



## From the Chair of the Sponsoring Group of *icipe*

Dear colleagues and friends of *icipe*,

The role of the scientist is not merely to research, but also to interpret the findings and to bring perspective. When scientific research is undertaken thoroughly and methodically it provides a strong foundation for policy and decision makers to produce sound outcomes.

There are a number of stories that I draw your attention to in this edition of the *icipe* newsletter. First, it is pleasing to see the continued evolution of the push-pull technology, as it provides solutions to the effects of climate change on agricultural crops in sub-Saharan Africa.

There are two articles on discovery of new species of wasps, and also on spiders that are mosquito predators. This work is valuable, not only for the expansion of knowledge of arthropods, but also for the practical applications that may result from such research.

It is also pleasing to see international media transmitting quality stories on *icipe* research. International news outlets share their stories with partner broadcasters and it gives the work of *icipe* a worldwide audience.

In this newsletter, the Director General has commenced a thought leadership column. Her reflections on *icipe*'s focus on gender issues is topical and relevant. *icipe* works with both men and women, but women are central to the continuing development of Africa, and programmes that benefit them directly give a high chance of success in fighting food insecurity and poverty on the continent.

**Dr Gity Behravan**  
**Chair of the Sponsoring Group for *icipe***  
**Senior Research Advisor and First Secretary,**  
**Regional Research Cooperation**  
**Embassy of Sweden in Kenya**

## IN THIS ISSUE



Director General attends a stone laying ceremony in Hargeisa, Somaliland  
 -Page 4

### THOUGHT LEADERSHIP COLUMN BY *icipe* DG

<i>icipe</i> 's focus on gender issues .....	2
From Lab to Land-Women in 'Push-Pull' Agriculture .....	2

### R&D FUNDING

Euro 15 million programme launched to disseminate <i>icipe</i> technologies .....	3
<i>icipe</i> 's new confocal microscope .....	3

### INSTITUTIONAL EVENTS

Director General attends a stone laying ceremony in Hargeisa, Somaliland ..	4
<i>icipe</i> welcomes AVRDC - The World Vegetable Center .....	4

### NEWS

Good first result in impact factor report for our institutional journal, <i>International Journal of Tropical Insect Science</i> .....	5
Visit by Chief Executive of Rothamsted Research .....	5
Push-pull has made it to Switzerland .....	5

### RECENTLY PUBLISHED

Mosquito Terminators .....	6
Using hyperspectral remote sensing for flower mapping in African savannas .....	6
A climate-smart push-pull technology .....	7

### *icipe* IN THE MEDIA..... 9

### PEOPLE ..... 10

Recognition and interest in the work of <i>icipe</i> 's Prof. Zeyaur Khan .....	10
Vale Peter Omollo Owuor and John Akiri Andoke .....	10
TWAS Young Affiliate: Dr David Tchouassi .....	10
<i>icipe</i> graduating PhD and MSc scholars .....	11
Expanded DAAD scholarships provided to <i>icipe</i> .....	12
New staff .....	12

## *icipe* by the numbers:

Research publications from *icipe* from January to July 2015:

86

Number of push-pull adopters in East Africa:

110,245

...and the increase in maize yields in push-pull plots:

2.5 t/ha

Number of modern beehives distributed by *icipe* to farmers in Ethiopia since 2011:

2450

...and the honey yield in high potential areas per year:

75 kg/hive



## THOUGHT LEADERSHIP COLUMN BY *icipe* DG

### *icipe*'s focus on gender issues

*icipe* uses its focus on insect-based research to respond to agricultural and health challenges in Africa, while addressing cross-cutting issues such as gender inequality, climate change, and individual and institutional capacity. According to a 2011 FAO report, if women had the same resources as men, which includes access to technology, they could increase yields on farms by 20 to 30%, raise agricultural output by 2.5 to 4%, and reduce hungry people by 100 to 150 million.

Backbreaking work is somehow reserved by society for women and children in Africa—the weeding, the picking of coffee berries and tea leaves, the collection of firewood, the fetching of water, the washing of clothes, the grinding and pounding of grains, the gathering of animal feed, and the carrying of farm produce to long-distance markets. Incidentally, I grew up in a remote village in Ethiopia, bearing the unequal burden carried by rural African women, so I have done some of these laborious tasks.

Fast forward, as a scientist, and as the Director-General of *icipe*, I have the opportunity and the honour to do something about some of the constraints I faced as a young girl, and I am personally committed to alleviating the burden and farm workload on African women and children.

There are two key innovations from *icipe* that are aimed at making a difference for African women farmers. **Push-pull technology** is the first innovation. It simultaneously



Dr Segenet Kelemu  
Director General, *icipe*

addresses the five key constraints of cereal-livestock mixed production systems in Africa—insect pests (stemborers), parasitic weeds (*Striga* and others), poor soil fertility, soil moisture management, and the need for high quality animal feed.

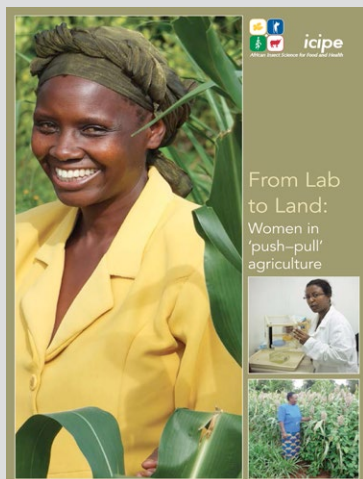
For push-pull women farmers in Kenya, Uganda, Tanzania, Somalia, and Ethiopia, this means they can use the same plot to grow cereals for their household as well as feed for their livestock, thus reducing the amount of time spent collecting animal feed. Push-pull lessens time spent on hand-weeding while extra income from the sale of surplus grains, milk and fodder is used to pay school fees, purchase household items, and improve housing, overall nutrition and health.

The second key innovation is the recently launched **Insects for food and feed initiative**. Many insects have been documented as comparable to conventional livestock meat in terms of nutritional content, and with various health benefits. As a centre of excellence in insect science and its application, *icipe* is obliged to respond to the opportunity of promoting insects as food and feed to add value to the global call by FAO and others to utilise insects to improve food, feed and nutrition security, and contribute to the livelihood of people and protection of biodiversity and ecosystems.

Women and children play active roles in the edible insects sector, mainly in the collection, processing and sales. Readily available edible insects for food and feed will not only improve overall family income, but also family nutrition and health. Other benefits include having an ample supply of high quality and cheaper protein feed source for fish, poultry and pig farming; furthermore, the interventions will eliminate the difficulties being experienced in collecting enough quantities of insects and processing them.

There are many ways to empower women and there are many gaps to fill. Research-for-development must address issues that are important to women, and *icipe* does this consistently. Through these and other programmes, we are not only contributing to improving food and nutritional security, we are also alleviating the burden of hard labour on women and children in Africa.

## From Lab to Land—Women in 'Push-Pull' Agriculture



*icipe* is delighted to introduce its new publication *From Lab to Land - Women in 'Push-Pull' Agriculture*. This report brings together the voices of women scientists, agricultural extensionists and farmers from across eastern Africa. The stories they tell relate to the birth and development of push-pull, and in doing so, offer a unique view of what it is like to be a woman in farming, in agricultural extension, and in science in Africa today. Read more at: [http://www.push-pull.net/women\\_in\\_push-pull.pdf](http://www.push-pull.net/women_in_push-pull.pdf)





## R&D FUNDING

# Euro 15 million programme launched to disseminate *icipe* technologies

*icipe* and partners have launched a Euro 15 million programme to support the adoption of the Centre's technologies and strategies for improved cereal, horticulture, and livestock productivity by an estimated 350,000 additional farmers and pastoralists in Kenya, Ethiopia and Tanzania.

The European Union (EU), through a Euro 12 million grant, will fund the initiative titled 'Integrated Biological Control Applied Research Programme (IBCARP)', with additional funds from *icipe*'s core funds and other sources. IBCARP was inaugurated during an inception meeting held recently at *icipe*, attended by over 40 technical experts of cereal, horticulture and livestock farming and value chains from across the globe.

*icipe* Director General, Dr Segenet Kelemu, noted: "IBCARP will be implemented through four projects, which are: the climate-resilient push-pull technology for the control of weeds and pests; fruit fly integrated pest management (IPM) technologies; the tsetse fly repellent collar technology; and research towards the control of vectors of camel diseases."



IBCARP Steering Committee members and *icipe* staff during the Steering Committee meeting. **Standing left to right:** Dr Rajinder Saini, Mr Jimmy Pittchar, Dr Sunday Ekesi, Prof. Zeyaur Khan, Dr Adan Bika, Dr Peter Jeffries, Dr Christopher Prideaux, Dr Agol M. Kwai, Mr Andreas Sicks, Dr Charles Midega, Dr Pere Simarro. **Sitting left to right:** Mrs Rosa Murithi, Mr Francis Mwatuni, Dr Ignace Gatara, Mr Stephen Wathome, H. E. Dr Gebregziabher Gebreyohannes, Dr Segenet Kelemu, and Prof. John Pickett.

## *icipe*'s new confocal microscope

The Cellular Imaging Facility of the Lausanne University Hospital (Switzerland), has made a donation of a Leica SP5 confocal microscope to *icipe*. The donation was mediated through TRoND Africa. This microscope will enable users to acquire optical sections of specimens without background noise and image degradation. Confocal microscopes have become increasingly popular, and are found in most biological research departments and research institutes. They allow stacking of sections and creation of 3-D representation of specimens. The Leica SP5, installed in *icipe*'s EID laboratory, is the first operational confocal in the East African region.

There are many benefits of having such an instrument for *icipe* research staff. First, it will boost the quality and potential of research at the Centre; and second, staff that have been trained in the field of confocal microscopy will have greater employability, thus facilitating their career advancement.

Jan Pala, a microscope expert from the Czech Republic, installed the microscope in June. Interested staff were given a general



presentation and an in-depth training course was offered to staff most able to benefit from the microscope.

The final practical session of the course enabled participants to image their samples, which included stingless bee and *Drosophila* fly embryos, endosymbiotic *Spiroplasma*, and entomopathogenic fungi.

Dr Jeremy Herren (foreground), Team Leader - Spirovectol Project & SNSF Fellow, Emerging Infectious Diseases (EID) Laboratory, and Rob Skilton (right) Head - Capacity Building & Institutional Development (CB&ID) Programme, looking at the outputs from the confocal microscope on the monitor.



## INSTITUTIONAL EVENTS

### Director General attends a stone laying ceremony in Hargeisa, Somaliland

The sustainable peri-urban milk value chain development project in Somaliland is a three year *icipe*/FAO project, funded by the European Union and established to improve the performance of the dairy sector to meet food security and camel milk hygiene standards, through the adoption of innovative strategies, as well as mechanisms to deliver essential services to the public.

Following the establishment of this project, the Somaliland authorities requested the rehabilitation of Gobanimo milk market because of its importance and volume of milk sold. The retailers, in an industry dominated by women, are organised in

associations and sell camel milk in large halls with a roof, but with open sides, thus exposing the traders to the vagaries of the weather. Camel milk is stored in uncovered containers, further exposing it to biological and physical hazards. The new design will provide covered and partitioned stalls to allow for more women traders, and improved hygiene standards.

The Somaliland First Lady Her Excellency Amina Sheikh Mohamud Jirdeh, the Minister for Finance Hon. Zamzam Abdi Adan, and the *icipe* Director General Dr Segenet Kelemu, officiated at the ceremony for laying the foundation stone.



More photos: <https://www.flickr.com/photos/icipeinsects/albums/72157655482905134>

### icipe welcomes AVRDC - The World Vegetable Center



**AVRDC**  
The World Vegetable Center

AVRDC - The World Vegetable Center has opened its first office in Kenya at *icipe*'s Duduville campus in Nairobi. In July, AVRDC's Regional Project Coordinator of the Homegarden Scaling Project, Ralph Roothaert, and the AVRDC Kenya Site

Coordinator, Charles Onyango, met with the *icipe* Director General to mark the opening. *icipe* welcomes AVRDC and looks forward to greater collaboration between the two institutions.



## NEWS

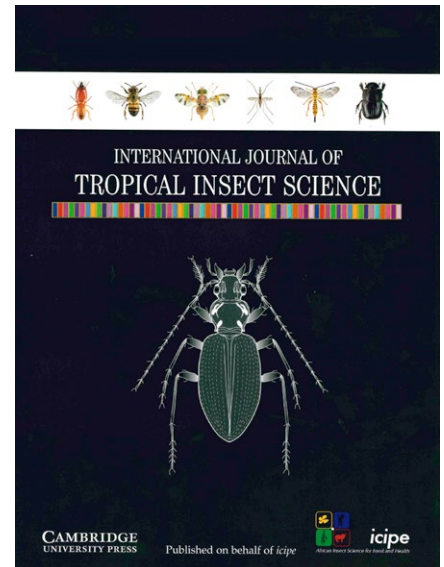
### Good first result in impact factor report for our institutional journal, *International Journal of Tropical Insect Science*

The *International Journal of Tropical Insect Science* (IJT) has received its first Impact Factor (2014 Journal Citation Report, Science Edition [Thomson Reuters, 2015]). The impact factor of 0.419 is an encouraging result that the IJT will look to build upon. The Impact Factor was derived from the ratio of the citations to the journal from 2014 to a count of articles and reviews published in 2012 and 2013.

IJT is the only journal and forum for the latest findings on tropical and sub-tropical insect science. Each issue brings original peer-reviewed research on tropical insects and related arthropods, with special emphasis on their environmentally benign and sustainable management.

Cambridge University Press in the UK publishes IJT on behalf of *icipe*. The Editor-in-Chief is *icipe* Director General, Dr Segenet Kelemu. IJT is supported by Regional Editors from Africa, Asia, Australia/Oceania, Europe and the Americas, and a 30-member Editorial Board.

The good result from the Impact Factor Report will strengthen the reputation of IJT, and allow it to continue attracting entomologists from tropical regions to publish their findings, which will in due course, enable it to become the reference journal in tropical insect science.



### Visit by Chief Executive of Rothamsted Research

The Chief Executive Officer of Rothamsted Research (UK), Prof. Achim Dobermann, visited *icipe* in June to see the push-pull technology, and to understand its place and context in the bilateral discussions between the two institutions on potential future collaboration, and new ideas for research and development. *icipe* has in the past collaborated with Rothamsted Research in the research and development of push-pull technology.



*icipe* and Rothamsted directors view dairy goat unit in Lambwe valley, Kenya.

### Push-pull has made it to Switzerland



This is a push-pull field in front of the Paul Klee art museum in Berne, Switzerland, as part of an exhibition entitled "Culture and agriculture". Photo: Biovision



## RECENTLY PUBLISHED

### Mosquito Terminators

An extensive review undertaken by *icipe* and the University of Canterbury, New Zealand, on the two spider species known to specifically target mosquitoes, *Evarcha culicivora* and *Paracyrba wanlessi* has been published in the current issue of the *Journal of Arachnology*.

The two jumping spiders occur continents apart, in different habitats. *Evarcha culicivora* is found around Lake Victoria, in East Africa, while *P. wanlessi* is present in Malaysia. However, these two spiders both feed preferentially on mosquitoes, and are the only ones that can currently be characterised as “mosquito specialists” (that is, they are predators that specialise in killing mosquitoes).

This unique research review focuses on what is now known about the biology of *E. culicivora* and *P. wanlessi*, and highlights the ways in which these mosquito terminators can help us understand what is meant by ‘predatory specialisation’. It also poses the question as to whether mosquito terminators can be exploited for the biological control of malaria vectors, especially in view of the predominant fear and loathing for spiders.



Read more at: <http://www.icipe.org/index.php/news/962-mosquito-terminators-a-review-published-by-the-international-centre-of-insect-physiology-and-ecology-icipe-and-university-of-canterbury-new-zealand.html>

### Using hyperspectral remote sensing for flower mapping in African savannas

In Africa, a significant part of the rural population draws their income from beekeeping; however, information about the relationship between the abundance and distribution of flowering (melliferous) plants in the landscape and hive productivity, is unavailable.

Scientists from *icipe* and the University of Helsinki tested the suitability and accuracy

of hyperspectral data to produce the first African flowering and short-term floral cycle map. In a paper published in Elsevier’s *Remote Sensing of the Environment* journal, the authors presented a world first study of mapping melliferous flowers in Africa. A hyperspectral sensor was deployed on an aircraft and imagery for a 10 by 10 km study area captured, while flowering trees were also tagged in the field.

Floral cycle maps can help decision makers and beekeepers understand how bee colonies interact with the floral environment, and what to expect from an apiary in terms of honey flow. They will also allow researchers to better understand biodiversity and measure climate change effects.



Read more at: <http://www.icipe.org/index.php/news/967-icipe-develops-new-remote-sensing-methodology-produces-worlds-first-ever-flower-maps.html>



## A climate-smart push-pull technology

A climate-smart version of the *icipe* push-pull technology is enabling farmers living in some of the East African regions most severely affected by climate change to stabilise their cereal-livestock mixed production systems.

In a paper published in the recent issue of *Field Crops Research* journal, *icipe* and collaborators show that the climate-smart push-pull is not only enabling farmers living in such areas to continue cultivating cereals, but is also increasing yields by 2.5 times; and in addition, allowing them to integrate dairy farming into their production systems, despite the challenges posed by climate change.

Over 110,000 farmers in Africa are using the push-pull technology, which involves intercropping cereals with a pest repellent plant that drives away (or deters) stemborers, and planting a border with an attractant trap plant that attracts them.

Of these farmers, 42,000 are applying a climate-smart version of push-pull, which has been developed over the past four years by *icipe* and partners, in relation to the increasingly dry and hot conditions associated with climate change. The climate-smart push-pull involves the use of



Mrs Alice Odima, a farmer in Siaya, western Kenya, in her sorghum climate-smart push-pull plot. Mrs Odima is able to continue cultivating, not only sorghum, but also maize, which are the two important cereals, despite the challenges of climate change. The technology has alleviated for her the burden of constant hand weeding and uprooting of *Striga*, and long journeys in search of quality animal fodder.

drought-tolerant repellent and trap crops. Farmers currently applying this adapted version of push-pull are living in the drier areas of western Kenya, eastern Uganda, the Lake Victoria basin, Tanzania, and northern Ethiopia.



Mr Joseph Odek, a farmer in Homabay County, western Kenya, one of the regions facing severe impact of climate change, in his climate-smart push-pull field. The technology has enabled him to beat the odds, and produce a healthy maize crop, enough for his family's consumption with some surplus for sale.

A climate adapted push-pull plot, showing sorghum intercropped with greenleaf desmodium, with *Brachiaria cv Mulato* as a border crop.



## Climate change and agriculture in sub-Saharan Africa

As a result of climate change, most of sub-Saharan Africa (SSA) is becoming hotter with less and unpredictable rainfall, leading to larger arid and semi-arid zones. Climate-induced impacts are also accelerating soil degradation, while increasing pest populations, thus enabling their spread to new geographical areas, and enhancing the vulnerability of crops to pest attack. Climate change is also elevating *Striga* menace, as the weed's impact is most severe in degraded environments that have low soil fertility and rainfall. Smallholder farmers, who produce most of the food consumed in SSA, lack appropriate ways to limit or reverse the adverse effects of climate change. Climate change is, therefore, expected to have significant impact on SSA's fragile food security situation. The region has low yield of staples (such as cereals), and the expected decline in agricultural productivity is expected to worsen food insecurity.

Read more at: <http://www.icipe.org/index.php/news/963-international-centre-of-insect-physiology-and-ecology-icipe-climate-smart-push-pull-helping-to-stabilise-cereallivestock-mixed-production-systems-in-east-africa.html>



## Introducing *Muhaka icipe*: *icipe* and collaborators discover new wasp species in a sacred forest in coastal Kenya



*Muhaka icipe*, digital illustration by Taina Litwak

*icipe* taxonomists, in collaboration with colleagues at the Smithsonian Institution, USA, have discovered a new, enigmatic wasp genus and species in Muhaka forest, on the south coast of Kenya.

In a paper published in a recent issue of the *Journal of Natural History*, the unusual wasp has been named *Muhaka icipe* – a tribute, first to the forest, which is one of the sacred Mijikenda kayas; and second, to *icipe*'s role in advancing knowledge of Africa's remarkable insects. For years, *icipe* has maintained a field station in Muhaka, which supports survey and inventory studies in coastal habitats, including Muhaka forest and other kayas that are spread out over some 200 km

along the Kenyan coast. *Muhaka icipe* was discovered during one such survey.

*Muhaka icipe*, a tiny wasp that is less than 2 mm long, belongs to a subfamily of wasps referred to as the Eucoilinae. It belongs in the "wedge-head-syndrome" group of wasp species, known only from the Afrotropical region. It is hoped that the discovery of species such as *Muhaka icipe* will help build a case for effective conservation strategies to safeguard the East African coastal forests, which are one of only eight biodiversity hotspots that Conservation International recognises in Africa.

Read more at: <http://www.icipe.org/index.php/news/956-introducing-muhaka-icipe-a-new-bizarre-wasp-discovered-in-kenya.html>

## New wasp species discovered in Kenya and Burundi

*icipe* taxonomists, in collaboration with colleagues from the Tropical Entomology Research Institute and the University of Tuscia (both in Italy), have discovered 13 previously unknown wasp species in Kenya and Burundi.

The discoveries, published in the journal *Acta Entomologica Musei Nationalis Pragae*, contribute much needed knowledge to the global taxonomy network. While in general there are significant taxonomic gaps for most living organisms, the situation is even more critical in regard to groups composed mostly of small species, as is the case for many families of wasps.

Many wasps are beneficial to humankind, as they naturally control agricultural pests. The majority of wasps are parasitic, usually laying their eggs in or on the eggs or larvae of other insect species, which leads to the death of the host insect. Globally, parasitic wasps are increasingly being used in the biological control of crop pests. *icipe* has in the past recorded significant success in using wasps to control pests of cabbage and maize in Africa.

Read more at: <http://www.icipe.org/index.php/news/950-icipe-and-collaborators-discover-13-new-wasp-species-in-kenya-and-burundi.html>



## What's in a name? The case for taxonomy

From time immemorial, human beings have maintained a complex system of oral communication, with the naming of things as a central component.

Taxonomy, defined as the science of naming, builds on this age-old human tradition. It facilitates the description and classification of organisms – plants, animals and microorganisms – in an ordered system intended to indicate natural relationships.

At *icipe*, taxonomy is interlinked with the Centre's mandate of conserving biodiversity. Since it was founded, *icipe* has discovered many interesting new species, and provided insights into the geographical distribution of various insect groups, primarily Hymenoptera and Diptera.

Furthermore, the Centre's taxonomists have provided researchers working on Hymenoptera in Africa with desperately needed material for studying their diversity, abundance and phenology.





## icipe IN THE MEDIA

**Once a menace, African 'killer bees' are all the buzz for health solutions**

CNN: "Once a menace, African 'killer bees' are all the buzz for health solutions"

<http://edition.cnn.com/2015/06/14/africa/kenya-africa-killer-bees/index.html>

Al Jazeera and broadcast partner stations: "New tools in Kenya's fight against malaria"

<https://www.youtube.com/watch?v=GtHaH3uA7uY>

**These blood-loving spiders could help fight malaria**

Washington Post: "These blood-loving spiders could help fight malaria"

<http://www.washingtonpost.com/news/speaking-of-science/wp/2015/08/18/these-blood-loving-spiders-could-help-fight-malaria/>

**Desert locusts could offer dietary and health benefits**

SciDev.net: "Desert locusts could offer dietary and health benefits"

<http://www.scidev.net/sub-saharan-africa/nutrition/news/desert-locusts-dietary-health-benefits.html>

**13 new wasp species discovered in Kenya, Burundi: researchers**

China.org: "13 new wasp species discovered in Kenya, Burundi: researchers"

[http://www.china.org.cn/world/Off\\_the\\_Wire/2015-06/08/content\\_35768756.htm](http://www.china.org.cn/world/Off_the_Wire/2015-06/08/content_35768756.htm)

NTV: "Food Friday - Edible Insect Research"

<https://www.youtube.com/watch?v=C68XFEK-A>

**Scientists make new findings on lethal maize disease**

Standard Digital News Kenya: "Scientists make new findings on lethal maize disease"

<http://www.standardmedia.co.ke/article/2000164747/scientists-make-new-findings-on-lethal-maize-disease/>

**Researchers at the Kenya-based institution have developed a new remote sensing-based methodology to map flowering plants in Africa**

NAMPA.org: "Researchers at the Kenya-based institution have developed a new remote sensing-based methodology to map flowering plants in Africa"

<http://www.nampa.org/index.php?model=categories&function=display&id=14856723>



## PEOPLE

### Recognition and interest in the work of *icipe*'s Prof. Zeyaur Khan

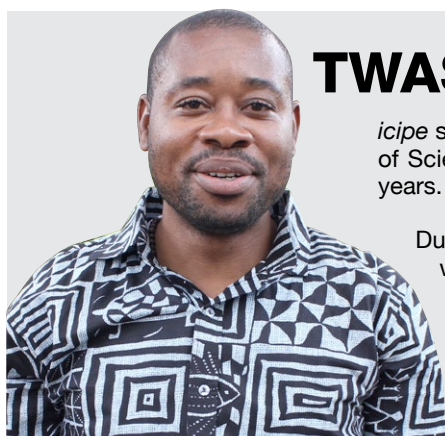
The Royal Entomological Society of the UK has recognised the work of prominent *icipe* scientist, Prof. Zeyaur Khan, with an Honorary Fellowship. This Fellowship is awarded only to those who have “given eminent and distinguished service to Entomological Science and/or the Society”.

In addition, a topic put forward by Prof. Khan entitled “Exploiting plant behavior and chemical ecology for developing new crop protection strategies for Africa” was selected as one of the 20 Premier Presentations to be made at the Entomological Society of America’s 2015 meeting in Minneapolis, Minnesota from 15–18 November 2015.

The presentation will discuss the development of novel approaches for integrated pest and weed management for resource poor African farmers. The Entomological Society of America annual meeting/conference will be co-located with the American Society of Agronomy, the Crop Science Society of America, and the Soil Science Society of America. Prof. Khan was elected a Fellow of the Entomological Society of America in 2010, and received the Nan-Yao Su Prize for Innovation and Creativity in Entomology from the society.



Prof. Zeyaur Khan



### TWAS Young Affiliate: Dr David Tchouassi

*icipe* scientist Dr David Tchouassi has been selected as a TWAS Young Affiliate by the World Academy of Sciences Regional Office for Sub-Saharan Africa (TWAS-ROSSA). The affiliation will run for five years.

During Dr Tchouassi's tenure, he will participate in TWAS general meetings and conferences, as well as provide feedback to TWAS on how the Academy can respond to the needs of young scientists in developing countries. As a vector ecologist, Dr Tchouassi has a strong interest in the development of improved control and surveillance tools for vectors of arboviral diseases and malaria through chemical ecology approaches, which he has expanded to include sandflies. This is a prestigious and wonderful opportunity for any young African scientist.

### Vale Peter Omollo Owuor and John Akiri Andoke



Peter Omollo Owuor



John Akiri Andoke

It is with regret and deep sorrow that we note the death of two *icipe* staff members in the past three months, Peter Omollo Owuor, a Technical Assistant in the Leafminer, FiBL project, and John Akiri Andoke, a Research Assistant in the Animal Health Division. Both men worked at the Duduville campus in Nairobi, Kenya.

Peter Owuor passed away while receiving treatment at the Machage hospital, Migori. He is survived by his wife and three children. John Andoke passed away in his sleep. He is survived by his wife and eight children.

*icipe* staff were saddened by the loss of their dear friends and wanted to take this opportunity to express their condolences to both families, and wish them strength and courage in their bereavement.



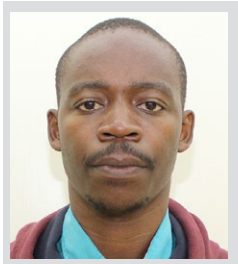
## icipe graduating PhD and MSc scholars

icipe has a proud tradition of nurturing scientific talent in MSc and PhD research training through the African Regional Postgraduate Programme in Insect Science (ARPPIS) and the Dissertation Research Internship Programme (DRIP). At *icipe*, MSc and PhD scholars pursue their passion for science, and master the necessary skills for

a career in research and development (R&D) in insect and related sciences; furthermore, they also help develop the reputation of *icipe* as a vibrant centre for R&D.

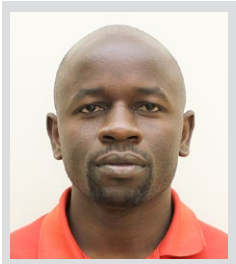
*icipe* is pleased to announce that this year, 17 scholars (12 PhD, 5 MSc) have successfully completed their degrees by defending their

research thesis, or graduating. Scholars from Kenya, Sudan, Uganda, Zimbabwe, and Colombia, conducted their research on a variety of research areas across the *icipe* 4H (Health) themes.



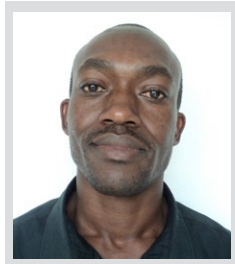
**Dr Michael Nyang'anga Okal (Kenya)**

Research title: Analysing the role of semiochemicals in the oviposition substrate choices of the malaria mosquito *Anopheles gambiae sensu lato*.  
University of registration: London School of Hygiene and Tropical Medicine, UK.



**Dr Oscar Mbare (Kenya)**

Research title: Novel insecticides and application strategies for malaria vector control.  
University of registration: London School of Hygiene and Tropical Medicine (LSHTM), UK.



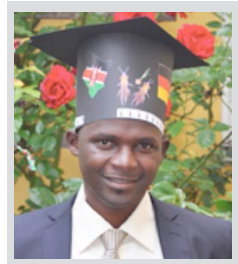
**Dr Venansio Tumuhaise (Uganda)**

Research title: Evaluation of entomopathogenic fungi and commercial Bt formulations for the management of *Maruca vitrata* on cowpea.  
University of registration: University of Nairobi, Kenya.



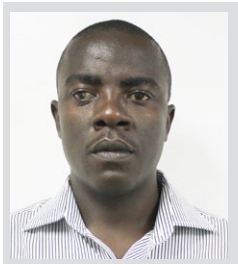
**Dr Joel Ltilitan Bargul (Kenya)**

Research title: Antibody clearance and erythrocyte adherence as virulent factors in African trypanosomiasis.  
University of registration: University of Wuerzburg, Germany.



**Dr Alexander Mutua Muvea (Kenya)**

Research title: The effect of fungal endophytes on thrips and tospovirus epidemiology.  
University of registration: University of Hannover, Germany.



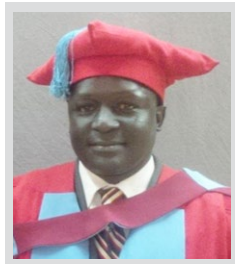
**Dr David Omondi (Kenya)**

Research title: Bionomics of vector-borne pathogens along the shores and adjacent islands of lakes Victoria and Baringo, Kenya.  
University of registration: University of Western Cape, South Africa.



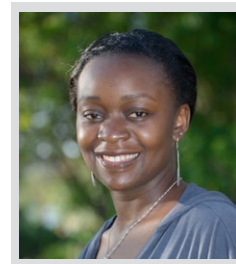
**Dr Daniel Munyao Mutyambai (Kenya)**

Research title: Exploiting early herbivory-induced defence traits in *Zea* species for the management of *Chilo partellus* in East Africa.  
University of registration: North West University, South Africa.



**Dr Collins Otieno Odhiambo (Kenya)**

Research title: Dynamics of Bunyamwera virus circulation and transmission in North Eastern Province, Kenya.  
University of registration: University of Pretoria, South Africa.



**Dr Evelyn Adhiambo Olanga (Kenya)**

Research title: Malaria risk associated with fishing activities on Rusinga Island, western Kenya.  
University of registration: University of Nairobi, Kenya.



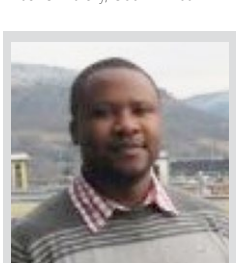
**Dr George F. O. Obiero (Kenya)**

Research title: Genome wide annotation of chemosensory and glutamate-gated receptors, and related genes in *morsitans morsitans* tsetse fly.  
University of registration: University of Western Cape, South Africa.



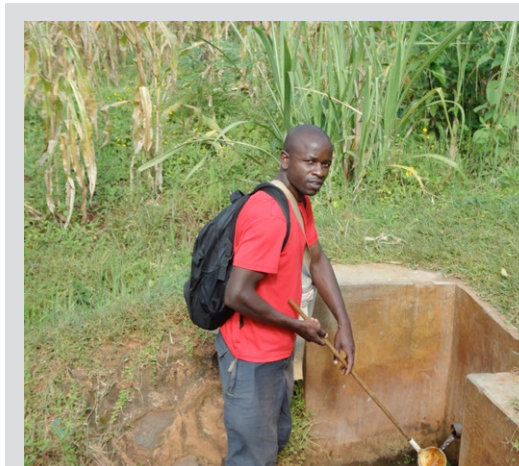
**Dr Manuela Herrera-Varela (Colombia)**

Research title: Larval habitat discrimination by the African malaria vector *Anopheles gambiae sensu lato*: Observations from standardized experiments and field studies.  
University of registration: London School of Hygiene and Tropical Medicine, UK.



**Dr Frank Chidawanyika (Zimbabwe)**

Research title: Effects of drought and temperature on the production of electrophysiologically active biogenic volatiles important for cereal pest management.  
University of registration: University of Witwatersrand, South Africa.



Dr Oscar Mbare defended his PhD at the London School of Hygiene and Tropical Medicine, UK. *icipe* received feedback from one of the examiners which read: 'Without a doubt, his thesis was one of the most interesting, comprehensive and thought provoking bodies of work I have examined.' Such recognition is pleasing for the ongoing careers and scientific rigour of our students.



**Ryan Musumba Awori, MSc (Kenya)**

Research title: Phylogeny and antibiotic activity of *Xenorhabdus* spp. isolated from nematode symbionts in Kenya.

University of registration: University of Nairobi, Kenya.



**Micky Mwananje Mwamuye, MSc (Kenya)**

Research title: A surveillance study on tick biodiversity and tick-borne pathogens in Shimba Hills National Reserve, Kenya.

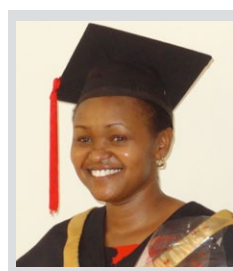
University of registration: University of Nairobi, Kenya.



**Abdelmutalab Gesmalla Ahmed, MSc (Sudan)**

Research title: Impact of temperature and other agroecological factors on the bioecology of antestia bugs, *Antestiopsis orbitalis* (Hemiptera: Pentatomidae) on *Coffea arabica* L.

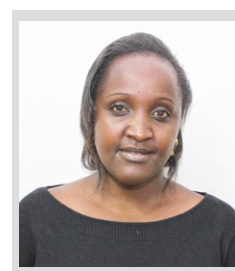
University of registration: Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya.



**Edith Chepkorir, MSc (Kenya)**

Research title: The effect of rearing temperature on the vector competence of *Aedes aegypti* mosquito populations from Kilifi and Nairobi counties for dengue-2 virus.

University of registration: Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya.



**Teresiah Njihia, MSc (Kenya)**

Research title: Chemical ecology of the coffee berry borer: The role of spiroacetals in the insect-host communication system.

University of registration: Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya.

## Expanded DAAD scholarships provided to *icipe*

In July, the German Academic Exchange Service (DAAD) confirmed approval of increased support to the *icipe* ARPPIS PhD fellowship programme. Following the decision of the selection committee, DAAD awarded *icipe* eleven scholarships for the year 2015. The decision has enabled *icipe* to increase country diversity (ten countries across East, Central and West Africa), and increase/maintain gender diversity (45% women) in the programme. Students are important members of *icipe*'s operations, and critical for the future of Africa. *icipe* is committed to enhanced capacity building activities.

## NEW STAFF



### Dr Tadele Tefera, Head of *icipe* – Ethiopia Country Office

Dr Tadele Tefera brings more than 15 years' experience in agricultural research and development from national and international institutions to his new role with *icipe*. Tadele served as senior entomologist at the International Maize and Wheat Improvement Centre (CIMMYT Nairobi) from June 2009 until his new appointment. In CIMMYT his research mainly focused on developing stemborers and postharvest insect pest resistant maize hybrids and inbred lines, and developing effective technologies for integrated postharvest pest management.

Tadele obtained a PhD in agricultural entomology in 2004 from Stellenbosch University, South Africa and an MSc in plant pathology in 1998 and BSc in agriculture (plant sciences) in 1993, both from Haramaya University, Ethiopia.

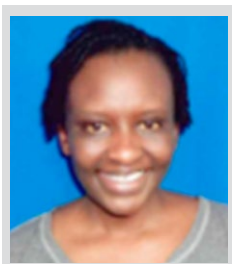
Tadele will be providing leadership to staff on-site, as well as oversight of *icipe*'s portfolio of research conducted in Ethiopia.



### Millicent Ogutu, Research Associate

Millicent has joined *icipe* as a Research Associate in the Commercial Insects Programme (Bee Health Project). Prior to joining *icipe*, Millicent worked as a Senior Technologist (Microbiology) at the Jomo Kenyatta University of Agriculture and Technology's (JKUAT's) Medical Laboratory Sciences Department.

Millicent has a Bachelor of Science degree from Jomo Kenyatta University of Agriculture and Technology, and a Master of Science degree in Medical Microbiology from the University of Nairobi. She also has a Higher Diploma in Medical Laboratory Science from Mombasa Polytechnic University College, and a Postgraduate Diploma in Education from Kenyatta University.



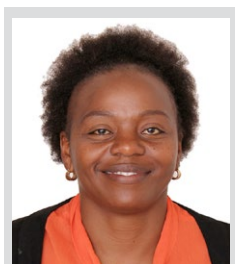
### Barbara Kagima, Senior Research Assistant

Barbara has joined *icipe* as a Senior Research Assistant in the Animal Health Division (IBCARP Tsetse Repellent Component Project). Prior to joining *icipe*, Barbara worked at Concern Worldwide as a data analyst. Barbara has also worked in Nebraska, USA as a data analyst, and as a statistical and geospatial analyst.

Barbara has a Bachelor of Science degree in Zoology and Genetics, and a Master of Science degree in Ecology and Genetics from the Iowa State University, USA. She also did a graduate course in applied ecology at the University of Nebraska, Lincoln, USA.



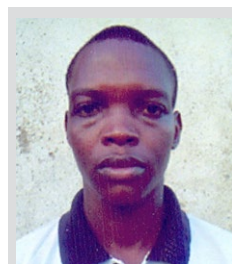
**Moses Ndotono Njehira**  
*Laboratory Manager*



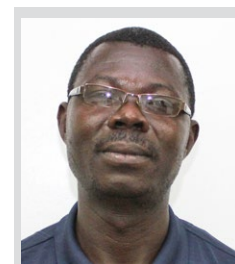
**Rachel Wanjiku Njunge**  
*Executive Assistant*



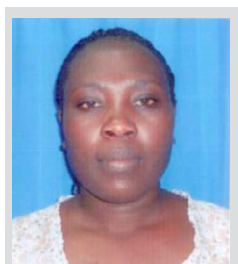
**Fidel Okoth Omondi**  
*Procurement Officer*



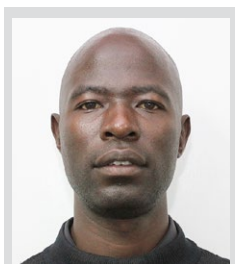
**James Ingosi**  
*Assistant Cook*



**Abel Orone Obasie**  
*Research Technician*



**Damaris Kerubo Nyansera**  
*Technical Assistant*



**Bramwel Okune Mulamah**  
*Technical Assistant*



**Beatrice Akinyi Ayalo**  
*Cashier/Receptionist*



**Daniel Wanyonyi**  
*Laundry Assistant/Storekeeper*



**Justus Kipkoech Kurgat**  
*Research Technician*



**Simba Mkamba Mwakoyo**  
*Field Assistant*



**Petronilla Hilda Odhiambo**  
*Field Assistant*



**Joseph Njuguna**  
*Driver*



**John Ngiela**  
*Research Technician*



**Richard Tumba**  
*Research Technician*