of Zambia in partnership with the University of Zambia.
5. Bioinformatics Node hosted by Mauritius.
6. CSRI which was a lead research institution for Scientific Validation of Traditional medicines for HIV/AIDS.
7. SADC Regional Plant Genetics Resources Centre based at Chalimbana, Lusaka, Zambia.

There is room for the creation of more Nodes as centres of excellence in our region that can provide quality scientific leadership in various disciplines. Dear Participants, please go back home and identify such institutions and submit them to SANBio secretariat through your respective country representatives to SANBio Steering Committee for consideration.

The BioFISA Project

I mentioned earlier that towards the end of

2005 the Finnish Government expressed interest to support the good course of the regional network. After almost three years of hard work and stakeholder engagement and consultations, the BioFISA project was eventually approved for a period of three years (01 January 2009 to 31 December 2011) with funding from the South African Government through DST (ZAR9.0million) and the Finnish Government (€3.0million). The aim of the project was to address the problem of very low capacity and utilisation of biosciences research and development and innovation for poverty alleviation in Southern Africa. Thus the main goal of BioFISA project was to harness and apply biosciences research and development and innovation to alleviate poverty in Southern Africa, with the sole purpose of strengthening of the operational capacity of NEPAD Agency/Biosciences Initiative in Southern Africa by rolling out the SANBio Business Plan in the twelve member states of the Network.

The main objectives of the BioFISA project can be summarised as follows:

- To develop regional capacity in biosciences research and development and innovation;
- To contribute to global scientific knowledge and technological innovations;
- To effectively utilise existing expertise and resources through regional networking;
- To strengthen the SANBio Network and Secretariat;
- To develop a conducive operating environment for research and networking;
- To bring new innovative biosciences related products into the market; etc.

Has the Project achieved the above stated objectives?

On behalf of both SANBio and BioFISA Steering Committees I can confidently say, to a very large extent, yes with lots of pride. You will appreciate this when you hear for yourselves from the coordinators of research projects who are all here attending this conference.

The success of the project would not have

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VOTE OF THANKS

Prof Yasmina Fakim

Ladies and Gentlemen,

It is indeed a privilege to give this vote of thanks and on behalf of the SANBio members, I wish to express our gratitude, to all who have contributed to the goals of this regional initiative for Biosciences. We are here to celebrate the four years of continuous efforts.

First I wish to thank all the speakers of this morning for their inspiring views/comments and for sharing their precious time with us all.

I thank Dr Joe Molete of CSIR who has set the tone of this meeting and has raised the acute problem of students moving away from science subjects. We are grateful to CSIR for hosting the secretariat and providing the necessary services for the activities of the network and facilitating the financial/legal issues.

I thank Mr Mmboneni Muofhe, representative of DST and Mr Jan Koivu from the Ministry of foreign affairs of Finland for their participation in this introductory Session. DST and Finland Minis of F affairs have funded this Phase 1 and therefore are behind its success.

Our sincere thanks to Prof Mwandemele Chairman of the SANBio Steering Committee, for having directed the SC meetings professionally and ensuring that the network was making realistic progress and being accountable to the funders

Special thanks to our keynote speaker, Mr. A S Bello, Representative of NEPAD CEO for being present today. NEPAD support to the African Biosciences Initiative is crucial so that it can address the many challenging problems of health, environment and agriculture on the continent.

We thank the delegates/participants who have joined us at this event today.

I wish to emphasise the main impact that this programme has had within the region: it has strengthened interactions amongst the many scientists from different countries and highlighted the necessity for scientific endeavours to be collaborative efforts. Being part of a network increases our visibility and therefore the likelihood of mobilising funding. We have now set the scene for further work.

Our vision of the future is to work for a bigger and better network where people with innovative ideas and strong commitment will converge to bring positive changes to our society. *Thank You.*

Remarks by Representative of the Ministry for Foreign Affairs, Finland: Mr Jan Koivu

Honourable Ladies and Gentlemen,

The closing conference of BioFISA marks the end of a 4 year programme, and with this regard this week is a special one for all of us. For the Ministry for Foreign Affairs of Finland, BioFISA has represented an important step in our development cooperation in Africa: BioFISA has been the first regional initiative funded by Finland, and it has also been the first programme where trilateral cooperation between South Africa and Finland has taken place. The purpose of the BioFISA programme has been to develop the Southern African capacity in the field of biosciences and to introduce new innovative bioscience related products to the region as a means to tackle development challenges.

BioFISA has its roots in the decade-long partnership between Finland and South Africa. Together we have implemented a cluster of bilateral programmes in the field of science, technology, and innovation. Our good relationship with South Africa has also helped to create space for regional cooperation. Regional cooperation in this sector at large complements Finland's bilateral country programmes in the southern African region. It provides possibilities for connecting people and organisations from the region to advance integration of the region's research and innovation systems.

Most importantly we have seen this programme as a way to support a continental initiative spearheaded by NEPAD. The African Biosciences Initiative is one of the continent's bright flagships that have rightly attracted a lot of international attention.

The Finnish-funded programmes in Southern Africa share a philosophy of enhancing policy implementation and turning strategies into practice. They place a lot of emphasis on building human skills and institutional capacity. They have been put into place to strengthen African institutions and programs, and they have aimed towards creating collaboration and ownership at all levels. In the sectors we have worked in, such as ICT and Cleantech Finland has had clear added-value expertise to offer our partners.

By investing in programmes in this field through our development cooperation, Finland is acknowledging the critical role which science, technology and innovation play with regard to responding to socio-economic needs of the developing world. The science and technology communities in both Finland and southern Africa should be engaged even more seriously to help us overcome development challenges and defeat poverty.

Science, technology, and innovation are also central in the new Finnish development policy programme launched this year. It is with this regards that the MFA is committed to continue its support for the Southern Africa Network for Biosciences also beyond 2012.

A single programme like BioFISA cannot fix the subcontinents research and innovation system, especially in its limited time span of 3-4 years. This is not even expected. What it has shown is that by working together, exploring best practices and slowly building on successes we are able to convince a growing pool of people on the need to invest more in African research and innovation capacity. For instance, we hope that the results to-date will encourage countries in the region to participate in the future funding of this regional network in order to secure its existence well into the future.

I'd like to conclude by extending our thanks to our partners Department of Science and Technology, NEPAD, CSIR Biosciences as the host unit, and of course all individuals and local organisations involved in the programme during the last 4 years.

Presenters/Presentations



Prof John Mugabe

The Nature and Relevance of African S&T Networks



Mr Juha Miettinen,

Southern Africa Innovation Support Programme: An Emerging Network

Dr Allan Liavoga

How to form a Dynamic Network of Biosciences across different countries: A case of Bioinnovate



Dr Tichaona Mangwende,

SANBio Network: Structure, Governance, Function, Experiences, Challenges, Successes and Lessons Learned



Prof Kubata Bruno Kilunga

Strengthening national governance of research and innovation for Health in Africa



Prof Christopher J Chitenga

The Status of Collaborative Research in Biosciences in Southern Africa.



Prof Omon Isikhuemhen

Case Study 1 of Research Results, Technology Transfer, Partnership with Private Sector and Lessons Learned: A Model for a Successful Commercial and Medicinal Mushroom Business in Africa



Prof Asenath J. Sigot

Value-added strategies for cultivation of mushrooms in Western Kenya



Mr Aki Enkenberg

BioFISA Programme: Results, Challenges and Lessons learned



Mr Karel Gevers

Why Communication is important within and outside of a network, programme or project

Prof Luke Mumba

Introducing SANBio Guidelines on Use of Traditional Knowledge and Plant Genetic Resources

BioFISA Project Coordinators



Prof Yasmina Fakim

*Bioinformatics Project Coordinator,
University of Mauritius*



Prof Simeon Materechera

*IKS Node Coordinator, University of
North-West*



Dr Elder Moonga

*Livestock Project Coordinator, National
Institute for Scientific and Industrial Research*



Dr Harrison Chitambo

*Livestock Coordinator, School of Veterinary
Medicine, University of Zambia*



Dr Ereck Chakauya

Coordinator, Microbicides Project



Dr Vinesh Maharaj

*Coordinator, Validation of Traditional
Remedies*



Mr Barnabas W Kapange

*SADC Plant Genetic Resources Centre
(SPGRC)*



Dr Cousins Gwanama

*Coordinator, Mushroom Project,
University of Namibia*



Prof Emmanuel Kaunda

*Coordinator, Fish Node Project,
Bunda College of Agriculture*



Dr Cyprian Katongo

*Co-coordinator Fish Node Project,
Kafue Project*

Poster Presentations

Cultural methods of control of *Fusarium* wilt of tomato



Ajilogba Caroline Fadeke

Presently a Masters student at the Northwest University, Mafikeng campus. Working on “The Molecular Characterisation of native *Bacillus* species with biocontrol potential for *Fusarium* wilt of tomato”

Scientific validation of Swazi traditional remedies for HIV/AIDS



G. Sibandze^a, V. Maharaj^b, D. Naidoo^b

^a Swaziland Institute for Research in Traditional Medicine, Medicinal and Indigenous Food Plants (SIRIMP)

^b Bioprospecting Research Group, Council for Scientific and Industrial Research (CSIR)



Ms Gugu Sibandze

“Scientific validation of Swazi traditional remedies for HIV/AIDS”



FISH DIVERSITY OF TWO MAJOR INLET RIVERS OF LAKE MALAWI: SPATIAL AND TEMPORAL CHANGES IN RELATION TO LAND COVER

Msekiwa M., Kaunda E.S.K.M., Mgulisi-Tambo T., Mwaikwa A.M., Chetsika M., Twanda D. and Mapfema C.

^aBunda College, P.O. Box 219 Lilongwe, Malawi; ^bSouth African Institute of Aquatic Biodiversity, Private Bag 1212 Makhemba, 6140 South Africa. Corresponding Author: msekiwa2@ysthoo.com



Msekiwa Matsimbe

A Research Fellow at the NEPAD Regional Fish Node, at Bunda College, Lilongwe University of Agriculture and Natural Resources (formerly University of Malawi) has recently completed her MSc under the BioFISA fish biodiversity project with a the thesis entitled “Fish diversity of two major inlet rivers of Lake Malawi: spatial and temporal changes in relation to land cover”.



Molecular characterization of the phylogenetic diversity of 10 Botswana Sorghum (*Sorghum bicolor* L. Moench) Cultivars.

Gaone Mokhawa¹ and Antoinette Van Schalkwyk²

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Mr Gaone Mokhawa

"Molecular characterization of the phylogenetic diversity of 10 Botswana Sorghum (*Sorghum Bicolor* L. Moench) Cultivars"

EVIDENCE OF HYBRIDIZATION BETWEEN INTRODUCED *Oreochromis niloticus* L. AND NATIVE *Oreochromis* SPECIES IN THE LOWER KAFUE RIVER OF ZAMBIA

I. Bbole¹, C. Katongo² & A. Deines³

¹Copperbelt University, ibbole@yahoo.com; ²University of Zambia, ckatongo@unza.zm; ³University of Notre Dame, adenies@nd.edu

Mr Ian Bbole

"Evidence of hybridization between introduced *Oreochromis niloticus* L. and native *Oreochromis* species in the Lower Kafue River of Zambia"

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been possible if it was not for the funding provided by the Government of South Africa through DST and the Finnish Government through the Ministry of Foreign Affairs. In order to show our appreciation let us give them once again a round of applause.

In addition to DST and the Finnish Government, there are a number of institutions and individuals who contributed to the success of the project. On behalf of both the SANBio and BioFISA steering committees I wish to give them a big thank you. I would like to name a few of these institutions and individuals who significantly contributed to the success of BioFISA; these are:

- CIDA;
- CSIR;
- NEPAD/Agency;
- The Finnish Embassy in Pretoria;
- Governments of the twelve participating countries;
- Prof. Aggrey Ambali, for the excellent job he had done since the inception of SANBio;
- Members of both SANBio and BioFISA Steering Committees, as well as the BioFISA Supervisory Board;
- Prof. Luke Mumba for excellent coordination together with his team, namely, Dr. Tichaona Mangwende, Ms. Victorine Bikie and Ms. Manana Mashologu all of whom have contributed enormously to the success of BioFISA and SANBio in general;
- SANBio Node Coordinators and Project coordinators, as well as all the scientists and researchers who participated in the projects in the participating countries. We are very proud of you as you have demonstrated without doubt that SADC can achieve a lot if we can pull our resources together to achieve a common goal through well-coordinated networking, as has been the case with the BioFISA

project;

- Mention should also be made of the various consultants who participated in the project in their respective capacities. We thank them all.

It is the hope of the SANBio Steering Committee that with the envisaged Phase II of BioFISA more development partners would come in and join hands in supporting. We invite development partners to come and saw some clouds of hope so that they may bring rain to the millions of the SADC people in the form of socio-economic development through the SANBio regional network, which needs further strengthening to be able to do and achieve more. We should also seek support from our own SADC member states by lobbying our governments and the SADC secretariat. We must inform them about the successes of BioFISA for them to see why they should invest more resources in our regional Biosciences initiative.

Thank you

Fellowships

September 2012 saw the end of 3 months short-term fellowships to four Postgraduate Students (MSc or PhD) and Laboratory Technicians or Research Scientists to conduct research with the focus areas in Health, Agriculture and Bioinformatics (related to Health and Agriculture).



Ms Martha Chipinduro

Sputum Induction Procedure for the Diagnosis of Paediatric Tuberculosis and the Infection Control Measures

The goal of attachment

The main aim of the attachment is to acquire knowledge and skills in the process of sputum induction and understanding the infection control measures required in sputum induction.

Objectives

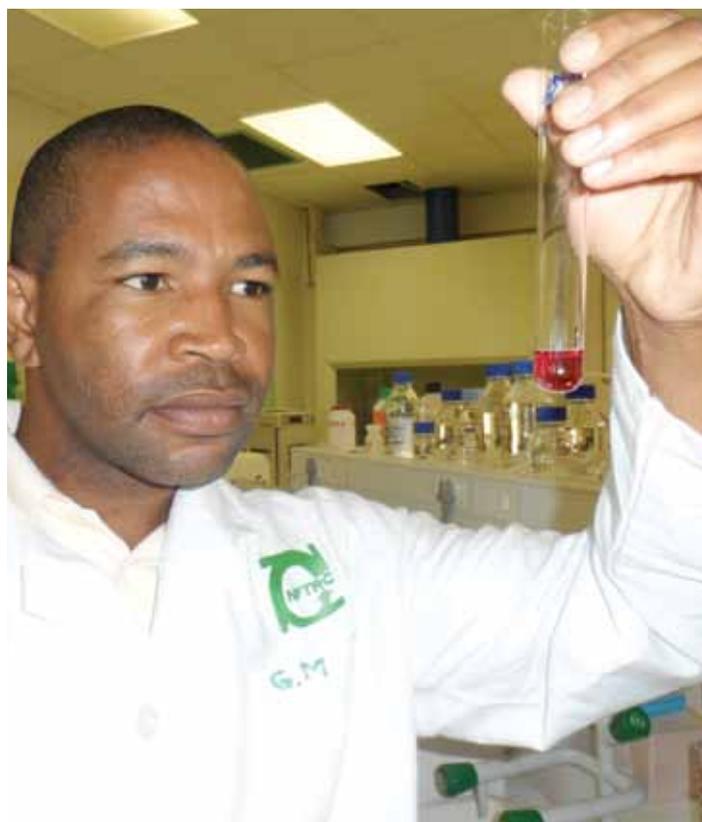
1. To familiarise with the research clinic set-up, the research protocol and recruitment process.
2. To appreciate and understand the infection control measures that should be in place during sputum induction.
3. To be able to carry out sputum induction in children efficiently and effectively.
4. To appreciate and gain an understanding of the processing of sputum and testing using GeneXpert MTB/RIF and lipoarabomannan (LAM) antigenic test.

Mr Gaone Mokhawa

Molecular characterisation of proteins of Sorghum (*Sorghum bicolor* L. Moench) and evaluation of the Phylo-genetic diversity of Botswana Cultivars

Objectives

The main objective of this project is to investigate and evaluate the phyco-chemical and nutritional properties of flour from Botswana sorghum cultivars based on solid state microbial (fungal) fermentation of sorghum using edible mold species. Another objective is to study the phylogenetic relationships of Botswana sorghum cultivars. In this study, the fermentation technique shall be explored to develop sorghum tempeh flour. Tempeh is a traditional Indonesian food prepared by fermentation of dehulled and cooked soybeans with moulds of the genus *Rhizopus* (mainly *Rhizopus oligosporus*). Tempeh is a good example of a highly nutritious legume product prepared through microbial fermentation. Some of the direct effects of fermentation are increased digestibility of proteins and starch, improved protein quality, and vitamin production. In addition, fermentation contributes to lowering or elimination of anti-nutritional compounds such as the major storage form of phosphorus, phytate (*myo*-inositol hexaphosphate). *Rhizopus oligosporus* also produces ergosterol (provitamin D₂) and some vitamins (Feng et al., 2006; Jonsson 2006).



Dr. Sarah Matenga

Micro nutrient composition and bioactive properties of selected Botswana indigenous foods

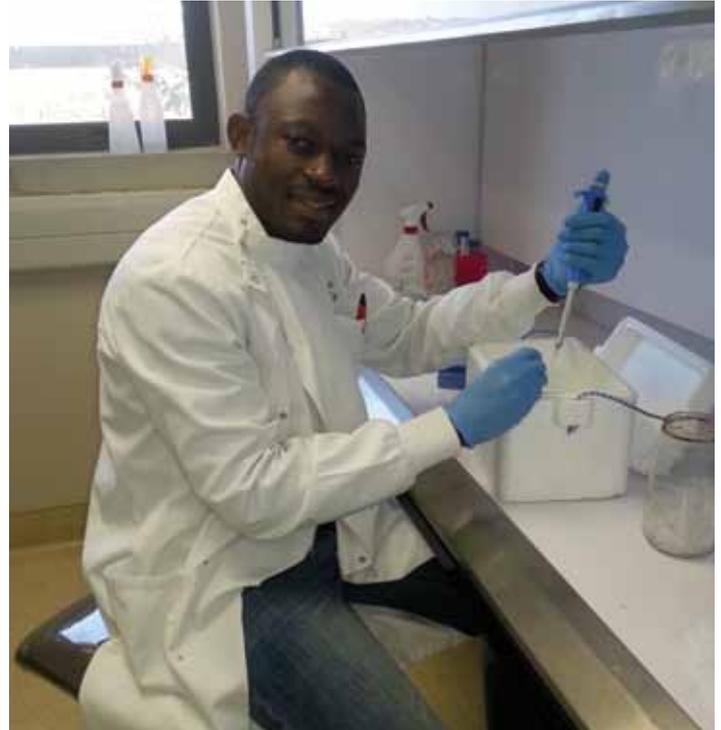
Aim of the study

The main aim of the study is to gain hands-on experience in analytical methods in order to determine the nutritional and non-nutritional content of selected indigenous foods of Botswana.

Objectives of the study

The objectives of the study will be to:

1. Screen the micro nutrient and proximate composition of selected indigenous foods of Botswana.
2. Determine total phenol content in using the Folin-Ciocalteu Method.
3. Determine antioxidant activity (ABTS, DPPH).
4. Determine carotenoid content and profile.
5. Determine polyphenol content and profile.
6. Populate the Botswana Food Composition database.



Mr. Emmanuel Nepolo

Isolation and Characterisation of Serine Protein Inhibitors from Marama Bean

Objectives

1. Identify members of the serine protease inhibitor gene family from Marama beans in mature and developing seeds active against serine proteases (trypsin, chymotrypsin and elastase) by activity gel electrophoresis (reverse zymogram technology) so that an activity profile of serine protease inhibitors will be established in marama bean.
2. To compare the marama bean profile in seeds with profiles of soybean and cowpea to identify possible differences in serine protease inhibitor activities between the different legume plant species.
3. Test serine protease inhibitor activity in seeds of different plant species using a fluorogenic synthetic protease substrate to determine and compare total inhibitor activity of seeds.
4. To isolate protease inhibitor bands with activity against elastase from reverse zymograms for proteomic analysis and separation by SDS PAGE to determine the size of active inhibitors.
5. To carry out a search for all known legume serine protease inhibitors using an existing soybean genome data base and carry out a phylogenetic analysis to allow clustering all identified serine protease inhibitors into groups and to identify conserved gene regions for PCR primer design.

