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IITA Forest Center awarded Global Botanic Garden Fund for tree conservation

The Botanic Gardens Conservation International (BGCI) awarded a grant to the IITA Forest Center, Ibadan, to enrich its Tree Heritage Park (THP) with rare and threatened native trees in 2022.

Existing African whitewood trees at the Tree Heritage Park in IITA, Ibadan.

According to the donor, "The BGCI Global Botanic Garden Fund is disbursed to eligible small botanic gardens in developing countries and biodiversity hotspots, that are committed to conserving different plant species, especially those that are rare and threatened."

From 2015 to 2017, the IITA Forest Center partnered with BGCI to implement a project titled *"Prioritising and protecting Nigeria's most threatened trees: conservation, propagation, and ex-situ cultivation of endangered indigenous tree species."* The project, funded by the Mohammed bin Zayed Species Conservation Fund, recorded remarkable successes in compiling a list of priority Nigerian trees based on current conservation assessments, selecting four threatened Nigerian trees. It also developed propagation protocols, ex-situ conservation of priority species in the THP, and built the capacity of resource persons.

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IITA Director for Eastern Africa, Leena Tripathi, joins the Advisory Board of Alliance for Science

The IITA Director for Eastern Africa hub and Biotechnology Leader, Leena Tripathi, has been appointed to the Alliance for Science (AfS) advisory board.

Dr Leena Tripathi, IITA Director for Eastern Africa.

AfS is a global science communication network that advocates for science-based solutions to critical issues, such as farmer access to improved technologies and agriculture's environmental footprint reduction. The network also champions climate crisis mitigation, poverty reduction, food security and nutrition improvement, and vaccine acceptance.

The organization creates and implements powerful multimedia communication campaigns, offers

training in leadership and advocacy, builds coalitions, and mobilizes a global network to advance science-based narratives and policies.

Tripathi said she is excited to serve as an AfS advisor on the board and looks forward to using her expertise and experience in agricultural biotechnology to support the organization in accomplishing its vision.

Tripathi focuses on "Science to Practice" and linking scientific innovations to practical applications to solve worldwide food production issues. Her primary research is on genetically improving important staple food crops like banana and plantain, cassava, and yam to control diseases and pests.

Together with her team at IITA, they have established a robust genetic transformation platform at IITA-Kenya to develop transgenic and gene-edited products and transfer these technologies to national agricultural research systems in sub-Saharan Africa.

Her enthusiasm and dedication in scientific contributions have earned her international recognition through several awards and honors, such as excellence awards for Outstanding Scientist and publications. She has also been honored as an Elected Fellow of the American Association for the Advancement of Science (AAAS) for contributions to agriculture.

Besides being an advisory board member at AfS, Tripathi serves on the advisory panel of the Norwich Institute for Sustainable Development (NISD), UK, and is an Editorial Board Member for several journals such as *Plant Biotechnology, Communication Biology, Frontiers in Genome Editing,* and *Plant Cell Reports*.

IITA's Deputy Director General, Partnerships for Delivery, Kenton Dashiell, and Deputy Director General, Hilde Koper, welcomed the nomination and congratulated Tripathi on behalf of the Institute. *Contributed by Gloriana Ndibalema*

R4D special

Making a case for short-set method in yogurt production

Yogurt, a dairy product from commercially domesticated mammals, is regarded as a nutritionally balanced food, containing all the nutrients in milk, and is readily available in its take-in form. Yogurt has therapeutic properties and is an excellent source of highly nutritious protein, energy, milk fat, unfermented lactose, and vitamins.

Yogurt is made with various ingredients, including milk, proteins, fats, sugars, emulsifiers, stabilizers, fruits, flavors, and bacterial cultures. The type and culture used for production are important factors in determining yogurt's eating quality (microstructure and textural properties). The product is made using a yogurt mix formulation, pasteurization and homogenization, fermentation, and packaging. It is characterized by a firm jelly-like texture. Hence, it can be produced either as short-set or long-set yogurt.

Stabilizers and thickeners used to produce yogurt prevent the separation of ingredients, increase the viscosity or thickness, and inhibit the formation of large crystals, making it acceptable to consumers. Examples include corn starch, gelatin, gum acacia, agar, carboxyl methyl cellulose (CMC). Likewise, they are essential in manufacturing other dairy products such as milk drinks and ice creams.

A study carried out in Enugu State, Nigeria, by a group of researchers, including IITA Food Science and Technology Associate Scientist Emmanuel Alamu, produced a short-set yogurt with different stabilizers at different concentrations. They determined the effects of these stabilizers and the length of fermentation on the nutritional, microbiological, and sensory properties of short-set yogurt.

Yogurt is an excellent source of wholesome nutritients.

According to the study, short-set yogurt's physicochemical, microbial, and sensory properties increased due to the stabilizers at different fermentation times. Also, the increase in stabilizer concentration and fermentation time decreased the moisture content but increased the total solids, fat, ash, protein, total titratable acidity, pH level, and sugar. In addition, the thickness of yogurt samples increased with the addition of stabilizers, with CMC having the highest increase. Therefore, short-set yogurt samples containing CMC have the highest protein proportion (0.5%), fat (1.0%), and ash content (1.0%).

Furthermore, it revealed that yogurt produced with corn starch produced the most desirable overall acceptability, thickness, total solids at 1.0%, and TVC at 0.5% concentration.

The findings recommended that corn starch be used to produce short-set yogurts, while improvements can be made on the sensory attributes and the acidity in this yogurt type. Also, there is a need to improve gum acacia usage by combining it with other stabilizers to improve its flow rate since it generates good textural properties in dairy products. *Contributed by Anita Akinyomade*

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According to Project Manager Adewale Awoyemi, "The new project will build on previous successes through ex-situ conservation of an additional eight rare native trees that are not presently conserved in the THP. These are *Allanblackia floribunda* (LC), *Drypetes staudtii* (VU), *Entandrophragma candollei* (VU), *Khaya ivorensis* (VU), *Nesogordonia papaverifera* (VU), *Pterygota bequaertii* (VU), *Sterculia oblonga* (VU), and *Strombosia pustulata* (LC)". The new project also involves collecting propagation materials in forest patches in southern Nigeria, photography, and experimental trials, which will be useful in developing a propagation protocol. Another key aspect of the project is capacity building among forest rangers and students during collecting trips. We will have to engage and train a future arboriculturist to assist with this project while learning".

When asked about the prospects of the THP, Awoyemi said, "The THP is already a reservoir of genetic resources of rare and threatened native trees that will be useful for future reintroduction programs. Some trees planted about five years ago are already fruiting. Of course, there are a few places on the African continent where you could have such collections in addition to or as part of ex-situ THP conservation. The IITA Forest Center, which is responsible for managing these resources, has the capacity for expansion within and outside the IITA-Ibadan campus. Therefore, we are keen on adopting global best practices in carrying out our activities. Recently, the IITA Forest Center registered as a BGCI member, a step towards the integration of the THP into the network of global botanic gardens, which we are currently pursuing".

The THP covers 10 ha of land within the IITA-Ibadan campus and supports over 100 species of native trees. Half are either considered regionally or globally threatened, which is why the THP is nicknamed Noah's Ark. The IITA Forest Center works with conservation partners in managing and utilizing forest resources for conservation, research, education, and livelihood improvement.

Contributed by Anita Akinyomade

The Tree Heritage Park, IITA Forest Center.

Take responsibility! Stop the spread of COVID-19!

Always clean your hands; practice physical and social distancing; wear face masks properly; avoid crowds and public places; keep a 2-meter distance from the next person; and practice general sanitation and hygiene.

Got a story to share?

Please send your story with photos and captions every Tuesday to iita-news@cgiar.org or Katherine Lopez (k.lopez@cgiar.org) and Uzoma Agha (u.agha@cgiar.org).

IITA and Abuja host renew existing partnership

The recently appointed IITA Abuja Station Head, Professor Lateef Sanni, on 7 February, signed a reviewed agreement between IITA and the Federal Capital Territory Administration (FCTA) on behalf of Deputy Director-General, Partnerships for Delivery, Kenton Dashiell.

Top: The Mandate Secretary of FCTA Agriculture and Rural Development Secretariat, Mallam Ibrahim Abubakar and IITA Abuja Station Representative, Professor Lateef Sanni signing the MoU. Bottom: Mallam Ibrahim Abubakar (left) and Professor Lateef Sanni (right), during the formal presentation of the MoU.

The 62-hectare facility on which the IITA Abuja Station is situated was initiated in 1985 by the Kennedy Family as part of US-based Citizens Energy Corporation's corporate social responsibility. The company collaborated with the former Federal Capital Development Authority (FCDA) to help farmers around the Territory improve their farming practices to boost productivity and enhance livelihoods. Subsequently, it was passed on to IITA, formalized with a memorandum of agreement (MoU) signed in 1991. Then, the Station was only a research farm unit with farming technologies shared with farmers through field days, exhibitions, and training activities.

When the incumbent Director General, Dr Nteranya Sanginga, assumed office in 2011, the Station received increased attention leading to the current transformation witnessed on the campus. Under the current leadership, there has been a remarkable increase in the number of international and national personnel, research projects, and new and improved facilities in Abuja. With the rapid changes in the Station, it became necessary to review the MoU between IITA and FCTA.

After consultations between IITA Management and FCTA authorities, the reviewed MoU was signed at the Ministry's Secretariat in Garki, Abuja by the Mandate Secretary of the FCTA Agriculture and Rural Development Secretariat (ARDS), Mallam Abubakar Ibrahim, and Professor Sanni. FCTA Director of Agric Services Ihekandu Francisca and IITA Yam Seed System Specialist Beatrice Aighewi witnessed the signing.

The MoU emphasizes the implementation of activities such as outreach and capacity development. IITA's technology will be deployed to teach and train the youth, farmers, and other agricultural stakeholders in FCTA, which will complement the Federal Government and FCTA's efforts to guarantee food and nutrition security within the capital and beyond.

Also, the partnership will allow farmers, processors, and youth in agribusiness to create more jobs, thereby sustaining their livelihoods. FCTA staff stand to benefit from the technical and administrative skills of IITA in project dissemination.

Sanni thanked the FCTA on behalf of DG Sanginga for the renewed partnership. *Contributed by Terngu Abur*