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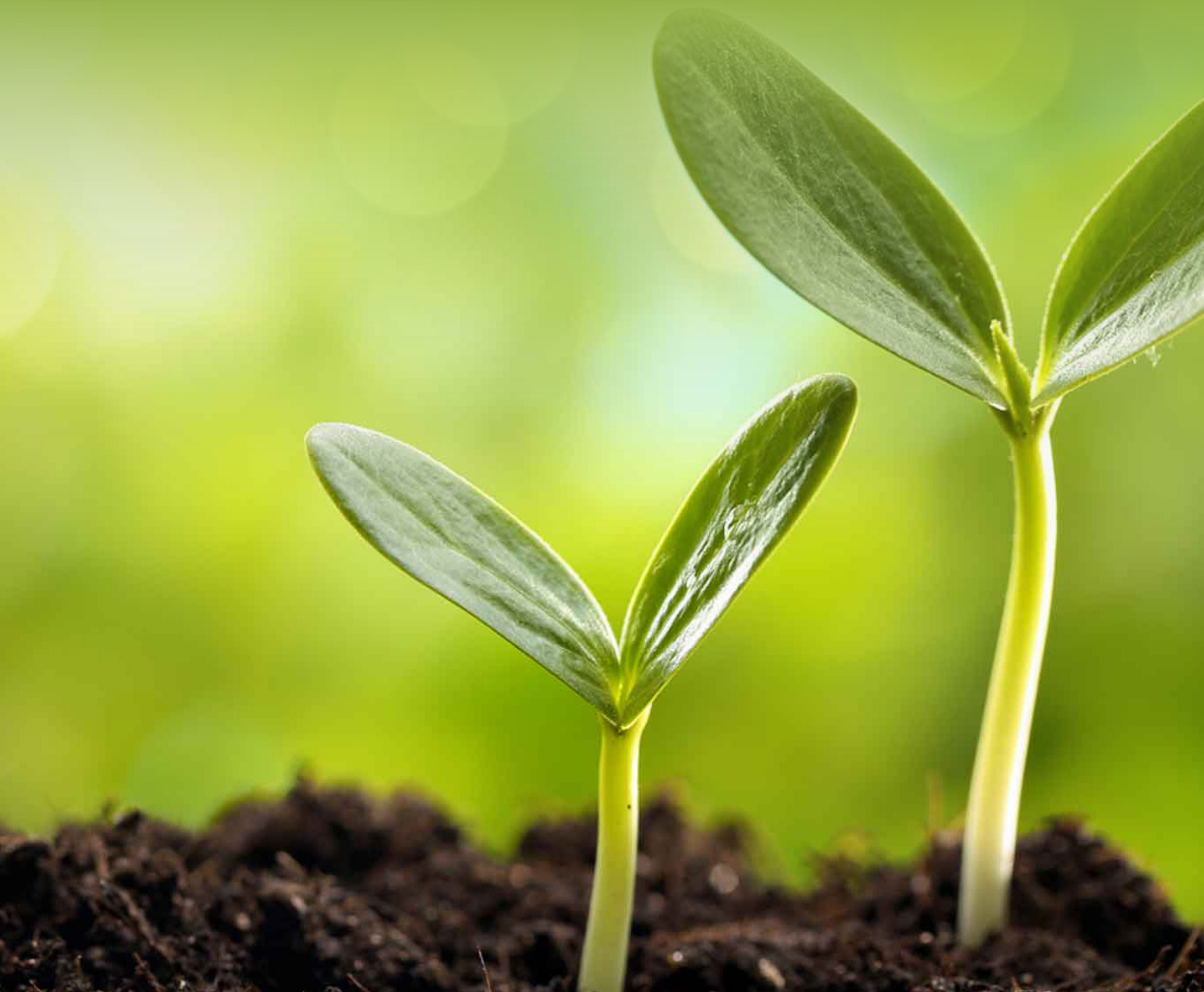

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Brassinosteroids: sixth group of plat hormones

N. Bhushan Mandava, Ph.D
Repar Corporation, 8070 Georgia Avenue, Silver Spring, Maryland 20910, USA

Plant hormones play a crucial role in plant growth and development. There were originally 5 major plant hormones, auxins, gibberellins, cytokinins, ethylene and abscisic acid. All these hormones have independent roles within the plant, but also work in tandem in order to regulate plant growth and development. As such, commercial versions of these plant growth hormones [also referred to as plant growth regulators (PGRs)] were developed for their application to agricultural crops. Auxins are one of the major groups of plant hormones that regulate cell growth and expansion, and they play a major role in stem elongation. It is produced in the stem, buds and root tips of the plant. Gibberellins are another group that stimulate cell elongation, and play prominent role in germination, flowering and fruit ripening. They are synthesized by the plastids but require modification in the Endoplasmic Reticulum and to reach their active form. Cytokinins are another important group of plant hormones that promote cell division in the roots and shoots of plants. Zeatin is a naturally occurring cytokinin. Kinetin is a synthetic PGR that is widely used in place of cytokinins. Ethylene regulates stress responses, growth and development and plays an important role in the ripening of fruit, among others. Abscisic acid plays an important role in seed and bud dormancy. The first discovery of new plant hormones, named Brassins, was reported by Mitchell and Mandava in 1970 at USDA Laboratory in Beltsville, Maryland. Over a 9-year period at USDA Laboratories in Beltsville, Philadelphia, Peoria, Dr. N. Bhushan Mandava and his coworkers were involved in idetifying the active substance from Brassins. He, along with a team of other chemists, biochemists and chemical engineers developed a chemical process that isolated 10 mg of a pure crystalline product from over 500 lbs of rape (Brassica napus) pollen. The discovery of this substance, later named Brassinolide (present at 200 ppb level), is considered one of the greatest scientific achievements in plant sciences. It is recognized as the SIXTH major plant hormone group. and has major cellular implications in the realm of plant biology. In 1979, Dr. Grove and Dr. Mandava characterized it as brassinolide, which is the first plant hormone in a group of over 70 brassinosteroids found in nature. These new plant hormones have incredible potential for agricultural applications. Since brassinolide is difficult to synthesize, the closely related analogs epi-brassinolide (EBR) and 28-homobrassinolide (HBR) were synthesized and developed for commercial uses. Besides Brassinolide (BL), HBR and EBR are the most active brassinosteroids. In the U.S., Switzerland and India, HBR is registered for commercial uses. Like BL, HBR enhances cell division and elongation, interacts synergistically with other other Plant Hormones, and protects plants from a variety of stress factors such as water, salt, heat, etc. It also elicits profound physiological responses at sub-micromolar concentrations. This is highly significant because farmers will need to use less material overall to reap the application benefits, which leads to more sustainable usage. The yield increases are verified by multiple field studies conducted in the United States and South America (Chile) as well as in Switzerland and India. A 2011 study showed that an application of HBR had table grapes increase in yield by 20-30%. These results are consistent throughout a variety of fruit crops, including blueberries, cherries, strawberries and more. A separate study conducted showed that the application of HBR to ‘Tulare’ cherries in multiple locations in California, Washingto, and Oregon showed clear decreases in maturation period and significant increase in stem removal force, in addition to overall increase in cherry quality with respect to color and firmness, among others - with no phytotoxicity. These studies confirm the ability of HBR to have significant application potential to a wide selection of crops for increased growth. Additionally, application of HBR shows the disease and climate resistance properties, which can further help growers achieve higher yields. HBR also perpetuates substantial yield increase in nut crops, with similar results in trialing with almonds, and walnuts. Dr. Mandava group applied for the registration of Homobrassinolide (HBR) with the U.S. Environmental Protection Agency (EPA) in order to commercialize HBR. The EPA granted the registration for HBR technical as a biopesticide in 2010 after reviewing the pertinent documentation regarding product chemistry, toxicology and other safety data. The EPA also granted a tolerance exemption for HBR, which means that the residues in HBR in treated food and fiber commodities are not of any health and safety concerns, and that HBR can therefore be used on all crops. To further prepare the product for a global market, the usage of HBR on fruit and nut crops (Grapes, Almonds and Walnuts) was also patented, with additional patents being developed for other crops. As a next generation PGR, HBR and other brassinosteroids represent the latest agrochemical

technology, and will be increasingly implemented across the world. Currently, there are ongoing initiatives to bring HBR into the EU (starting with Switzerland), Thailand, Kenya, and more.

Biography

Bhushan Mandava PHD, Maryland, USA.

bhushan.mandava@mandava.com

Wheat Fusarium head blight detection in wheat using Mask regional based convolutional neural networks

Wen-Hao Su[a,1], Jiajing Zhang[b,1], Ce Yang[a], Rae Page[c], Tamas Szinyei[c], Cory D. Hirsch[c] and Brian J. Steffenson[c]

[a]Department of Bioproducts and Biosystems Engineering, University of Minnesota, Saint Paul, MN 55108, USA

[b]College of Information and Electrical Engineering, China Agricultural University, Beijing 100083, China

[c]Department of Plant Pathology, University of Minnesota, Saint Paul, MN 55108, USA

Fusarium head blight (FHB) is a devastating wheat and barley disease worldwide. The causal pathogens of FHB also produce mycotoxins that can contaminate the grain. Disease resistant breeding is one of the best ways to reduce the impact of FHB. To develop disease resistant varieties, breeders must expose germplasm lines to the pathogen in the field and assess the disease reaction. Phenotyping breeding materials for resistance to FHB is time-consuming, labor-intensive, and expensive using conventional protocols. To develop a reliable and cost-effective field high throughput phenotyping system for assessing FHB, we focused on developing a method for processing color images of wheat spikes obtained from the field to accurately detect diseased areas using deep learning and image processing techniques. Mask regional based convolutional neural networks (Mask R-CNN) were used to train the spike detection model and achieved acceptable prediction rate (77.76%) in detecting wheat spikes from the images. Another Mask RCNN model was built for disease area detection on the detected spikes and the testing results obtain an accuracy precision (AP) of bbox as 63.38% and an AP of mask as 65.14%. This study shows the feasibility of field selection of the optimal wheat genome line for FHB resistance.

A fully labeled image set containing over 1000 field images of wheat will be open to the public for more accurate FHB detection results using other advanced image analysis algorithms.

Keywords: FHB, Mask R-CNN, wheat, field high-throughput phenotyping.

Biography

Assistant Professor in Department of Plant Pathology, University of Minnesota, Saint P US.

ceyang@umn.edu

Origin of species: How realistic is sympatric speciation in plants? The Evolution Canyon model

Eviatar Nevo
Member National Academy of Sciences USA

Speciation models are still controversial. Here I will demonstrate by ecological-genomics in four plant species, in the "Evolution Canyon" model, that sympatric speciation, i.e., speciation in a free breeding population, with divergent ecologies, and gene flow, first hypothesized by Darwin, is a common , rather than a rare model of plant speciation. "Evolution Canyon "I(EC) model, is a *microsite* in Mount Carmel, one of four such Evolution Canyons in Israel, consisting of opposite, abutting slopes, eroded in upper Cenomanian limestone's, embracing the Oren summer- dry river. The opposite slopes are dramatically divergent ecologically due to interslope *microclimatic divergence* caused by their orientation. The South -Facing Slope (NSF), is tropical, highly irradiated, hot, dry, and savannoid, hence also called the "African slope". The opposite North- Facing –Slope is temperate, shady, cool, humid, and forested. The average interslope distance is only 25O meters, yet unfolding divergent global biomes. The origin and evolution of the following four plant species at "Evolution Canyon" is by sympatric speciation. The crucifer *Ricotia lunaria*, related to Arabidopsis, and three wild grasses, the grass model, Brachyopodium stacei (2n=20), wild barley, *Hordeum spontaneum*, the progenitor of cultivated barleys, and wild emmer wheat, *Triticum dicoccoides*, the progenitor of cultivated wheat's, all speciated locally by sympatric speciation . Since microsites like "Evolution Canyon" abound globally, divergent geologically, microclimatically , edaphically, stressed physically or biologically, sympatric speciation seems a common speciation model across life from viruses and bacteria through fungi, plants and animals.

Biography

Nevo was elected to the National Academy of Sciences in 2000, and won the Israeli Prize of Life Sciences in 2016. In 2002 he was described as a "Highly Cited Researcher" in Current Content: Upper 1/2% of all published world research during last 2 decades (American Society for Information Science and Technology). According to Thomson Reuters, he is among the top highly cited researchers in the world. He is a Foreign Member of the Linnean Society London (1990), and of the Ukraine Academy of Sciences (1997), an Honorary Member of the Ukraine Botanical Society (1995), of the American Society of Mammalogists (2002), and the Israel Zoological Society (2007). He received Honorary doctorates from World University (1990), the University of Duisburg-Essen (2009) Germany, Yorker .

nevo@research.haifa.ac.il

Physiological response and lignin content after priming in bioenergy crop *Miscanthus x giganteus*

Hana Malinska
Jan Evangelista Purkyne University, Czech Republic

During last five years, traditionally mild climate of Czech Republic changed to very hot and dry (including spring season). Local plants and crops need to deal with this stressful change causing yield decline. Our major aim was to explore simple ways of „hardening" plants to deal with climate changes easily. Since hardening process in plant sis often connected to physical hardening of tissues via polymeric compounds like lignin, our second goal became exploration of priming effect to production of lignin.

Plant priming has been discussed as cheap and simple tool to improvement of plant qualities. Our preliminary results show impact of physical and chemical primers to young Miscanthus plants in terms of physiological changes and lignin content. Certain doses of vitamins, metals as priming compounds, as well as different initial cultivation conditions (cold, hot, dark,..) were applied to study changes in plant physiology. All plants studied were after short priming period cultivated in greenhouse under conditions mimicking latest trend of climate in Czech Republic.

Substantial changes in vegetation period and pigment production were found among different types of treatment. Some compounds (copper) increased amount of total lignin in plants (up to 2%), nitrogen application decreased amount of lignin by 5% and amount of cellulose decreased by 24% compared to control plants…

In this study, we obtained hardened plants with variety of lignin and cellulose content. This modulation can be very convenient for certain types of biomass processing...

Biography

Hana Malinska is teacher and researcher at Jan Evangelista Purkyne University, Usti nad Labem, Czech Republic. She completed her mater and Ph.D. thesis at Masaryk University, Brno. She worked as postdoc at Institute of Biophysics, Czech Academy of Sciences, Brno, Czech Republic.

malinskah@gmail.com

Comparison between the maceration extraction method and microwave assisted extraction (EAM) to obtain an ethanolic extract of *Agave angustifolia Haw*

López-Salazar Herminia
Instituto Politécnico Nacional, Mexico

Statement of the Problem: The maceration extraction method has been a traditional extraction method. This method is easy and simple to perform, but the prolonged extraction time is inconvenient and requires a large quantity of toxic solvents. For this reason, new extraction techniques have been developed, such as microwave assisted extraction (MAE), which showed some advantages over conventional extraction methods, such as higher yield, shorter extraction time and environmentally friendly solvents. The A. angustifolia Haw has evidence of pharmacological of different activities like the immunomodulatory. This activity was evaluated by an acetonic extract obtained by the maceration method. It has been demonstrated that the one compound responsible for this activity was β-sitosteryl β-D-glucoside (BSSG). The BSSG is a phytosterol that has been described as bioactive molecules which provide: anti-inflammatory and immunomodulation activity, protection against certain cancers, as well as reduce cholesterol and control blood glucose. Therefore, it can be a suitable candidate for the treatment of different diseases. In this work, β-sitosterol β-D-glucoside (BSSG) was extracted from "piña" of A. angustifolia by microwave-assisted extraction (MAE) with KOH solution such as a catalyst and a conventional maceration method to determine the best technique in terms of yield, extraction time and recovery. The quantification and characterization of BSSG was done by (high performance thin layer chromatographic) HPTLC, and (high-performance liquid chromatography−electrospray ionization−mass spectrometry) HPLC-ESI-MS. 5 s of extraction time by MAE showed a higher amount of BSSG (124.76 mg of β-sitosterol β-D-glucoside / g dry weight of the extract), than 48 h of maceration method which was about 4-5 times less (26.67 mg / g dry weight of the extract).

Conclusion & Significance: MAE method reduced the extraction time using ethanol as an environmentally friendly solvent. Greater amount concentration of BSSG was obtained with less degradation of this compound.

Biography

Herminia López-Salazar is a physician. She has a master's degree in science from Instituto Politécnico Nacional, Mexico. She is currently pursuing a PhD at the same institution. Her research area is medicinal plants.

herminia784mail.com

Effect of tillage method, planter type and its travel speed on quality indices in maize seeding

Isham Alzoubi[1] and Farhad Mirzaei[2]

[1]Department of Surveying and Geometric Eng., Engineering Faculty, University of Tehran, Iran

[2]College of Agriculture and Natural resources, University of Tehran, Iran

Crop yield is influenced by seeding quality. In this study, some effective parameters on seeding quality have been surveyed. For this purpose, by use of split-split plot experiment, based on a randomized complete block design with three replications, effect of tillage method, planter type and travel speed on seeding quality indices like skip, single seeding, multiple seeding and seeding precision. Main plots were related to different tillage methods including; 1-mouldboard plow + one pass disk plow (T1), 2-mouldboard plow + two pass disk plow (T2) and 3-mouldboard plow + two pass disk plow + land leveler (T3). Sub plots were related to planter types including; 1- mechanical planter (P1) and 2-pneumatic planter (P2). Sub–sub plots were related planter travel speed including; 1- 4 km/h (S1), 2- 5.5 km/h (S2) and 3- 7 km/h (S3). Variance analysis showed that, tillage method had significant effect on all of the parameters except single seeding index and seeding precision. However, planter type and travel speed have significant effect on none of the parameters. Interaction between tillage method and planter type, have significant effect on all parameters except single seeding. With regard to seeding precision, the best treatment was T1P1 followed by T2P2. Therefore, using T2P1S3 treatment, speed and precision of seeding could be increased.

Biography

Iesham alzoubi has completed his PhD at the age of 27 years fromDoctor of Philosophy Degree in Agricultural Mechanization Engineering (University of Tehran – Iran) University and Postdoctoral Studies from School of Surveying Geospatial Engineering-Department of Surveying and Geomatics Engineering, University of Tehran . Current Job: General commission for scientific Agricultural Research – Damascus – Syria (Mechanical Engineer) He has published more than 16 papers in reputed journals and has been serving as an editorial board member of repute.

iazzabi@yahoo.com

Sustainability of the Chihuahua Desert and objectives 1 and 15 of the United Nations Organization, 2030 Agenda

Jose Eduardo Magaña Magaña
Autonomous University of Chihuahua, Mexico

Human beings are at the heart of sustainable development and the actions they performs in nature to take advantage of resources, affect in the positive or negative manner, in the local and in the global trend. That is why any local action affects the global too, like the problem we are living like the climate change. Fortunately, there are human beings, governments and organizations that put their efforts to coexist with nature in a balanced way forever. Therefore, we must change the way the world is seing the world, particularly the Chihuahua desert. This research focused in learning the ancestral knowledge of rural communities in the use of desert species without caused any damaged to this fragile ecosystem. We learned from them, how to use the desert species in producing fuels, food, industrial and medicinal inputs and focused on the mesquite tree. This knowledge was the base on this integrated research project with the goals 1 and 15 of the United Nations Agenda 2030. One contribution from this work, it was to analyze a community, where its main source of employment was a mine which was closed. Then, the purpose of this job was to strategically analyze the ejido and sustainably use its natural resources to generate jobs. The work was carried out on the stands of the ejido Naica which has about 700 ha of mesquite associated with huizache and palo verde. The project focused the performance of researchers in the production of gum using a plant hormone that would not cause damage or deterioration to the mesquite tree. The treatments applied were 10%, 10.85%, 15%, 20% and 25%, to produce gum with similar or better specifications than arabic gum wich in Mexico has been importing from African countries. The mesquite had an average production per tree of 337.44 gr of gum per cutting season. It have two applications and cutting seasons, spring and autumn, giving a production projection of a native plantation by cutting per ha equal to 134.97 kg of mesquite gum. The market price per kg of raw arabian gum import, was on average $125.00 pesos per kilogram (October 2019), sales were projected per ha, giving a total of $16,872.00 per cut. The total cost of production was $7,604.00 per application season per cut. In wich 47 jobs were generated over a 4-month period. All these cutting indicators were doubled when applied in spring and fall. It was found by proximal, that the mesquite gum had similarity to the parameters required by the Food and Drug Administration corresponding to arabic gum. Treated mesquite trees showed no external signs or morphological alterations or rots in the incisions. In the next cycle the treated trees showed the production of pod on time, size, color and foliage had the same characteristics in consistency and color. To continue observing the behavior of the hormone in native mesquite species, the experiment was replicated in the stands located in the Santa Gertrudis of the Mexican Army. The results yielded productions similar to the experiments carried out at the Ejido Naica. Also, the trees did not manifest any deterioration or malformation in the cuts. At this time, the community is in the process of creating a cooperative to offer the gum on the market. In this way, it will be fulfilled with the commitment made to bring down poverty and employment, by sustainably using the natural resources of the communities of the Chihuahua desert, and thus to conserve the biodiversity of flora and fauna.

Biography

He is a Principal Researcher: José Eduardo Magaña Magaña, Ph.D. Second researched: María de los Angeles Romero Lara, M.C.

emagana@uach.mx

Protein Elicitor PeBL1 of *Brevibacillus laterosporus* Enhances Resistance Against Myzus persicae in Tomato and Cucumber

Khadija Javed
Graduate School of Chinese Academy of Agricultural Sciences, Beijing , China

Myzus persicae, a destructive aphid of tomato usually managed by chemical pesticides, is responsible for huge annual losses in agriculture. In the current work, a protein elicitor, PeBL1, was investigated for its capacity to induce a defense response against *M. persicae* in tomato. Population growth rates of *M. persicae* (second and third generation) decreased with PeBL1 treatments as compared with controls. In a host selection assay, M. persicae showed preference for colonizing control plants as compared to tomato seedlings treated with PeBL1. Tomato leaves treated with PeBL1 gave rise to a hazardous surface environment for *M. persicae* due to formation of trichomes and wax. Jasmonic acid (JA), salicylic acid (SA), and ethylene (ET) showed significant accumulation in tomato seedlings treated by PeBL1. The following results showed that PeBL1 significantly modified the tomato leaf surface structure to reduce reproduction and deter colonization by *M. persicae*. Defense processes also included activation of JA, SA, and ET pathways. The study provides evidence for use of PeBL1 in the protection of tomato from *M. persicae*.

Biography

He is from Graduate School of Chinese Academy of Agricultural Sciences, Beijing , China.Institute of Plant Protection.

khadijajaved829@gmail.com

Development of biocompatible natural polymer as next generation delivery system of natural therapeutics

Kunal Pal[1,2*]

[1]Department of Life Science and Biotechnology, Jadavpur University, Kolkata-700032, India.

[2]Division of Molecular Medicine and Centre for Translational Research, Bose Institute, Kolkata-700056, India.

Most of the natural polymers are high molecular weight; water soluble polymers made up of monosaccharide units and joined by glycosides linkage [1]. Gummy exudates of natural polymers such as protein, enzyme, muscle, fiber, and polysaccharide have been used to formulate various pharmaceutical products [2, 3]. Their properties can be upgraded by facile chemical modifications like alterations in the surface chemistry by conjugation of active ligands for the purpose of drug targeting. These functionalized natural polymers could effectively deliver the natural anticancer therapeutics like curcumin specifically to the cancer cells circumventing any adverse effects on the normal cells. These natural polymers can again be utilized for the delivery of herbal excipients that are enriched with wound healing activities. These biocompatible, polymeric matrixes provide an ideal moisture environment for healing while protecting the wound, with the additional advantages of being comfortable to the patient, due to their cooling effect & nonadhesiveness to the wound tissue. The aim of our study is to provide a concise insight on the salient features of polymeric matrixes for the purpose of cancer therapeutic delivery ,tissue healing and regeneration, particularly highlighting the pivotal role of polymeric matrixes as next generation tissue substitutes for conventional therapeutic agents.

These natural drug delivery systems like mucilage and hydrogel has not been yet explored for such biomedical applications. Here we have developed these cost effective natural polymer which can efficaciously transport the natural anticancer therapeutics and wound healing excipients. The efficacy of these natural therapeutics encapsulated bio polymeric system has been envisaged in both in-vitro as well as in in-vivo systems with considerable success.The natural polymers are quite cost effective which is quite conducive, keeping in mind the socio-economic scenario of developing country like India. These natural polymers can be deployed as green emissaries for the delivery of different natural therapeutics for different biomedical applications like cancer and wound amelioration.

Biography

He is from Department of Life Science and Biotechnology, Jadavpur University, India.

kunalpal685@gmail.com

Gene expression analysis of Poplar clones in monoculture and stands mixed with Black Locust

Oleksandra Kuchma, Dennis Janz, Ludger Leinemann, Konstantin V. Krutovsky, Andrea Polle and Oliver Gailing
[1]Forest Genetics and Forest Tree Breeding, University of Goettingen, Germany
[2]Forest Botany and Tree Physiology, University of Goettingen, Germany

Statement of the Problem: Poplar (Populus) hybrids are widely used for bioenergy production in monoculture systems due to their rapid growth. Robinia pseudoacacia L. (Black Locust) is a less known species for bioenergy production, but has the ability to fix nitrogen. We test the hypothesis that mixing an economic important tree species with a nitrogen fixing tree species may improve ecological functions and enhance crop systems stability. Using RNA sequencing we analyzed gene expression in trees growing in mixed and pure stands in different growing and site conditions.

Conclusion & Significance: The data for three years of observation (2016, 2017, 2018) indicate a strong influence of local environmental conditions, genotypes of clones, and competition with black locust on the performance of poplar trees during stand development. Black locust appeared to be a strong competitor, which affected poplar growth in mixed stands, and was observed also at the transcriptome level. Additional studies to optimize the planting design are necessary.

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Biography

Oleksandra Kuchma is a PostDoc at Department of Forest Genetics and Forest Tree Breeding, University of Goettingen. She is a head of genetic laboratory of ISOGEN company. She has a Dr.rer.nat from University of Goettingen. She has a Specialist's degree in Biology, Qualification - Radiobiology from Kyiv National Taras Shevchenko University.

okuchma@gwdg.de

Improving knowledge of the Interactions between endophytic bacteria expressing GFP and tomato plants to ameliorate the plant health status

Simone Cantamessa
Università del Piemonte Orientale "A. Avogadro", Italy

Global climate change represents a major constraint to meeting the world food demand by affecting the conditions under which crops can be grown. Plant Growth-Promoting Bacteria (PGPB) have been shown to improve plant health status under both biotic and abiotic stresses. In this research work, possible plant protection against salt stress induced in tomato by the endophyte Pseudomonas migulae 8R6 were investigated.

Three experiments were performed: in a first, short time experiment the degree of colonization of mutant 8R6 expressing GFP and its localization in the plant tissues of tomato were evaluated by fluorescence, confocal and image analyses techniques. In a second experiment the effects of 8R6-GFP and 8r6-wild type on growth and health of the tomato, in the presence/absence of salt stress were evaluated by microbiological, molecular, and physiological techniques. At the end, the production of seeds containing 8R6-GFP was explored, to allow a simple and direct use of the endophyte.

Biography

Post Doctoral Researcher. Department of Science and Technological Innovation, University of Eastern Piedmont. Alessandria, Italy.

simone.cantamessa@uniupo.it

Oil Palm Basal Stem Rot: Omics Approach for Development of Effective Early Diagnostic Tools

Siti Nor Akmar Abdullah
Universiti Putra Malaysia

Statement of the Problem: Basal stem rot caused by the fungal pathogen Ganoderma boninense affects oil palm trees of different ages in the field and has resulted in annual economic loss of more than 1 billion USD in the South East Asian region. Current practice which includes fungicide introduction through trunk injection and soil mounting to stabilize root structure are not able to reduce disease spread. While specific detection of pathogen through PCR and specific antibodies is confined to specific sites in the oil palm tree where Ganoderma boninense is detectable. Molecular Diagnostic based on Early Oil Palm Defense Response: Universiti Putra Malaysia collaborated with the Malaysian Palm Oil Board in the efforts to elucidate the defense response mechanism through transcriptomics and metabolomics studies at the early stages of Ganoderma oil palm interaction. The biomarkers identified include genes involved in early defense responses which may be differentiated into two distinct phases. They are potentially the early biotrophic and the more damaging necrotrophic phase consistent with the hemi-biotrophic nature of this pathogen. The identified metabolites were proven to possess antifungal activities which may be used in future treatment of infected palms by planters. The knowledge on induced production of certain transcripts are currently being used to develop early diagnostic tools applicable to field palms before appearance of disease symptoms. This strategy will enable the infected trees to be saved through early treatment preventing disease spread to other neighbouring trees.

Conclusion & Significance: The systems biology approach has enabled elucidation of the molecular network involved in early defense response of oil palm to Ganoderma boninense infection. This allowed us to pin point key biomarkers for development of early molecular diagnostic tools. Our efforts based on the omics data to detect the disease on site will offer a rapid, accurate and practical solution to planters.

Biography

Siti Nor Akmar Abdullah is a Professor in Plant Molecular Biology in Universiti Putra Malaysia. Her research focuses on functional genomics, genetic manipulation and biomarker technology for yield and quality improvement, enhancing nutrient uptake and disease tolerance in oil palm and other crops. She has served as the Director of the Institute of Plantation Studies in UPM for three years (2016 – 2019). Earlier she was the Head of Laboratory of Plantation Crops for nine years. She has led several research projects at the national level and secured research grants from industry members. To date she has published about 100 papers mainly in citation-indexed journals. Her publications can be found in top ranking journals such as Plant Biotechnology Journal, BMC Plant Biology, Planta, Journal of Plant Physiology, Plant Cell Reports and Plant Physiology and Biochemistry.

Snaa@upm.edu.my

Anthocyanins of Coloured Wheat Genotypes in Specific Response to Salt Stress

Mbarki Sonia
Tunisia

Statement Salinity is among the most severe constraints presenting a serious threat to field crops in many parts of the world, affecting crop production, particularly cerals. Accumulation of secondary metabolites often occurs in plants subjected to stresses including various elicitors or signal molecules. Anthocyanins are reported to increase in response to salt stress.

The aim of this work is to investigate the effect of salt stress on the development of adaptive responses and growth parameters of different coloured wheat genotypes. Seeds of five wheat genotypes (Triticum sp.) with different pigments (Citrus yellow, KM 53-14Blue, KM 178-14 purple, Skorpion Blue aleurone, and PS Karkulka purple) were cultivated under hydroponic condition.

The different coloured wheat genotypes have revealed variation in the anthocyanin content, which may affect the development of adaptive responses under increasing salinity stress. On the early stage of treatment with salt for lower NaCl concentration (100 mM) has been observed faster development of stress reaction (anthocyanins accumulation and proline) but for higher NaCl concentration (200 mM) it was discovered after the second stage of treatment. A dose-dependent increase in flavonol content was observed for wheat genotypes with more intense purple-blue pigmentation after treatment with 150 mM and 200 mM NaCl. The content of Na+ and K+ obtained at different levels of salinity based on dry weight (DW) was more than 3 times greater than the control, with a significant increase of both ions under salt stress. It was found that higher flavonol and anthocyanin accumulation in coloured wheat genotypes showed a faster development of adaptive responses of wheat genotypes to salt stress. Overall, our results demonstrated that coloured wheat genotypes with high anthocyanin content are able to maintain significantly higher dry matter production after salt stress treatment. Accession-dependent capacity to induce antioxidative mechanisms in response to salt, may result in a corresponding variability for growth sustainability of some plants varieties.

Biography

Mbari Sonia is PhD post doc researcher in Topic Plant science in Faculty of Agrobiology food and Natural Resouces in Prague Czech Republic. she was researcher lecturer in Plant Biology in the National Research Institue of Rural Engineering, Water and Forest (INRGREF). She has her PhD in biological science in a fellowship between Faculty of Science in Tunisia and Centre of Edafologia et Biologia CEBAS-CICIC Spain. She is interested to plant tolerance and screening different germoplasm to salt stress tolerance, secondary metabolites accumulation under salt stress. Member of ATAE association Abel Grenier/Tunisian Association for Environmental Agricultuure

mbakisonia14@gmail.com

Plant Genomics: A Tool with Multiple Dimensions

Uma Bhardwaj and Kanti Prakash Sharma
School of Liberal Arts and Sciences, Mody University of Science and Technology, Rajasthan, India

Plants genome is unique due to their sedentary life styles. They are bestowed with an incredible power of tolerance. They not only tolerate environmental stress conditions but also serve their primary purpose in ecosystem for which they are evolved and i.e Photosynthesis. Plant secondary metabolites are thought to be involved behind above. Further the environmental changes are inducing plants to change their genome and stabilize above changes in the form of adaptation. These adaptations are defined at molecular basis in terms of plant secondary metabolites occurrence.

Today human civilization is facing numerous challenges for their food and medicines. Day by day It is becoming more difficult for plants to cater the demand of food owing to various stress conditions. In addition to above, the emergence of new pathogens and their ability of antimicrobial resistance are imposing a threat on human survival. In this context the role of such plant secondary metabolites becomes more meaningful.

Present era has witnessed huge advances in plant genomics. It is characterized by an explosion of high throughput techniques to identify multidimensional facets of plant genome and phenotypes at low cost. More interestingly it is not only restricted up to know about the gene functions but also harnessing the power of data mining tool to predict and explain the function of gene/s and their interactions. This also paves a path for metabolite engineering and synthetic biology approaches to address numerous issues of chemical industries and helping them to achieve sustainable development.

Conclusion & Significance: Plant genomics holds a promise to address present and future issues of human population with reference to food, medicine and country economical growth.

Biography

Dr. Uma Bhardwaj, Dean at School of Liberal Arts and Sciences (SLAS), Mody University of Science and Technology, has previously served as Vice-Chancellor, Maharaj Vinayak Global University (MVGU), Jaipur. During her tenure as Vice-Chancellor, she was awarded with the 3rd CMAI CCI Technology Education Excellence Award, July 2016 and honoured by the High Commissioners and Ambassadors of eight Countries. She was honoured by Bharat Jyoti Award 2018 and Best Citizen of India Award 2019.Her current research interest is in “Plant Genomics: A Tool with Multiple Dimensions”, and she has to her credit many peer reviewed research publications. Dr. Bhardwaj owns Patents and has developed some Commercial Products for Industries. She is currently acting as Chief Editor of Scientific Journals, and holds membership of many national and international Journals. She has many international books on Biochemistry from Pearson Publication.

srdirector.arni@gmail.com

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