The cup of herbal tea that could help fight breast cancer: plant extract can kill cells in test tube (Mail Online Health, Aug 2012)

A traditional herbal tea may hold the key to fighting breast cancer, claim scientists. Extracts from the plant known as virgin’s mantle, which is used as a medicinal tea in some countries, can kill cancerous cells in the test tube. The plant-based tea is already drunk by women in rural Pakistan who have breast cancer, but until now its use as a treatment has been regarded as folklore...Read more. To read the research article click here.

Drought-resistant tea highlighted in natural product research (SciDev, Sep 2012)

Researchers in Malawi have developed tea clones able to withstand the worst droughts in the country in recent years, a meeting on natural product development has heard. Chris Kamlongera, principal of Chancellor College, University of Malawi, said the Tea Research Foundation of Central Africa, whose members are Malawi and Zimbabwe, used genetic biomarkers to develop the drought-resistant cultivars...Read more

Rethinking herbal medicine (The Scientist, Sep 2012)

Many scientists raise a skeptical eyebrow to traditional herbal treatments, but a new phylogenetic study suggests that such remedies may hold promise—for both medicine and drug development. In the study, researchers from the University of Reading in the United Kingdom found that many medicinal plants used by nearly 100 cultures on different continents are related...Read more

RECENTLY PUBLISHED BOOKS

From Science to Business

Preparing female scientists and engineers for successful transitions into entrepreneurship: summary of a workshop

From science to business: preparing female scientists and engineers for successful transitions into entrepreneurship is the summary of an August 2009 workshop that assesses the current status of women undertaking entrepreneurial activity in technical fields, to better understand the nature of the barriers they encounter, and to identify what it takes for women scientists and engineers to succeed as entrepreneurs. This report focuses on women's career transitions from academic science and engineering to entrepreneurship, with a goal of identifying knowledge gaps in women's skills as well as experiences crucial to future success in business and critical for achieving leadership positions in entrepreneurial organizations.
SMMEs in natural product and agro-processing define what is needed for business success

POL-SABINA, the Agricultural Research Council (ARC), The Innovation Hub and eGoliBio sponsored a workshop for small, medium and micro enterprise (SMME) stakeholders in the natural product and agro-processing sectors. The workshop was hosted by the CSIR and took place on 15-17 August 2012 in Pretoria. The theme of the workshop was: Challenges facing SMMEs in the SADC region.

CSIR Biosciences Social Economic Outcomes Manager, Tshidi Moroka, said: “We hosted this workshop to have a better understanding of the challenges facing South African SMMEs in this sector; the high failure rate and the inability to create sustainable jobs.” Workshop attendees were specifically invited to discuss and come up with solutions that will advance the development and sustainability of SMMEs in this sector. Although the first two days of the workshop focused on the possible solutions to challenges facing SMMEs, the last day was reserved for tours to the ARC, the CSIR and The Innovation Hub where SMMEs could gain access to specialized assistance in their areas of work.

Participants of the workshop were drawn from all over the country and beyond the borders. Speakers from industry, science councils, financial institutions, government as well as government agencies were in attendance to give advice on how SMMEs can access information, funding and the necessary support needed to get their businesses operational, as well as maintain their sustainability.

The workshop provided entrepreneurs with an opportunity to share their experiences. They spoke about their encounters in trying to get support from financial institutions, agencies and government departments and how they have gotten their businesses from the ground.

Mosala Mosala, an entrepreneur, said: “My experience with starting a business is quite a challenging one. I knocked on many doors but people kept shutting the door right in my face. However, all that did not deter me from attaining my goal, instead it gave me strength and courage to work harder.”

The participants strongly endorsed the need to have a one-stop shop where they will be assisted with all their needs, instead of having to hunt around for relevant information - as is their current experience. The entrepreneurs believe that if they are given the support and the right assistance, they will be able to provide solutions to the problems of unemployment, economic growth and skills development on this continent.

Adapted from CSIR eNews, Sep 2012

ANNOUNCEMENTS

1. Please visit the VRE in order to access the SANBio publication on traditional knowledge & plant genetic resources guidelines.
2. Two of the SABINA students, Adushan Pillay and Kumbukani Nyirenda have recently published articles on their PhD work. For more information on both articles scroll to the next page.
The synthesis of two closely related pyranonaphthoquinones, dehydroherbarin and anhydrofusarubin, is described. The construction of the naphthalene nuclei was achieved using the Stobbe condensation reaction using 2,4-dimethoxybenzaldehyde and 2,4,5-trimethoxybenzaldehyde as their respective starting materials. Two key steps en route include a PIFA-mediated addition of a methoxy substituent onto the naphthalene skeleton and a Wacker oxidation reaction to construct the benzo[g]isochromene nucleus. Two interesting oxidation reactions of the intermediate isochromene enol ether of 7,9-dimethoxy-3-methyl-1H-benzo[g]isochromene-5-ol were observed.

Antidiabetic, anti-oxidant and antimicrobial activities of Fadogia ancylantha extracts from Malawi.

Communities in Chilumba, Malawi use herbal tea prepared from Fadogia ancylantha Schweinf (Rubiaceae) leaves for the management of diabetes, hypertension and alleviation of symptoms of gastrointestinal disorders and pneumonia. The objective of the study was to evaluate the in vitro antidiabetic, anti-oxidant and antimicrobial activities of the crude extracts of the leaves prepared by using three different extraction methods. Each of the organic, cold and hot aqueous extracts of the herbal tea was evaluated for its effect on glucose uptake in C2C12 muscle and Chang cell lines. Metformin and insulin were used as positive controls. The anti-oxidant activity, based on neutralisation of DPPH free radicals, was determined spectrophotometrically. The Agar serial dilution method was utilised to determine the minimum inhibitory concentration (MIC) of the extracts for the selected fungal and bacterial strains.

Structural simplification of bioactive natural products with multicomponent synthesis. 4.4H-Pyrano-[2,3-b]naphthoquinones with anticancer activity.

4H-Pyrano-[2,3-b]naphthoquinone is a structural motif commonly found in natural products manifesting anticancer activities. As part of a program aimed at structural simplification of bioactive natural products utilizing multicomponent synthetic processes, they developed a compound library based on this heterocyclic scaffold. They found that several library members displayed low micromolar antiproliferative activity and induced apoptosis in human cancer cells. Selected compounds showed promising activity against cancer cell lines resistant to proapoptotic stimuli, demonstrating their potential in treating cancers with dismal prognoses.

Life or death: neuroprotective and anticancer effects of quercetin

Quercetin is a ubiquitous flavonoid that is present in numerous plants that are utilized in many different cultures for their nervous system and anticancer effects. To better understand the neuroprotective and antiproliferative activities of quercetin, they present a comprehensive review of the divergent actions that contribute to the ethnopharmacological profile of these plants. The pharmacological activities of quercetin that modulate antioxidants/oxidation/kinase-signaling pathways might be differentially elicited in neurons compared with malignant cells, ultimately promoting cell survival or death in a cell type- and metabolism-specific manner. Whereas the broad antioxidant and anti-inflammatory activities of quercetin are important for neuronal survival, the oxidative, kinase- and cell cycle-inhibitory, apoptosis-inducing effects of quercetin are essential for its anticancer effects.