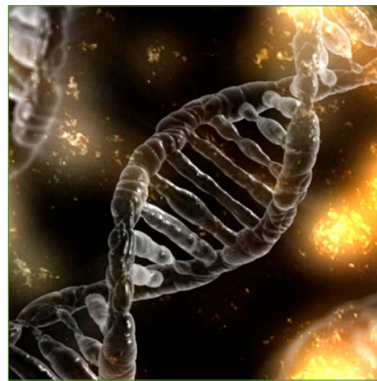

Scientific Tracks & Sessions

October 25, 2018

Food Technology 2018

Biotechnology 2018



3rd International Conference on
Food Science & Technology
World Congress on
Biotechnology & Medical Microbiology
October 25-26, 2018 | Frankfurt, Germany

3rd International Conference on
Food Science & Technology

World Congress on
Biotechnology & Medical Microbiology
October 25-26, 2018 | Frankfurt, Germany

Biological pretreatment of lignocellulosic material for increased biogas production by anaerobic digestion

Jaron C Hansen
Brigham Young University, USA


Without pretreatment, anaerobic digestion of lignocellulosic material typically converts only one-third of the carbon into biogas which is typically only 60% methane. Physical and chemical pretreatments to increase biogas production from biomass have proven to be uneconomical. The anaerobic thermophile, *Caldicellulosiruptor bescii*, has been shown to be capable of solubilizing up to 90% of lignocellulose, thus making the carbon accessible for anaerobic digestion. Preliminary experiments show *C. bescii* is capable of solubilizing a wide range of lignocellulosic materials. Anaerobic digestion readily and rapidly converts the soluble products into biogas with 70-80% methane. Isothermal microcalorimetry measurements have provided a thermodynamic understanding of the process. We have applied the pretreatment/anaerobic digestion process to

giant king grass, corn mash, corn stover, waste activated sludge (WAS), almond shells and algae and found the biogas yield significantly improved. Results from experiments conducted using isothermal microcalorimetry as well as larger-scale 30L and 60L reactor pretreatment/anaerobic digestion experiments will be presented

Speaker Biography

Jaron C Hansen is a Professor of Chemistry and Biochemistry at Brigham Young University (Provo, Utah, USA) and Co-founder of Verde and Anaerobic Digestion Technologies (AD Tec). His research involves improving the understanding of atmospheric and environmental chemical processes through focused laboratory, field and computational studies as well as the development of improved anaerobic digestion methods for enhanced production of biogas and for degradation of waste substrates.

e: jhansen@chem.byu.edu

 Notes:

3rd International Conference on
Food Science & Technology

World Congress on
Biotechnology & Medical Microbiology
October 25-26, 2018 | Frankfurt, Germany

Machining effect of the blade position and rotor speed of centrifugal separator on Grape Marc separation performance


Alessandro Leone
University of Foggia, Italy

The use of a centrifugal separator was evaluated to separate the seeds from fresh marc after wine making process and to identify the best setting of the machine. Five different reels speed rotation (480, 576, 687 and 842rpm) and two different blades adjustments (Type-A blade = 1.5 mm and Type-B blade = 8.5 mm) have been evaluated, at the same mass flow rate (350kg h⁻¹). Results showed that using a centrifugal separator for the seeds separation from the fresh grape marc is possible, reaching by setting the optimal rotation speed of the reel (480rpm) and the best distance between blades and cylinder (8.5mm - Type-B blade).

Speaker Biography

Alessandro Leone is an Associate Professor in agricultural mechanics and food processing plants, SAFE department, engineering area, University of Foggia, where he teaches mechanics and mechanization in agricultural, food engineering and work safety. His major research topics are, in food processing plants: agro-food industry plants and process settings, processing logic control, recovery of agro-food waste by-products to useful composts in agriculture, as well as waste management and in agricultural mechanics: Analysis of the vibrations transmission mode from the vibrating heads to the trunk of olive trees and subsequent optimization; study, design of mobile elevating work platforms; safety devices on tractors and machinery

e: alessandro.leone@unifg.it

 Notes:

Possible reasons for the difference in the prevalence of Multiple Sclerosis between European -American and African - Asian Jews, as based on their diet: Ecological considerations

Klaus Lauer

Griesheim, Germany


In the population of Israel, a marked difference has been reported in the prevalence of multiple sclerosis between European / American (EA) and African / Asian (AA) inhabitants (Alter *et al.* 2006): EA Jews have a two - fold higher rate than AA Jews. This distinction in population groups is similar of the variation in Ashkenazim and Sephardim. As a first step to elucidate dietary reasons for that difference, the bibliography of Ashkenazim diet in Europe and America was compared with that of the Sephardim diet in North Africa and the Middle East. As a result, it became evident that Sephardim used a higher amount of: (1) vegetable oil; (2) turmeric; (3) dried vegetables and dried fruits; (4) garlic; (5) cinnamon; (6) nuts; and (7) onions than Ashkenazim. Many of these foods were shown to have immunosuppressive effects in the experimental - allergic

- encephalitis (EAE) model of MS. In contrast, Ashkenazim cuisine was particularly rich in a variety of smoked meats that were unknown to Sephardim. Thus, it might be advised to all people to approximate rather more the Sephardic cooking methods, to remain free of MS during lifetime.

Speaker Biography

Klaus Lauer worked in patient care. Since 1980 he was responsible, in the same hospital, as leading physician in a long - term research project on the epidemiology of multiple sclerosis (MS). During that time, he had visited and interrogated more than 1,000 MS patients, and he published many scientific papers on MS. He was also engaged in teaching activities for medical students. In 2000, he was retired as physician, but he continued has scientific publications on the epidemiology of MS until the present day. In the last 10 years, dietary factors, as one possible reason for this multivariate disease, came into the focus of my research.

e: drklauslauer@aol.com

 Notes:

HSV and its effects in fatal primary infection in the peripartum period

Samuel Moses

East Kent Hospitals University NHS Foundation Trust, United Kingdom


Herpes simplex virus infection in pregnancy can be encountered either as a primary HSV infection or HSV reactivation. The risk of primary HSV infection in causing neonatal HSV that carries high neonatal morbidity/mortality is well known. However, less frequently encountered is the phenomenon of fatality in mothers after acquiring primary HSV-1 in the late partum/peripartum period. Peripartum period is a time of relative significant immunosuppression in the mother, more specifically in regard to disturbance in T-cell function with dysregulated immune function. 2 such instances of fatal HSV-1 occurred in relatively healthy young women who presented with sudden onset systemic shock and DIC (diffuse intravascular coagulation) and liver failure 1-2 weeks after delivery by LSCS (lower segment caesarean section). Various virological and immunological studies and the histological features confirmed this as primary HSV-1 infection

in the mothers with florid HSV-1 viraemia, HSV hepatitis and multi-organ failure. Data on HSV sequencing investigating linkage between these 2 cases that occurred within 8 weeks in a region will be presented along with literature on what, why and how primary HSV in the early postpartum period has been fatal to the mothers whilst sparing the neonates.

Speaker Biography

Samuel Moses is a consultant microbiologist & virologist. His clinical practice includes infectious diseases clinic & ward consultations, infection pathology service consultations, infection control and outpatient clinics. His interests and expertise specifically are in sexually transmitted/blood borne infections (STI, HIV, HBV, HCV) and transplant infections (haematopoietic stem cell transplantation, solid organ transplantation). Samuel Moses is involved in operational and technological advancements in the field of molecular diagnostics and in employing newer methods in infection diagnostics and also been a member of and contributed to legacy PHE (Public Health England) Programme Boards and to NICE technology appraisals relating to BBV (blood borne viruses) and AMR (antimicrobial resistance).

e: samuel.moses@nhs.net

 Notes:

ΔFlucs: Brighter Photinus pyralis firefly luciferases identified by surveying consecutive single amino acid deletion mutations in a thermostable variant light up stem cell therapy for Huntingdon's disease *in vivo*

Amit Paul Jathoul¹, Mutwakil Abdulla¹, Lisa M Halliwell¹, Jack P Bate¹, Harley L Worthy¹, D Dafydd Jones¹, William Gray¹, James A H Murray¹ and James C Anderson²

¹Cardiff University, United Kingdom

²University College London, United Kingdom


The bright bioluminescence catalysed by *Photinus pyralis* firefly luciferase (Fluc) enables a vast array of life science research such as bio imaging in live animals and sensitive *in vitro* diagnostics. The effectiveness of such applications is improved using engineered enzymes that to date have been constructed using amino acid substitutions. We describe Flucs: consecutive single amino acid deletion mutants within six loop structures of the bright and thermostable × 11Fluc. Deletion mutations are a promising avenue to explore new sequence and functional space and isolate novel mutant phenotypes. However, this method is often overlooked and to date there have been no surveys of the effects of consecutive single amino acid deletions in Fluc. We constructed a large semi-rational ΔFluc library and isolated significantly brighter enzymes after finding ×11 Fluc activity was largely tolerant to deletions. Targeting an “omega-loop” motif (T352-G360) significantly enhanced activity, altered kinetics, reduced Km for D-luciferin,

altered emission colours, and altered substrate specificity for redshifted analog DL-infraluciferin. Experimental and *in silico* analyses suggested remodelling of the Ω-loop impacts on active site hydrophobicity to increase light yields. This work demonstrates the further potential of deletion mutations, which can generate useful Fluc mutants and broaden the palette of the biomedical and biotechnological bioluminescence enzyme toolbox. Lastly, we constructed a redshifted deletion mutant which allowed us to track primary stem cells implanted into rat brain models of Huntingdon's disease.

Speaker Biography

Amit Paul Jathoul completed his PhD at the age of 29 years from Cambridge University, United Kingdom. He is a SER CYMRUII Fellow of Cardiff University, United Kingdom. He has 12 publications including an article having been cited over 160 times, and is currently inventing/ developing new and exciting tools for bioluminescence imaging.

e: JathoulA@Cardiff.ac.uk

 Notes:

Prevalence of upper respiratory tract fungal infections in HIV patients clinically symptomatic suspects for pulmonary *Mycobacterium tuberculosis* attending Kiwoko Hospital - Nakaseke District (Uganda)

Yusuf Muyingo, Bakayita Charles Bwanika and Emunyu Jude
Kiwoko Hospital, Uganda

Introduction: Fungal upper respiratory tract infections are a major cause of morbidity and mortality among HIV positive patients. However, due to similar clinical symptoms with *Mycobacterium tuberculosis* it has been a challenge to correctly diagnose upper respiratory tract fungal infections (URFIs) in HIV patients.

Objectives of the study: The study sought to determine the prevalence of the URFIs in HIV positive patients clinically symptomatic for pulmonary TB attending Kiwoko hospital with reference to sex, age group, and to understand its association with HIV co-infection.

Methodology: A cross sectional study on 138 subjects selected by simple random sampling was conducted. Their sputum samples quality was assessment for both macroscopic (Medical Research Council method) and microscopic (Bartlett scoring method) examinations followed by immediate Direct KOH smears, Gram's staining technique for the presence of hyphae and yeasts. Culturing was done on 5% Sheep Blood agar and Sabouraud's dextrose agar for screening characteristic colonies of fungal organisms including their texture. *Mycobacterium tuberculosis* results were directly obtained from gene expert data system.

Results: 30.4% of the participants were screened URFIs positive,

10.1% with *Mycobacterium tuberculosis*, 3.6% screened positive for both TB and URFIs and 6.5% with *Mycobacterium tuberculosis* only. 17.4 % females and 13.0 % males were screened positive for upper respiratory fungal infections, while 32.6% females and 37.0% males were screened as negatives. 2.2%, 3.6%, 13.8%, and 10.1% of the participants were screened positive for URFIs according to age groups 0-14, 15-24, 25-49, and ≥50 years respectively.


Conclusions: URFIs are clinically misdiagnosed as TB in HIV patients symptomatic for pulmonary *Mycobacterium tuberculosis*.

Recommendation: Fungal screening is co-currently performed with TB testing among HIV patients presenting with TB symptoms and ensuring that the community is sensitized on this.

Speaker Biography

Yusuf Muyingo has completed his diploma at the age of 29 years from Mildmay Institute of Health Sciences, Uganda. He is the director of Health Competence Implementers Uganda, Uganda. He looks forward publishing guide lecture notes in medical laboratory technology and practical guides and practical training sessions in the same field in Uganda to promote competence. Has been serving as a medical laboratory personnel of Kiwoko hospital since 06/ 2012. He has been contributing his effort in medical camps and awareness campaigns in Uganda.

e: yusufmuyingo564@gmail.com

 Notes:

Tissue culture propagation in Banana cv. Rajapuri Bale (*Musa spp.*, AAB group)

Prabhuling Guranna, Rashmi H, Kulapathi H, Babu AG and Satish D
 University of Horticulture Sciences, India


Banana (*Musa spp.*) cv. Rajapuri Bale (AAB) is a popular cultivar of banana grown in Northern parts of Karnataka state in India. The demands for the planting material of this cultivar is high and tissue cultured plantlets are not available because of the inherent problem in the initial establishment of the culture and multiplication rate is also low. For facilitating large scale multiplication of this cultivar, the present investigation was carried out using different antioxidants and cytokinins to enhance shoot proliferation. The shoot tip explants were cultured on MS basal medium supplemented with different kinds and concentrations of antioxidants (ascorbic acid, citric acid, activated charcoal and dark incubation). Among the different treatments, ascorbic acid at 225 mg/l resulted effective control of browning (0 - no browning) and highest aseptic culture establishment (40 %). However, least polyphenol oxidase activity (39.55 unit/ml/min) and days taken for bud sprouting (21 days) were recorded with dark incubation followed by ascorbic acid (225 mg/l). Multiple shoot clumps explants inoculated on MS basal medium fortified with different kinds and concentrations of cytokinins (6-Benzylaminopurine (BAP), Thiadiazuron (TDZ) and BAP with α -Naphthaleneacetic acid (NAA). Among different cytokinins, BAP 4 mg/l was found best for shoot growth parameters like regeneration (100 %),

days taken for bud sprouting (5.41), number of shoots per explants (3.13), number of leaves per shoot (2.07), shoot length (4.72 cm) and fresh weight of the plantlets (3374.80 mg/plantlet). The results obtained using RAPD markers showed 94.08 % monomorphism and 5.92 % polymorphism which was under the permissible limit. The exposure of banana cultures during *in vitro* culture to different concentrations of antioxidants and cytokinins was found not associated with the risk of genetic instability as revealed by RAPD markers.

Speaker Biography

Prabhuling Guranna has completed his PhD in Horticulture with specialization in banana plant tissue culture in 2011 from University of Agricultural Sciences, Bangalore, India. He participated in post graduate course on "Adapting to Climate Change: Biotechnology in Agriculture in a World of Global Environmental Changes" from 2.05.2011 to 30.06.2011 at Rehovot, Israel. Presently he is working as Associate Professor of plant biotechnology at University of Horticultural Sciences, Bagalkot, India. He has over 35 research publications that have been cited over 12 times, his RG score is 9.11 and H-index is 2 and has been serving as an editorial board member of reputed Journals viz., Research Journal of Biotechnology and European Journal of Medicinal Plants. He is MASHAV alumni, life member of International Society of Biotechnology, Karnataka Horticultural Society and Association for the Improvement in Production and Utilization of Banana. He received first best oral presentation award at National Conference on Production of Quality Seeds and Planting Material – Health Management in Horticultural Crops in 2010.

e: gprabhuling@gmail.com

 Notes:

Quantification of Provitamin A and Vitamin C in *Passiflora alata* Curtis and *Passiflora edulis* f. *edulis* Sims Using HPLC

Juan Manuel Parra Gomez, Jorge L Betancurt, Diego A Montoya, John Ocampo, Diego Lope Hector J Osorio and Susana Hernández
National University of Colombia, Colombia

The edible fruit species of the genus *Passiflora* L. are important for their nutritional value, health-promoting components, and medicinal properties. Nutrient composition studies of the rare and lesser common *Passiflora* species remain central to assess their potential health benefits. In this work, pulp extracts of *P. alata* Curtis (sweet passion fruit), a species from Brazilian, Colombian and Peruvian Amazon, were analyzed to determine provitamin A and vitamin C contents using High Performance Liquid Chromatography (HPLC) and the results were compared with those obtained for *P. edulis* f. *edulis* Sims (purple passion fruit). On a fresh weight (fw) basis, *P. alata* and *P. edulis* f. *edulis* contain 3591 g/100 g and 4346 g/100 g, respectively, of provitamin A (all- trans- β -carotene). Therefore, the vitamin A content of *P. alata* measured in retinol activity equivalents (RAE) is 299.3 g RAE/100 g (5985 IU/100 g) and that of *P. edulis* f. *edulis* is 362.2 g RAE/100 g (7243 IU/100 g). The total amount

of vitamin C (acid L- ascorbic and dehydroascorbic acid) found in *P. alata* was 5.78 mg/100 g and *P. edulis* f. *edulis* was 19.12 mg/100 g. Our results indicate that consumption of sweet passion fruit and purple passion fruit could provide meaningful amounts of vitamin A and vitamin C, which would contribute to achieve the recommended daily intake for both vitamins.

Speaker Biography

Juan Manuel Parra Gomez is a final year undergraduate student at National University of Colombia, Colombia, South America. He is expected to receive his Chemical Engineer degree in september 2019. He joined the bioproducts research group of Susana Hernandez at the same university in february 2016 to work on the identification of *Ganoderma* species from Colombia, cultivation of *Pleurotus* mushrooms, and quantification of vitamin C and provitamin A in *Passiflora* species cultivated in Colombia, using HPLC. The purpose of the bioproducts research groups is to provide information that can be applied in biotechnology to solve health and nutrition problems

e: jmparrag@unal.edu.co

Scientific Tracks & Sessions
October 26, 2018

Food Technology 2018
Biotechnology 2018



3rd International Conference on
Food Science & Technology
World Congress on
Biotechnology & Medical Microbiology
October 25-26, 2018 | Frankfurt, Germany

Assessment of technological properties of low- fat yoghurt enriched with beta-glucan and probiotic bacteria

Saied Aboushanab and Irina Selezneva

Ural Federal University, Russia


Fermented dairy products represent a vital constituent of the human diet globally. Fat content is the most critical parameter in yoghurt manufacturing. At the same time, excessive intake of dietary fat resulted in serious health disorders. It is also well-known that probiotics were confirmed to enhance the consumer health and digestive system. Besides, functional probiotic yoghurt with β glucan added is considered as an alternative to the conventional yoghurt presented in the market. In our research, we were able to prepare low-fat yoghurt fortified with standard oat β -glucan 86% (Johncan Mushroom Bio-technology) using standard bacterial culture (*Streptococcus thermophilus* & *Lactobacillus bulgaricus*) and probiotic *Lactobacillus* & *Bifidobacterium* strains (Yogurtel), as an adjunct culture, and investigated their rheological and sensory properties. The production was carried out using full-fat 3.2% and low-fat 2.5% milk (Irbitskoe). Three different experimental groups were produced with 0.1, 0.15 and 0.2% β -glucan for low-fat yoghurt. In addition, two control groups of full-and low-fat yoghurts (without β -glucan) produced with the standard culture and standard culture with probiotics were assessed for comparison. The viability of lactic acid bacteria (LAB), probiotic bacteria, rheological, colour and sensorial characteristics were determined. The addition of β -glucan

promoted the growth of *Lactobacillus* and *Bifidobacterium* strains in yoghurt. The results demonstrated that the use of β -glucan in the manufacture of yoghurt did not significantly impact on the pH and titratable acidity. However, whey separation, viscosity and sensory scores were influenced. The level of syneresis was affected in low-fat yoghurt production and improved the rheological properties of the final products. The best results were obtained by addition of the composite at a level of 0.2 % for the manufacture of low-fat yoghurt. It was concluded that the addition of β -glucan with probiotics enhanced microbiological and rheological properties of yoghurts which may improve the health benefits of consumers.

Speaker Biography

Saied Aboushanab has completed his bachelor's degree from Alexandria University, Egypt. He also has got a one-year post-bachelor Diploma in Food Hygiene from Alexandria University. He has over 3 years' experience that has been gotten within several companies and universities and has been serving as a control manager of milk and meat products. He was the inspector of a Milk Dairy House and Automatic Abattoir in NSPC Egyptian Military Project. He has got professional training courses in GMP, HACCP and ISO 22000:2005 implementation as well. He is speaking several languages, Arabic (native), English (fluent) and Russian (fluent). Nowadays, he is a Research Engineer and a master student at Ural Federal University, Russia. He is seeking to publish various articles in the area of his research and interest.

e: saiedaboushanab@gmail.com

 Notes:

***Caenorhabditis elegans* as a model organism for studying the anti-aging potential of exotic fruit extracts**

Mariana Roxo and **Michael Wink**
 Heidelberg University, Germany


The unprecedented increase in human life expectancy poses a major challenge to modern developed societies: How can we stay healthy and live longer? To meet the public demand, the pharmaceutical and food industries have been introducing many plant-based products, for example the so-called superfoods, superfruit juices and extracts, as an effective strategy to counteract the negative effects of aging. The European Union is the world's largest market for superfoods, accounting for more than 40% of the total world imports. Although largely consumed, most of these products fall into the category of dietary supplements lacking a science-based evidence of safety, quality and efficacy. The nematode (roundworm) *Caenorhabditis elegans* is a well-established model organism in biology, especially in the field of aging research. *C. elegans* has successfully contributed to the elucidation of molecular pathways implicated in the human aging process and development of

age-related diseases. It has a short life cycle, large offspring and transparency throughout the whole lifespan. Therefore, *C. elegans* has been emerging as a cost-effective alternative to animal testing in medium/high-throughput screening of natural products with potential anti-aging activity. In this talk, we will present a straightforward workflow to investigate the benefits and to unveil the mechanism of action of exotic fruit extracts on the promotion of health and longevity in *C. elegans*.

Speaker Biography

Mariana Roxo is currently a PhD student at the Institute of Pharmacy and Molecular Biotechnology, Heidelberg University, Germany. Her research focuses on the antioxidant and anti-aging potential of emergent and neglected exotic fruits from Brazil, using the nematode *Caenorhabditis elegans* as a model organism. She obtained her master's degree in Biodiversity and Plant Biotechnology at the University of Coimbra, Portugal, in which she investigated the anti-inflammatory and antifungal activities of essential oils, isolated from Iberian endemic *Thymus* species.

e: roxo@stud.uni-heidelberg.de

 Notes:

Chemical composition and non-volatile components of three wild edible mushrooms collected from Northwest Tunisia

Ibtissem Kacem Jedidi

Central University of Tunisia, Tunisia


Numerous species of wild growing mushrooms are widely consumed as a delicacy in Tunisia. This work aims to characterize and valorize the wild edible mushrooms of six Tunisian species, *Cantharellus cibarius*, *Lactarius deliciosus*, *Boletus edulis*, *Hydnum repandum*, *Tricholoma equestre*, *Agaricus campestris*, collected from different regions of Tunisia. The biochemical composition of wild mushroom species has shown that they have a low dry matter content (varies between 9 and 16%) with a high carbohydrate content (40.33 ± 0.11 and $72.24 \pm 0.27\%$ DW for *A. campestris* and *C. cibarius* species, respectively) and protein content (12.37 ± 0.11 and $37.41 \pm 0.32\%$ DW for *C. cibarius* and *A. campestris* species, respectively). Fungi are characterized by a high mineral especially, in K, Na and Mg. The lipid fraction is very low but the unsaturated fatty acids predominate on their composition because of the high contribution of linoleic acid followed by oleic acid. The determination of the sugar composition shows that trehalose and mannitol are, respectively, the major sugar and polyol of mushrooms. Moreover, the maximum trehalose and mannitol content are recorded respectively in the wild species *C. cibarius* ($12.01 \pm 0.91\%$ DW) and *T. equestre* (7.99

$\pm 0.40\%$ DM). Protein fraction shows a richness in essential amino acids which represents more than 50% of the total content of amino acids in the majority of species. The most abundant amino acids in all the species analyzed are leucine and phenylalanine. The ethanolic extracts from different species of wild mushrooms have considerable total phenol contents (ranging between 7.58 ± 0.08 and 9.29 ± 0.11 mg EAG / g DE) as well as appreciable levels of flavonoids (between 4.02 ± 0.08 mg and 1.29 ± 0.02 mg EQ / g DE). Measurements of antioxidant activity has shown that the extract of *B. edulis* is the most active using the DPPH test (0.38 ± 0.07 mg / mL).

Speaker Biography

Ibtissem Kacem Jedidi hold her Engineer diploma in Food Industries from ESIAT (High School of Food Industries of Tunisia) (2008). Her Master's and Ph.D (Food Industries) degrees from High School of Food Industries of Tunisia (2010-2018 respectively). She worked in 2009 at AGRO-FRESH industries as a quality manager (production of fully-dried semi-dried tomato: implementation of ISO 22000). She taught from 2011 to 2013 the classes of engineers, practical work of biochemistry food and microbiology food and industry, at the polytechnic central private school of the Central University of Tunisia. Her research interests included toxic wild mushrooms (master's research) and wild edible mushrooms (Ph.D research).

e: ibtissem.kacem@yahoo.fr

 Notes:

Induction of disease resistance in regionally important banana cultivars through *in vitro* mutagenesis

Prabhuling Guranna, Rashmi H, Kulapathi H, Babu AG and Satish D
University of Horticulture Sciences, India


Bananas and plantains (*Musa spp.*) represent one of the most important tropical fruit crops in the world. It is widely grown in India with great socio-economic significance. Conventional breeding methods have been of limited success due to parthenocarpy, polyploidy and limited available information on genetics and genomics. Therefore, mutation breeding combined with *in vitro* culture is regarded as a new technology for induction of disease resistance in banana. The prime objective of the present study was to induce disease resistance in regionally important banana cultivars viz., Rajapuri Bale (AAB), Ney Poovan (AB), Nanjanagudu Rasabale (AAB) and Red Banana (AAA) through *in vitro* mutagenesis and screen the putative mutants against panama wilt and yellow sigatoka diseases. The multiple shoot bud aseptic cultures were treated with gamma irradiation (25, 30, 35, 40 and 45), EMS (0.30, 0.60 and 0.90 %), Sodium azide (0.01, 0.02 and 0.03 %) and BAP (10, 15 and 20 mg/l). After treatments, cultures were immediately transferred to multiplication medium. The proliferated cultures were sub cultured for five times onto fresh multiplication medium with each subculture involving 25-30 days to disassociate chimeras. The *in vitro* regenerated putative mutants of Ney Poovan, Nanjanagudu Rasabale and Rajapuri Bale, Red Banana were screened for their reaction to panama wilt and yellow sigatoka disease, respectively in nursery. These putative mutants were further characterized by using morphological and SSR

markers. Six and five putative mutants derived through gamma irradiation were found tolerant to panama wilt in Nanjanagudu Rasabale and Ney Poovan, respectively, whereas, six and eight putative mutants obtained through chemical mutagenesis were reported tolerant to panama wilt in Nanjanagudu Rasabale and Ney Poovan, respectively. About resistance to yellow sigatoka, six and five gamma irradiated mutants were found tolerant in Rajapuri Bale and Red banana, while, seven putative mutants each derived through chemical mutagenesis were reported tolerant in Rajapuri bale and Red banana. Morphological and molecular characterization of putative mutants showed remarkable differences in variations within four banana cultivars.

Speaker Biography

Prabhuling Guranna has completed his PhD in Horticulture with specialization in banana plant tissue culture in 2011 from University of Agricultural Sciences, Bangalore, India. He participated in post graduate course on "Adapting to Climate Change: Biotechnology in Agriculture in a World of Global Environmental Changes" from 2.05.2011 to 30.06.2011 at Rehovot, Israel. Presently he is working as Associate Professor of plant biotechnology at University of Horticultural Sciences, Bagalkot, India. He has over 35 research publications that have been cited over 12 times, his RG score is 9.11 and H-index is 2 and has been serving as an editorial board member of reputed Journals viz., Research Journal of Biotechnology and European Journal of Medicinal Plants. He is MASHAV alumni, life member of International Society of Biotechnology, Karnataka Horticultural Society and Association for the Improvement in Production and Utilization of Banana. He received first best oral presentation award at National Conference on Production of Quality Seeds and Planting Material – Health Management in Horticultural Crops in 2010.

e: gprabhuling@gmail.com

 Notes:

Early detection of multidrug resistant (MDR) *Mycobacterium tuberculosis* in a single tube with in-house designed fluorescence resonance energy transfer (FRET) probes using real-time PCR**Devendra Singh Chauhan**

National JALMA Institute for Leprosy & other Mycobacterial Diseases (ICMR), India


Rapid and correct diagnosis is crucial for the management of multidrug resistance (MDR) in *Mycobacterium tuberculosis* (MTB). The present study aims at rapid diagnosis for identification of multidrug resistance tuberculosis (MDR-TB) using real-time PCR. FRET hybridization probes targeting most prominent four selected codons for rpoB526 and 531 and for katG314 and 315 genes were designed and evaluated on 143 clinical MTB isolates and paired sputa for rapid detection of MDR-TB. The results of real-time PCR were compared with gold standard L-J proportion method and further validated by DNA sequencing. Of the 143 MTB positive cultures, 85 and 58 isolates were found to be 'MDR' and 'pan susceptible', respectively by proportion L-J method. The sensitivity of real-time PCR for the detection of rifampicin (RIF) and isoniazid (INH) were 85.88 and 94.11%, respectively, and the specificity of method was found to be 98.27%. DNA sequencing of 31 MTB isolates having distinct

melting temperature (T_m) as compared to the standard drug susceptible H37Rv strain showed 100% concordance with real-time PCR results. DNA sequencing revealed the mutations at Ser531Leu, His526Asp of rpoB gene and Ser315Thr, Thr314Pro of katG gene in RIF and INH resistance cases. This real-time PCR assay that targets limited number of loci in a selected range ensures direct and rapid detection of MDR-TB in Indian settings. However, future studies for revalidation as well as refinement are required to break the limitations of MDR-TB detection.

Speaker Biography

Devendra Singh Chauhan is a scientist in the department of Microbiology and Molecular biology at National JALMA Institute for Leprosy & other Mycobacterial Diseases (ICMR). His interest and researches are towards investigation of *Mycobacterium Tuberculosis* and has successfully worked on the various results of the same. He also worked as a core scientist in group of Dr. V M Katoch, Former secretary DHR & DG, ICMR (Indian Council of Medical Research).

e: devchauhan01@yahoo.co.in

 Notes:

Genotyping of rotavirus in neonatal calves with acute gastroenteritis in Iraq

Atheer Abdulrazzaq Abdulazeez Aldoori and Modher Nagem Abed
University of Baghdad, Iraq

Globally, rotavirus is the common major etiologic agents of diarrhea in infant, young children and neonatal calves. It is very important to early diagnose the disease for effective treatment. The objective of this study was to determine the prevalence, molecular characteristics, and the effect of rotavirus strains for severe gastroenteritis in neonatal calves in five Iraqi governorates (Al-Qadissiya, Babel, Kerbala, Missan, Wassit). A total of 125-stool specimens were examined, it have been collected from calves form the period between November 2015 to March 2016. The ages were ranging from 6 to 60 weeks. The specimens were examined using chromatographic immunoassay, enzyme-linked immunosorbent assay (ELISA) and Polymerase-chain reaction (PCR). Our results gave us 67 (53.6%) positive by chromatographic immunoassay, 45 (36%) positive by ELISA and 32 (25.6%) positive by PCR. Genotyping were analyzed by multiplex PCR. Genotype

combination G1P[8] was (30%) followed by G1P[4] (20%), G3P[4] (20%), G2P[4] (10%), G2P[8] (10%) and G9P[4] (10%). Such information will not only aid in seeking advocacy for introducing rotavirus vaccine in national immunization program in Iraq but will also help in the evaluation of the efficacy of these vaccines in relation to the rotavirus genotyping circulation.

Speaker Biography

Atheer Abdulrazzaq Abdulazeez Aldoori is a microbiologist working in department of microbiology, Veterinary medical college, University of Baghdad. He got his BSc in science college, University of Baghdad in 1984 and worked in Al Mansur factory as a microbiologist. His got his MSc Bacteriology in Veterinary College and worked as head of department of bacteriology at Al Razee center for research and diagnostic kits in Ministry of Industry and Materials. Atheer did his PhD in virology from University of Almustanseria, department of biology and started publishing his works in journals.

e: aaldouri96@yahoo.com

 Notes: