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Proceedings of

3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil



Scientific Program

Conference Series LLC Ltd

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Venue

Novotel Center Norte

Av.Zaki Narchi,500 Santana, Sao Paulo, 02029-000, Brazil

Day 1 December 03, 2018

Conference Hall

09:00-09:20 Registrations

09:20-09:40 Opening Ceremony

Keynote Forum

	Introduction
09:40-10:10	**Title: Challenges of international human biospecimen biobanking for biomedical research in the era of personalized medicine** **Olga Potapova**, Cureline Inc, USA
10:10-10:40	**Title: Sugar is the new oil: Transitioning petroleum economy to bio-economy** **Anuj Kumar Chandel**, University of Sao Paulo, Brazil

Group Photo & Panel Discussion

Networking & Refreshment Break 10:40-11:00

Sessions: Agriclutural Biotechnology | Plant Biotechnology | Food Processing and Safety Engineering | Pharmaceutical Biotechnology | Bioprocess & Industrial Biotechnology | Nano Biotechnology

Session Chair: Olga Potapova, Cureline Inc, USA

Session Co-chair: Nuretin Heybeli, Trakya University, Turkey

Session Intoduction

11:00-11:20	**Title: Novel saccharification of lignocellulosic biomasses using "whole broth" enzymes: Towards on-site manufacturing (osm) of enzymes for production of 2nd generation ethanol from *eucalyptus* wastes in biorefinery configurations** **Henrique M Baudel**, Samerica Biomass Technologies, Brazil
11:20-11:40	**Title: Mutation breeding in Malaysia** **Sobri Bin Hussein**, Malaysian Nuclear Agency, Malaysia
11:40-12:00	**Title: Analysis of the expression of the SlMYB gene during the reproductive development of tomato *(Solanum lycopersicum)*** **Jose Linares**, Polytechnic University of Valencia, Spain
12:00-12:20	**Title: The dichlorvos-ammonia method for visible detection of aflatoxigenic fungi from environments** **Kimiko Yabe**, Fukui University of Technology, Japan
12:20-12:40	**Title: Antioxidant enzyme characterization in the liver of Mediterranean barbel *(Barbus merdionalis)* from Osor river (Catalonia)** **Guluzar Atli**, Girona University, Spain
12:40-13:00	**Title: Lingual space of maximum size as an electromagnetic field of the human body: Health and disease - biotechnological factors** **Helio Gomes da Silva**, University of Taubate, Brazil

Panel Discussion

Lunch Break 13:00-14:00

14:00-14:20	**Title: The effect of growth conditions on the active compounds found in medicinal plants** **Alexandra C H F Sawaya**, University of Campinas, Brazil
14:20-14:40	**Title: Production and evaluation of the starch and fiber from young bamboo culm for food and biotechnological applications** **Maria Teresa Pedrosa Silva Clerici**, University of Campinas, Brazil
14:40-15:00	**Title: Mannosylerythritol lipids production by *Pseudozyma aphidis* UFMG-Y3468: A process optimization approach** **Glaucia M Pastore**, University of Campinas, Brazil
15:00-15:20	**Title: Intra-articular use of a unique combination of a medical device composed of Glucosamine and Chondroitin sulfate with Hyaluronic acid** **Nuretin Heybeli**, Trakya University, Turkey
15:20-15:40	**Title: Freeze-dried wafers for anti-inflammatory topical delivery** **Laura de Oliveira Nascimento**, University of Campinas, Brazil

Panel Discussion

Networking & Refreshment Break 15:40-16:00

16:00-16:20	**Title: Feasible technical and economic solutions for EPA production by *pythium irregulare* using vinasse, wastewater, as main raw material** **Bruna S Fernandes,** University of Campinas, Brazil
16:20-16:40	**Title: The influence of seasons and ripening time on yeast communities of a traditional Brazilian cheese** **Valeria M Cardoso,** Federal University of Minas Gerais, Brazil
16:40-17:00	**Title: Virus-like particles and oncogenic virus (HPV-HCV) applications in biotechnology** **Rachel Siqueira de Queiroz Simões,** Oswaldo Cruz Institute, Brazil

Panel Discussion

Day 2 December 04, 2018

Conference Hall

Keynote Forum

09:00-09:30	**Title: Production of a universal plant-based substrate system for cellulase activity assays** **Kathleen Hefferon,** University of Toronto, Canada
09:30-10:00	**Title: Micro RNAs from bench to bedside** **Suresh K Alahari,** LSUHSC School of Medicine, USA
10:00-10:30	**Title: Molecular mechanisms of sugarcane response to abiotic stress** **Sonia Marli Zingaretti,** Ribeirao Preto University, Brazil

Panel Discussion

Networking & Refreshment Break 10:30-10:50

Sessions: Animal Biotechnology| Genetics and Tissue Science & Engineering | Medical Biotechnology |Microbial Biotechnology | Molecular Biology

Session Chair: Alexandre Libanio Silva Reis, Federal University of Pernambuco, Brazil

Session Co-chair: Sonia Marli Zingaretti, Ribeirao Preto University, Brazil

Session Intoduction

10:50-11:10	**Title: Evaluating the feasibility of the direct L-Ascorbic acid synthesis using a one-stage process and a single strain of *Pleurotus ostreatus*** **Jorge L Betancurt,** National University of Colombia, Columbia
11:10-11:30	**Title: The future of the biopharmaceutical and biotechnology market and research in Brazil with the next president (2019-2023) – getting ready** **Wilker Ribeiro,** Reger Institute, Brazil
11:30-11:50	**Title: Attenuated *Salmonella* strains have showed great potential as live vectors with broad applications in veterinary medicine** **Luciana Helena Antoniassi da Silva,** University of Campinas, Brazil
11:50-12:10	**Title: Calcium carbonate from bacteria isolated from soils** **Sandra Patricia,** Pedagogical and Technological University of Colombia, Colombia
12:10-12:30	**Title: Alkaline hydrogen pretreatment lignocellulosic biomass: Status, perspectives and energy policy** **Alexandre Libanio Silva Reis,** Federal University of Pernambuco, Brazil
12:30-12:50	**Title: Paper spray tandem mass spectrometry: Applications to drugs determination in body fluids** **Heloa Santos,** University of Goias, Brazil

Panel Discussion

Lunch Break 12:50-13:50

13:50-14:10	**Title: Nanoparticles mediate dsRNA delivery to control the crop insect pest cotton boll weevil, *anthonomus grandis*** **Rayssa A Garcia,** EMBRAPA, Brazil
14:10-14:30	**Title: New trends in the treatment of grade II furcation defects using second generation platelet concentrates** **Juan Pablo Pava Lozano,** National University Columbia, Columbia

14:30-14:50	**Title: Utilization of tissue culture and laser capture (LCM) as acquire innovative biotech strategies for nematode control in cotton** **Sanaa Haroon,** Fayoum University, Egypt
Video Presentation	
14:50-15:10	**Title: Fermentation conditions for the production of flavonoids from *Streptomyces hygroscopicus* AVS7 by statistical approaches** **Vellingiri Manon Mani,** Hindusthan College of Arts and Science, India
Poster Presentations 15:10-16:40	
Poster Judges:	**Anuj Kumar Chandel,** University of Sao Paulo, Brazil **Sonia Marli Zingaretti,** Ribeirao Preto University, Brazil
WBC P01	**Title: Thermo-Biorrefineries: A promising concept for production of bio-electricity, 2nd generation ethanol and renewable chemicals in Portugal** **Henrique M Baudel,** America Biomass Technologies, Brazil
WBC P02	**Title: Characterization of cubosomes, nanoparticles for drug delivery applications, and its interaction with miltefosine, a model drug** **Bárbara Malheiros,** University of Sao Paulo, Brazil
WBC P03	**Title: Genetic charcterization of *Rubus glaucus* benth progenitors through SNPs and SSR** **Ana Maria Lopez Gutierrez,** Technological University of Pereira, Colombia
WBC P04	**Title: Morphologic and genetic charcterization of *Botrytis cinerea* Pers. isolates responsible for gray mold in *Rubus glaucus* benth in Columbia** **Liliana Isaza Valencia,** Technological University of Pereira, Colombia
WBC P05	**Title: Commercial opportunities behind genetic and climatic characterization with management culture approaches of *Heliconia* species in central-occident region of Colombia** **Liliana Isaza Valencia,** Technological University of Pereira, Colombia
WBC P06	**Title: Development of oil-in-water multilayer emulsion as an effective encapsulation systems of astaxanthin** **Eduardo Morales Antonio,** University of la Frontera, Chile
WBC P07	**Title: Effect of the degree of cross-linking in nanosponges on the efficiency of piperine encapsulation** **Juan Pablo Guineo Alvarado,** University of la Frontera, Chile
WBC P08	**Title: Study of the conditions of encapsulation of piperine in microwave-assisted nanosponges** **Jeyson Alan Hermosilla Gajardo,** Universidad de la Frontera, Chile
WBC P09	**Title: Study of nanosponge based on Cyclodextrin and Carbonate as a nanoencapsulation system of lipophilic compound** **Sofia Belen González Lezana,** Universidad de la Frontera, Chile
WBC P10	**Title: Synthesis, structural characterization, and antioxidant activity of alkyltrimetylammonium thiotungstate** **Horta Marron,** Autonomous University of Baja California, Mexico
WBC P11	**Title: Encapsulation of carotenoid in nanofibers by emulsion electrospinning: Termal and oxidative stability** **Camila Medina,** University of La Frontera, Chile
WBC P12	**Title: Augmentation of the immune response of Atlantic salmon through the oral delivery of alginate-encapsulated SRS antigens** **Daniela Sotomayor Gerding,** University of La Frontera, Chile
WBC P13	**Title: Production of Poly-3-hydroxybutyrate microfibers and gelatin nanofibers as scaffolding material using electrospinning process** **Claudia Sanhueza,** University of La Frontera, Chile
Panel Discussion	
Networking & Refreshment Break 16:40-17:00	
Thanks Giving & Closing Ceremony	

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Advances in Dairy Research	2329-888X
Agrotechnology	2168-9881
Aquaculture Research & Development	2155-9546
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Biofertilizers & Biopesticides	2155-6202
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Fisheries and Aquaculture Journal	2150-3508
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International Journal of Economics and Management Science	2162-6359
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International Journal of Physical Medicine & Rehabilitation	2329-9096
International Journal of Public Health and Safety	-
International Journal of School and Cognitive Psychology	-
Interventional Pediatrics	-
Invasive Cardiology Future Medicine	-
JBR Journal of Interdisciplinary Medicine and Dental Sciences	2376-032X
Kidney	-
Kidney Transplant	-
La Prensa Medica	0032-745X
Laser Surgery and Therapy	-
Leukemia	2329-6917
Liposuction	-
Liver	2167-0889
Liver: Disease & Transplantation	2325-9612
Lung Cancer Diagnosis & Treatment	-
Lung Diseases & Treatment	-
Malaria Control & Elimination	2090-2778
Maternal and Pediatric Nutrition	-
Medical & Surgical Pathology	-
Medical & Surgical Urology	2168-9857
Medical and Clinical Reviews	-
Medical Case Reports	-
Medical Diagnostic Methods	2168-9784
Medical Toxicology and Clinical Forensic Medicine	-
Melanoma and Skin Diseases	-
Mental Health in Family Medicine	2327-4972
Mental Illness and Treatment	-
Metabolic Syndrome	2167-0943
Molecular & Medical Histology	-
Molecular Medicine & Therapeutics	2324-8769
Neonatal Biology	2167-0897
Neonatal Studies	-
Neonatal Medicine	-
Neoplasm	-
Nephrology & Therapeutics	2161-0959
Neurobiotechnology	-
Neuroinfectious Diseases	2314-7326
Neurooncology: Open Access	-
Neurosurgery & Cardiac Surgery	-
Novel Physiotherapies	2165-7025
Nuclear Medicine & Radiation Therapy	2155-9619
Nutritional Disorders & Therapy	2161-0509
Obesity & Eating Disorders	-
Obesity & Weight Loss Therapy	2165-7904
Occupational Medicine Health Affairs	2329-6879
Omics Journal of Radiology	2167-7964
Oncology & Cancer Case Reports	-
Oncology Translational Research	-
Oral Health and Dental Management	2247-2452
Oral Health Case Reports	-
Oral Hygiene & Health	2332-0702
Orthodontics & Endodontics	-
Orthopedic & Muscular System: Current Research	2161-0533
Orthopedic Oncology	-
Osteoporosis & Physical Activity	2329-9509
Otolaryngology:Open Access	2161-119X
Otology & Rhinology	2324-8785
Pain & Relief	2167-0846
Pain Management & Medicine	-
Palliative Care & Medicine	2165-7386
Pancreatic Disorders & Therapy	2165-7092
Pediatric Care	-
Pediatric Dental Care	-
Pediatric Emergency Care and Medicine- Open Access	-
Pediatric Nephrology Practice	-
Pediatric Neurology and Medicine	-
Pediatric Nursing: Open Access	-
Pediatric Oncology: Open Access	-
Pediatric Physiotherapy	-
Pediatric Psychology and Psychiatry	-
Pediatrics & Therapeutics	2161-0665
Periodontics and Prosthodontics: Open Access	-
Pigmentary Disorders	2376-0427
Prevention Infection Control: Open Access	-
Preventive Medicine	-
Primary & Acquired Immunodeficiency Research	2324-853X
Prostate Cancer	-
Psoriasis & Rosacea Open Access	-
Psychiatry	2378-5756
Psychological Abnormalities in Children	2329-9525
Psychology & Psychotherapy	2161-0487
Pulmonary & Respiratory Medicine	2161-105x
Rare Disorders & Diseases	-
Regenerative Medicine	2325-9620
Reproductive Endocrinology & Infertility	-
Reproductive System & Sexual Disorders	2161-038x
Research & Reviews: Journal of Dental Sciences	2320-7949
Research & Reviews: Journal of Medical and Health Sciences	2319-9865
Research Journal of Biology	2322-0066
Sleep Disorders & Therapy	2167-0277
Sleep Disorders : Treatment & Care	2325-9639
Spine	2165-7939
Spine & Neurosurgery	2325-9701
Spine Research	-
Sports Medicine & Doping Studies	2161-0673
Sports Nutrition and Therapy	-
Steroids & Hormonal Science	2157-7536
Stroke Research & Therapy	-
Journal of Surgery [Jurnalul de Chirurgie]	1584-9341
Surgery: Current Research	2161-1076
The Headache Journal	-
The International Journal of Apitherapy	-
The Pancreas	1590-8577
Therapeutic Care and Physical Rehabilitation	-

Thrombosis and Circulation	-
Thyroid Disorders & Therapy	2167-7948
Translational Medicine	2161-1025
Transplant Reports : Open Access	-
Transplantation Technologies & Research	2161-0991
Trauma & Acute Care	-
Trauma & Treatment	2167-1222
Traumatic Stress Disorders & Treatment	2324-8947
Tropical Medicine & Surgery	2329-9088
Tumor Diagnostics and Reports	-
Universal Surgery	2254-6758
Vascular Medicine & Surgery	2329-6925
Vitiligo & Dermatomyositis	-
Voice Medicine & Surgery	-
Women's Health Care	2167-0420
Wound Medicine and Tissue Repair	-
Yoga & Physical Therapy	2157-7595

Microbiology

Advances in Influenza Research	-
Antimicrobial Agents	-
Antivirals & Antiretrovirals	1948-5964
Applied Microbiology: Open Access	-
Archives of Clinical Microbiology	1989-8436
Bacteriology and Parasitology	2155-9597
Clinical Infectious Diseases & Practice	-
Clinical Microbiology: Open Access	2327-5073
Colitis & Diverticulitis	-
Emerging Infectious Diseases	-
Fermentation Technology	2167-7972
Fibromyalgia: Open Access	-
Forensic Pathology	-
Hepatitis	-
Human Papillomavirus	-
Infectious Diseases and Diagnosis	-
Infectious Diseases and Therapy	2332-0877
Medical Microbiology & Diagnosis	2161-0703
Medical Mycology: Open Access	-
Meningitis	-
Mycobacterial Diseases	2161-1068
Pediatric Infectious Diseases: Open Access	-
Research & Reviews: Journal of Microbiology and Biotechnology	2320-3528
Research & Reviews: Journal of Inflammation	-
Research & Reviews: Journal of Pathology & Epidemiology	-
Virology & Mycology	2161-0517

Neuroscience

Addiction Research & Therapy	2155-6105
Alzheimers Disease & Parkinsonism	2161-0460
Autism-Open Access	2165-7890
Brain Disorders & Therapy	2168-975X
Child & Adolescent Behavior	2375-4494
Clinical & Experimental Neuroimmunology	-
Dementia & Mental Health	-
Epilepsy Journal	-
Insights in Clinical Neurology	-
International Journal of Neurorehabilitation	2376-0281
Multiple Sclerosis	2376-0389
Neurological Disorders	2329-6895
Neurology & Neurophysiology	2155-9562
Neurology and Neuroscience	2171-6625
Neuropsychiatry	-
Neuroscience & Clinical Research	-
Schizophrenia Journal	-

Health Care & Nursing

Advanced Practices in Nursing	-
Community & Public Health Nursing	-
Nursing & Care	2167-1168
Nursing & Clinical Research	-
Patient Care	-
Perioperative & Critical Intensive Care Nursing	-
Research & Reviews: Journal of Nursing and Health Sciences	-

Pharmaceutical Sciences

Advances in Pharmacoepidemiology & Drug Safety	2167-1052
Alcoholism & Drug Dependence	2329-6488
Bioanalysis & Biomedicine	1948-593X
Biochemistry & Pharmacology: Open Access Journal	2167-0501
Bioequivalence & Bioavailability	0975-0851
Biomarkers in Drug Development	2327-4441
Biomarkers Journal	-
Biomolecular Research & Therapeutics	2167-7956
Cardiovascular Pharmacology: Open Access	2329-6607
Clinical & Experimental Pharmacology	2161-1459
Clinical Pharmacology and Biopharmaceutics	2167-065X
Current Trends in Nutraceuticals	-
Developing Drugs	2329-6631
Diagnostic Techniques & Biomedical Analysis	-
Drug Designing: Open Access	2169-0138
Drug Metabolism & Toxicology	2157-7609
in Silico & in Vitro Pharmacology	-
Molecular Enzymology and Drug Targets	-
Molecular Pharmaceutics & Organic Process Research	2329-9053
Pharmaceutica Analytica Acta	2153-2435
Pharmaceutical Care & Health Systems	2376-0419
Pharmaceutical Microbiology	-
Pharmaceutical Regulatory Affairs: Open Access	2167-7689
Pharmaceutical Sciences & Emerging Drugs	-
Pharmaceutics & Drug Delivery Research	2325-9604
Pharmacoeconomics: Open Access	-
Pharmacogenomics and Pharmacoproteomics	2153-0645
Pharmacognosy & Natural Products	-
Pharmacokinetics & Experimental Therapeutics	-
Pharmacological Reports	-
Pharmacovigilance	2329-6887
Research & Reviews: Journal of Hospital and Clinical Pharmacy	-
Research & Reviews: Journal of Pharmaceutical Analysis	2320-0812
Research & Reviews: Journal of Pharmaceutical Quality Assurance	-
Research & Reviews: Journal of Pharmaceutics and Nanotechnology	2347-7857
Research & Reviews: Journal of Pharmacognosy and Phytochemistry	2321-6182
Research & Reviews: Journal of Pharmacy and Pharmaceutical Sciences	2320-1215
Virology & Antiviral Research	2324-8955

Physics

Astrophysics & Aerospace Technology	2329-6542
Research & Reviews: Journal of Pure and Applied Physics	2320-2459
Vortex Science and Technology	2090-8369

Social & Political Sciences

Anthropology	2332-0915
Arts and Social Sciences Journal	2151-6200
Civil & Legal Sciences	2169-0170
Forensic Anthropology	-
Global Media Journal	1550-7521
Intellectual Property Rights: Open Access	2375-4516
Mass Communication & Journalism	2165-7912
Political Science & Public Affairs	2332-0761
Research & Reviews: Journal of Educational Studies	-
Research & Reviews: Journal of Social Sciences	-
Socialomics	2167-0358
Sociology & Criminology	2375-4435

Veterinary Sciences

Animal Nutrition	-
Primatology	2167-6801
Research & Reviews: Journal of Veterinary Sciences	-
Research & Reviews: Journal of Zoological Sciences	2321-6190
Veterinary Science & Medical Diagnosis	2325-9590
Veterinary Science & Technology	2157-7579

Impact Factors* (IF)

Journal Name	Pubmed Short Name	Impact Factor
Biological Systems: Open Access	Biol Syst Open Access	0.76
Journal of Biotechnology & Biomaterials	J Biotechnol Biomater	1.94
Journal of Psychology & Psychotherapy	J Psychol Psychother	1.3
Advanced Techniques in Biology & Medicine	Adv Tech Biol Med	1.08
AIDS & Clinical Research	J AIDS Clin Res	2.7
Autism Open Access	Autism Open Access	3.52
Biochemistry & Physiology: Open Access	Biochem Physiol	1.03
Diversity Equality in Health & Care	Divers Equal Health Care	2.49
Drug Designing: Open Access	Drug Des	6
Fungal Genomics & Biology	Fungal Genom Biol	1.15
International Journal of Genomic Medicine	Int J Genomic Med	0.67
Journal of Addiction Research & Therapy	J Addict Res Ther	2.86
Journal of Alzheimers Disease & Parkinsonism	J Alzheimers Dis Parkinsonism	1.18
Journal of Fertilization: In Vitro	JFIV Reprod Med Genet	1
Journal of Genetic Syndromes & Gene therapy	J Genet Syndr Gene Ther	2.34
Journal of Microbial & Biochemical Technology	J Microb Biochem Technol	2.5
Journal of Nursing & Care	J Nurs Care	1.6
Journal of Osteoporosis and Physical Activity	J Osteopor Phys Act	0.66
Journal of Yoga & Physical Therapy	J Yoga Phys Ther	1.17
Molecular Biology	Mol Biol	1.85
Neurology & Neurophysiology	J Neurol Neurophysiol	0.77
Primary health care	Prim Health Care	1
Quality in Primary Care	Qual Prim Care	3.88
Tissue Science & Engineering	J Tissue Sci Eng	2.72
Biochemistry & Analytical Biochemistry	Biochem Anal Biochem	2.6
Molecular and Genetic Medicine	J Mol Genet Med	2.89
Advancements in Genetic Engineering	Adv Genet Eng	1
Enzyme Engineering	Enz Eng	2.3
Depression and Anxiety	J Depress Anxiety	1
Human Genetics & Embryology	Human Genet Embryol	1.2
Current Synthetic and Systems Biology	Curr Synthetic Sys Biol	0.8
Hereditary Genetics: Current Research	Hereditary Genet	1.2
International Journal of Emergency Mental Health and Human Resilience	Int J Emerg Ment Health	6.5
Spine	J Spine	1.9
Cloning & Transgenesis	Clon Transgen	1.5
Journal of Medical Microbiology & Diagnosis	J Med Microb Diagn	1.9
Biosensors Journal	Biosens J	0.33
Defense Management	J Def Manag	0.5
Review of Public Administration and Management	Review Pub Administration Manag	0.2
Single cell biology	Single Cell Biol	1
Gerontology & Geriatric Research	J Gerontol Geriatr Res	1
Neuroinfectious Diseases	J Neuroinfect Dis	2.4
Cell Science & Therapy	J Cell Sci Ther	1.37
Molecular Biomarkers & Diagnosis	J Mol Biomark Diagn	2.1
Brain Disorders & Therapy	Brain Disord Ther	1.6
Clinical Case Reports	J Clin Case Rep	1.2
Gene Technology	Gene Technol	0.83
Socialomics	J Socialomics	2.3
Journal of Trauma and Treatment	J Trauma Treat	0.6
Translational Biomedicine	Transl Biomed	1.06
Journal of Neurology and Neuroscience	J Neurol Neurosci	0.88
Research & Reviews: Journal of Botanical Sciences	J Bot Sci	0.33
Journal of Psychiatry	J Psychiatry	2.32
Anaplastology	Anaplastology	0.73
Tropical Medicine & Surgery	Trop Med Surg	0.4
Orthopedic & Muscular System: Current Research	Orthop Muscular Syst	0.32
Pediatrics & Therapeutics	Pediat Therapeut	1.32
Sports Medicine & Doping Studies	J Sports Med Doping Stud	1.45
Journal of Oral Hygiene & Health	J Oral Hyg Health	0.52
Emergency Medicine	Emerg Med (Los Angel)	0.875
Journal of Transplantation Technologies & Research	J Transplant Technol Res	1.39
Journal of Hypertension: Open Access	J Hypertens (Los Angel)	0.92
International Journal of Waste Resources	Int J Waste Resour	1.95
Surgery: Current research	Surgery Curr Re	0.587
Oral Health and Dental Management	Oral Health Dent Manag	1.23
International Journal of Advancement technology	Int J Adv Tech	5.08
Translational Medicine	Transl Med (Sunnyvale)	1.312
Air and Water Borne Diseases	Air Water Borne Diseases	0.6
Journal of Coastal Zone Management	J Coast Zone Manag	0.54
Biology and Medicine	Biol Med (Aligarh)	3.07
Journal of Bioterrorism and Biodefense	J Bioterror Biodef	0.38
Journal of Tropical Diseases & Public Health	J Trop Dis	0.83
Journal of Surgery	Journal of Surgery [Jurnalul de chirurgie]	0.08
Nephrology & Therapeutics	J Nephrol Ther	0.318
Journal of Fundamentals of Renewable Energy and Applications	J Fundam Renewable Energy Appl	1.41
Advances in Pharmacoepidemiology & Drug Safety	Adv Pharmacoepidemiol Drug Saf	1.37
Bioanalysis & Biomedicine	J Bioanal Biomed	1.67
Biochemistry & Pharmacology: Open Access	Biochem Pharmacol (Los Angel)	2.09
Bioequivalence & Bioavailability	J Bioequiv Availab	1.88
Biomolecular Research & Therapeutics	J Biomol Res Ther	1.67
Cardiovascular Pharmacology: Open Access	Cardiol Pharmacol	1.77
Clinical & Experimental Pharmacology	Clin Exp Pharmacol	1.83
Clinical Pharmacology & Biopharmaceutics	Clin Pharmacol Biopharm	1.69
Data Mining in Genomics & Proteomics	J Data Mining Genomics Proteomics	2
Drug Metabolism & Toxicology	J Drug Metab Toxicol	1.37
Ergonomics	J Ergonomics	1.38
Glycomics & Lipidomics	J Glycomics Lipidomics	1.82
Health & Medical Informatics	J Health Med Inform	1.98
Metabolomics: Open Access	Metabolomics (Los Angel)	3.03
Nanomedicine & Biotherapeutic Discovery	J Nanomedine Biotherapeutic Discov	2.69
OMICS Journal of Radiology	OMICS J Radiol	0.54
Pharmaceutica Analytica Acta	Pharm Anal Acta	1.83
Pharmaceutical Regulatory Affairs: Open Access	Pharm Regul Aff	1.88
Pharmacogenomics & Pharmacoproteomics	J Pharmacogenomics Pharmacoproteomics	1.69
Pharmacovigilance	J Pharmacovigil	2.65
Phylogenetics & Evolutionary Biology	J Phylogenetics Evol Biol	2.76
Proteomics & Bioinformatics	J Proteomics Bioinform	2.55
Advances in Automobile Engineering	Adv Automob Eng	1.750
Advances in Robotics & Automation	Adv Robot Autom	0.813
Arts and Social Sciences Journal	Arts Social Sci J	1.231
Bioceramics Developments and Applications	Bioceram Dev Appl	0.958
Business & Financial Affairs	J Bus & Fin Aff	2.000
Generalized Lie Theory and Applications	J Generalized Lie Theory Appl	1.750
Irrigation & Drainage Systems Engineering	Irrigat Drainage Sys Eng	4.286
Industrial Engineering & Management	Ind Eng Manage	0.474
Aeronautics & Aerospace Engineering	J Aeronaut Aerospace Eng	1.407
Applied & Computational Mathematics	J Appl Computat Math	0.581
Architectural Engineering Technology	J Archit Eng Tech	1.071
Accounting & Marketing	J Account Mark	0.500
Aquaculture Research & Development	J Aquac Res Development	1.272
Bioengineering & Biomedical Science	J Bioeng Biomed Sci	1.235
Biometrics & Biostatistics	J Biomet Biostat	1.272
Biosensors & Bioelectronics	J Biosens Bioelectron	2.137
Civil & Environmental Engineering	J Civil Environ Eng	1.294
Cytology & Histology	J Cytol Histol	0.569
Civil & Legal Sciences	J Civil Legal Sci	0.286
Ecosystem & Ecography	J Ecosyst Ecogr	1.806
Electrical & Electronic Systems	J Elec Electron Syst	0.533
Earth Science & Climatic Change	J Earth Sci Clim Change	2.082
Geography & Natural Disasters	J Geogr Nat Disast	0.800
Hotel & Business Management	J Hotel Bus Manage	1.600
Information Technology & Software Engineering	J Inform Tech Soft Engg	2.789
Molecular Imaging & Dynamics	J Mol Imaging Dynam	2.091

Earth Science & Climatic Change	J Earth Sci Clim Change	2.082
Geography & Natural Disasters	J Geogr Nat Disast	0.800
Hotel & Business Management	J Hotel Bus Manage	1.600
Information Technology & Software Engineering	J Inform Tech Soft Engg	2.789
Molecular Imaging & Dynamics	J Mol Imaging Dynam	2.091
Petroleum & Environmental Engineering	J Pet Environ Biotechnol	2.839
Stock & Forex Trading	J Stock Forex Trad	0.300
Textile Science & Engineering	J Textile Sci Eng	0.667
Tourism & Hospitality	J Tourism Hospit	1.190
Telecommunications System & Management	J Telecommun Syst Manage	0.800
Physical Mathematics	J Phys Math	4.500
Nanomedicine & Nanotechnology	J Nanomed Nanotechnol	4.68
Arabian Journal of Business and Management Review	Arab J Bus Manage Rev	1.42
Research and Reviews: Journal of Engineering and Technology	Engineering and Technology	0.14
Journal of Material Sciences & Engineering	J Material Sci Eng	1.31
Journal of Mass Communication & Journalism	J Mass Communicat Journalism	0.62
Journal of Powder Metallurgy & Mining	J Powder Metall Min	0.71
Journal of Applied Mechanical Engineering	J Appl Mech Eng	1.65
Archives of Clinical Microbiology		0.35
Dentistry	Dentistry	1.22
Journal of Diabetes & Metabolism	J Diabetes Metab	1.77
Otolaryngology: Current Research	Otolaryngol (Sunnyvale)	0.22
Journal of Metabolic Syndrome	J Metabolic Synd	1.27
Journal of Primatology	J Primatol	0.53
Journal of Thyroid Disorders & Therapy	Thyroid Disorders Ther	0.43
Jounal of Novel Physiotherapies	J Nov Physiother	1.24
Journal of Stem Cell Research & Therapy	J Stem Cell Res Ther	2.78
Anatomy & Physiology: Current Research	Anat Physiol	1
Pancreatic Disorders & Therapy	Pancreat Disord Ther	0.54
Journal of Cancer Science & Therapy	J Cancer Sci Ther	4.203
Journal of Biomedical Sciences		0.2
Journal of Nutritional Disorders & Therapy	J Nutr Disord Ther	1.46
Medical & Surgical Urology	Med Surg Urol	0.3
Journal of Biochips & Tissue Chips	J Biochip Tissue Chip	1.7
Journal of Liver	J Liver	0.08
Journal of Family Medicine and Medical Research	Fam Med Med Sci Res	0.78
Gynecology & Obstetrics	Gynecol Obstet (Sunnyvale)	0.52
Journal of Integrative Oncology	J Integr Oncol	1.67
Journal of Neonatal Biology	J Neonatal Biol	0.55
Journal of Glycobiology	J Glycobiology	0.8
Journal of Blood & Lymph	J Blood Lymph	0.12
Journal of Arthritis	J Arthritis	1.87
Journal of Membrane Science & Technology	J Membra Sci Technol	1.18
Medicinal Chemistry	Med Chem (Los Angeles)	2.64
Journal of Physical Chemistry & Biophysics	J Phys Chem Biophys	0.75
Organic Chemistry: Current Research	Organic Chem Curr Res	1.94
Journal of Bioprocessing & Biotechniques	J Bioprocess Biotech	1.74
Journal of Environmental & Analytical Toxicology	J Environ Anal Toxicol	2.58
Journal of Chemical Engineering & Process Technology	J Chem Eng Process Technol	1.21
Journal of Computer Science & Systems Biology	J Comput Sci Syst Biol	1.62
Journal of Analytical & Bioanalytical Techniques	J Anal Bioanal Tech	2.16
Journal of Plant Biochemistry & Physiology	J Plant Biochem Physiol	2.28
Journal of Chromatography & Separation Techniques	J Chromatogr Sep Tech	1.78
Journal of Thermodynamics & Catalysis		0.91
Community Medicine & Health Education	J Community Med Health Educ	1.27
Epidemiology: Open Access	Epidemiology (Sunnyvale)	1.35
Obesity & Weight Loss Therapy	J Obes Weight Loss Ther	0.94
Pain & Relief	J Pain Relief	1.14
Palliative Care & Medicine	J Palliat Care Med	0.88
Steroids & Hormonal Science	J Steroids Horm Sci	0.65
Gastrointestinal & Digestive System	J Gastrointest Dig Syst	0.43
Hair: Therapy & Transplantation		0.6
Andrology	Andrology (Los Angel)	1.16
Endocrinology & Metabolic Syndrome	Endocrinol Metab Syndr	1.12
Internal Medicine		2.48
Sleep Disorders & Therapy	J Sleep Disord Ther	0.5
Nuclear Medicine & Radiation Therapy	J Nucl Med Radiat Ther	0.88
Alternative & Integrative Medicine	Altern Integr Med	1.11
Pulmonary & Respiratory Medicine	J Pulm Respir Med	1.01
Occupational Medicine Health Affairs	Occup Med Health Aff	0.85
Reproductive System & Sexual Disorders	Reprod Syst Sex Disord	1.25
Medical Diagnostic Methods		0.29
Blood Disorders & Transfusion	J Blood Disord Transfus	0.5
General Medicine	Gen Med (Los Angel)	0.86
Bioenergetics: Open Access	Bioenergetics	3.1
Chemotherapy: Open Access	Chemotherapy (Los Angel)	1.8
Clinical & Experimental Pathology	J Clin Exp Pathol	1.54
Carcinogenesis & Mutagenesis	J Carcinog Mutagen	1.9
Clinical Research & Bioethics	J Clinic Res Bioeth	0.95
Vaccines & Vaccination	J Vaccines Vaccin	1.8
Immunome Research	Immunome Res	7.1
Clinical & Experimental Ophthalmology	J Clin Exp Ophthalmol	1.11
Clinical & Experimental Dermotology Research	J Clin Exp Dermatol Res	0.5
Clinical & Experimental Cardiology	J Clin Exp Cardiolog	1.33
Clinical Microbiology: Open Access	Clin Microbiol	0.7
Anesthesia & Clinical research	J Anesth Clin Res	0.7
Mycobacterial Diseases	Mycobact Dis	0.9
Clinical Toxicology	J Clin Toxicol	1.39
Clinical Trials & Research	J Clin Trials	1.33
Antivirals & Antiretrovirals	J Antivir Antiretrovir	1.27
Fermentation Technology	Ferment Technol	3.44
Clinical & Cellular immunology	J Clin Cell Immunol	2.019
Allergy & Therapy	J Allergy Ther	0.762
Bacteriology & Parasitology	J Bacteriol Parasitol	2.025
Rheumatology: Current Research	Rheumatology (Sunnyvale)	1.522
Virology & Mycology	Virol Mycol	0.69
Clinics in Mother and Child Health	Clinics Mother Child Health	0.432
Womens Health Care	J Womens Health Care	0.79
Marine Science: Research & Development	J Marine Sci Res Dev	0.45
Plant Pathology & Microbiology	J Plant Pathol Microbiol	1.75
Geology & Geophysics	J Geol Geophys	0.91
FisheriesSciences	J Fisheries Sci	0.51
Fisheries and Aquaculture Journal	Fish Aquac J	0.69
Bioremediation & Biodegradation	J Bioremediat Biodegrad	2.1
Advances in Crop Science and Technology	Adv Crop Sci Tech	0.39
Journal of Remote Sensing & GIS	J Geophys Remote Sens	0.77
Biofertilizers & Biopesticides	J Biofertil Biopestic.	1.19
Hydrology: Current Research	Hydrol Current Res	1.12
Probiotics & Health	J Prob Health	0.69
Veterinary Science & Technology	J Veterinar Sci Technolo	2.5
Medicinal & Aromatic Plants	Med Aromat Plants	2.02
Forest Research	Forest Res	1.69
International Journal of Sensor Networks and Data Communications	Sensor Netw Data Commun	1.66
Innovative Energy Policies	Innov Energ Policies	0.88
Biodiversity & Endangered Species	J Biodivers Endanger Species	0.25
Biosafety	Biosafety	0.49
Agrotechnology	Agrotechnol	0.69
Journal of Traditional Medicine and Clinical Naturopathy	J Tradition Med Clin Naturopth	0.49
Nutrition & Food Sciences	J Nutr Food Sci	1.14
Entomology, Ornithology & Herpetology	Entomol Ornithol Herpetol	1.26

Impact Factor Calculation:

Impact Factor was established by dividing the number of articles published in 2012 and 2013 with the number of times they are cited in 2014 based on Google search and the Scholar Citation Index database. If 'X' is the total number of articles published in 2012 and 2013, and 'Y' is the number of times these articles were cited in indexed journals during 2014 than, impact factor = Y/X

2461th Conference
World Biotechnology 2018





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Supporting Journals

SUPPORTING JOURNALS

Journal of Biotechnology & Biomaterials

Journal of Bioprocessing & Biotechniques

Journal of Bioremediation & Biodegradation



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Agri, Food & Aqua



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December 03-04, 2018 | Chicago, USA | W: foodregulatory.conferenceseries.com E: foodregulatory@americaconferences.org



Biochemistry & Bio Informatics



4th International Conference on GENETIC & PROTEIN ENGINEERING
December 05-06, 2018 | Chicago, USA | W: protein-engineering.conferenceseries.com E: proteinengineering@conferenceseries.net



Biotechnology



3rd WORLD BIOTECHNOLOGY CONGRESS
December 03-04, 2018 | SaoPaulo, Brazil | W: world.biotechnologycongress.com E: worldbiotechnology@americaconferences.com



Chemistry



28th International Conference on CHEMISTRY & DRUG DISCOVERY
December 5-6, 2018 | Vancouver,Canada | W: chemistrydrugdiscovery.pharmaceuticalconferences.com E: chemistry@conferencescanada.org



Dental



27th AMERICAN DENTAL CONGRESS
December 07-08, 2018 | Chicago, USA | W: dentalcongress.com/america E: dental@conferenceseries.net



Dermatology



International Conference on CLINICAL AND EXPERIMENTAL DERMATOLOGY
December 07-08, 2018 | Chicago, USA | W: clinicaldermatology.conferenceseries.com E: clinicaldermatology@conferencesamerica.org



Environmental Science



9th International Conference on RECYCLING: REDUCE,REUSE AND RECYCLE
December 05-06, 2018 | Vancouver,Canada | W: recycling.conferenceseries.com/america E: recycling@conferencesamerica.org

9th International Conference on GLOBALWARMING AND POLLUTION
December 05-06, 2018 | Vancouver, Canada | W: global-warming.conferenceseries.com E: pollution@toxicologyconferences.org



Immunology, Vaccines & Virology



13th World Congress on VIROLOGY
December 03-04, 2018 | Chicago, USA | W: virology.conferenceseries.com E: virology@microbiologyconferences.org

4th International Conference on ANTIBODIES, PROTEIN ENGINEERING AND ANTIBIOTICS
December 05-06, 2018 | Chicago, USA | W: antibodies.conferenceseries.com E: antibodies@immunologyconferences.org



Microbiology



8th Annual Congress on CLINICAL MICROBIOLOGY
December 5-6, 2018 | Vancouver, Canada | W: clinicalmicrobiology.conferenceseries.com/america E: clinicalmicro@microbiologyconferences.org



Nursing

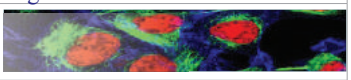


World congress on REGISTERED NURSE AND NURSE PRACTITIONERS CONFERENCE
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3rd International Conference on DIGITAL PATHOLOGY AND IMAGE ANALYSIS
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4th International Conference on ASTROPHYSICS AND PARTICLE PHYSICS
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2461th Conference

World Biotechnology 2018





3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil

Keynote Forum

Day 1

Olga Potapova, J Biotechnol Biomater 2018, Volume: 8
DOI: 10.4172/2155-952X-C7-105



Olga Potapova

Cureline Inc., USA

Challenges of international human biospecimen biobanking for biomedical research in the era of personalized medicine

Translational medical research, including the development of new drugs and novel biomarkers, companion diagnostics and, overall, personalized approach in medicine. Biomedical research requires a continuous supply of legally and ethically acquired high-quality human biospecimens and associated clinical and molecular data. Important topics of human tissues research include (a) Building an effective value chain framework for biobanking. This is a complicated process and this is why the pharma industry prefers outsourcing the procurement of HBS (human biospecimens). (b) Global regulatory compliance and ethical/legal issues on global human tissue procurement for research purposes, including international disparities in regulations on the use of human materials for biomedical research. (c) Creating fit-for-purpose collection protocols and standardized Informed Consent Forms allowing a wide range of applications for collected HBS (NGS, single cells analysis, etc.), including future technological advances. (d) Creating and managing an effective global clinical network. (e) Clinical data collection and management, HIPAA Privacy Rules for research specimens, variabilities in the international regulations. (f) Cost of biobanking, available resources and strategies for creating a self-sustaining biorepository. (g) Public resources for data and protocols: TCGA (The Cancer Genome Atlas); CPTAC (Clinical Proteomic Tumor Analysis Consortium): ISBER, CAP, NCI.

Biography

Olga Potapova is a life sciences executive with extensive scientific and project management expertise in translational oncology, diagnostics and laboratory medicine. She worked on the development of targeted therapies (SUTENT) and human prenatal diagnostic tests (Cystic Fibrosis); coordinated major international collaboration projects with an emphasis on RTK signal transduction research, human biospecimen procurement, preclinical and early clinical development. Currently, she leads Cureline group, a global CRO with emphasis on HBS biobanking, laboratory services and glyuco biomarkers. She has received multiple AACR/AFLAC awards, NIH and NATO fellowships and has published multiple scientific papers in peer-reviewed journals. Since 2010, she has been a Principal Investigator for The Cancer Genome Atlas (TCGA) program and since 2015 for the Clinical Proteomic Tumor Analysis Consortium (CPTAC) program (both NCI, NIH). She has advanced degrees in Physics and in Molecular Genetics/Biochemistry.

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Anuj Kumar Chandel, J Biotechnol Biomater 2018, Volume: 8
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Anuj Kumar Chandel

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Sugar is the new oil: Transitioning petroleum economy to bio-economy

Sugars (1G+2G) are being touted as the new oil in the future. Moving from petroleum-products to biomass-based products is considered as a paradigm shift for the virtual development of biorefinery. The biorefinery is a sustainable platform for the production of the myriad of bioproducts including biofuels/bioenergy to cater the societal demands of energy and chemicals at the upfront. The establishment of biorefineries is inevitable for the development of a sustainable, energy independent society while keeping the environment safe and clean. Several big industries such as DSM, Dow-Dupont, BASF, Novozymes, Braschem, Clariant, Abengoa and others are aggressively venturing into the development of bio-based products from lignocellulosic biomass eventually strengthening the economy. In reality, concerted efforts for the technological solution and financial inclusions are required to develop the robust pitch for cost-competitive production of biomass-derived fuels and chemicals. For the technological point of view, process improvement in process engineering employing industrially relevant parameters and real techno-economic analysis are pivotal for the cost competitive production of renewable fuels and chemicals. This presentation will elaborate on the potential of biorefineries, global bioeconomy, technology readiness level of some interesting biochemicals and key challenges in 2G sugars recovery and biofuels and biochemical production at large scale operations under biorefinery concept.

Biography

Anuj Kumar Chandel is a USP-CAPES visiting Professor and Researcher of Industrial Biotechnology at Engineering School of Lorena, University of Sao Paulo (USP), Brazil. He received his Bachelor's, Master's and PhD degrees from Meerut University, IIT-Roorkee and JNT University, Hyderabad, India, respectively. Before joining USP-Lorena, he has worked as a Lead Scientist at Sugarcane Technology Centre (CTC)-Piracicaba, Brazil and was responsible for scientific leadership for deployment of cellulosic ethanol process at demonstration plant and scale-up activities. Overall, he has 17 years' research experience working in industries and Universities on biofuels production, industrial enzymes production and membrane-based separations. He has published 58 articles in peer-reviewed journals and 30 book chapters. He has also co-edited 7 books on Xylitol, Sustainable Degradation of Lignocellulosic Biomass, Brazilan Biofuels Development, Indian Biofuels Development, Extremophiles, Sugarcane biorefinery and Sustainable sources of energy: Enzymatic resources. His contributions span the biomass science, biotechnology and policy domains and include sustainable development of biofuels and biochemicals under biorefinery concept. A frequently invited presenter on technical and strategic aspects of biomass energy, in prominent forums and International conferences.

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3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil

Scientific Tracks & Abstracts

Day 1

Agriclutural Biotechnology | Plant Biotechnology | Food Processing and Safety Engineering | Pharmaceutical Biotechnology | Bioprocess & Industrial Biotechnology | Nano Biotechnology

Session Chair
Olga Potapova
Cureline Inc, USA

Session Co-chair
Nuretin Heybeli
Trakya University, Turkey

Session Introduction

Title: **Novel saccharification of lignocellulosic biomasses using "whole broth" enzymes: Towards on-site manufacturing (osm) of enzymes for production of 2nd generation ethanol from *eucalyptus* wastes in biorefinery configurations**
Henrique M Baudel, Samerica Biomass Technologies, Brazil

Title: **Mutation breeding in Malaysia**
Sobri Bin Hussein, Malaysian Nuclear Agency, Malaysia

Title: **Analysis of the expression of the SlMYB gene during the reproductive development of tomato (*Solanum lycopersicum*)**
Jose Linares, Polytechnic University of Valencia, Spain

Title: **The dichlorvos-ammonia method for visible detection of aflatoxigenic fungi from environments**
Kimiko Yabe, Fukui University of Technology, Japan

Title: **Antioxidant enzyme characterization in the liver of Mediterranean barbel (*Barbus merdionalis*) from Osor river (Catalonia)**
Guluzar Atli, Girona University, Spain

Title: **Lingual space of maximum size as an electromagnetic field of the human body: health and disease - biotechnological factors**
Helio Gomes da Silva, University of Taubate, Brazil

Title: **The effect of growth conditions on the active compounds found in medicinal plants**
Alexandra C H F Sawaya, University of Campinas, Brazil

Title: **Production and evaluation of the starch and fiber from young bamboo culm for food and biotechnological applications**
Maria Teresa Pedrosa Silva Clerici, University of Campinas, Brazil

Title: **Mannosylerythritol lipids production by *Pseudozyma aphidis* UFMG-Y3468: A process optimization approach**
Glaucia M Pastore, University of Campinas, Brazil

Title: **Intra-articular use of a unique combination of a medical device composed of Glucosamine and Chondroitin sulfate with Hyaluronic acid**
Nuretin Heybeli, Trakya University, Turkey

Title: **Freeze-dried wafers for anti-inflammatory topical delivery**
Laura de Oliveira Nascimento, University of Campinas, Brazil

Title: **Feasible technical and economic solutions for EPA production by *Pythium irregulare* using vinasse, wastewater, as main raw material**
Bruna S Fernandes, University of Campinas, Brazil

Title: **The influence of seasons and ripening time on yeast communities of a traditional Brazilian cheese**
Valeria M Cardoso, Federal University of Minas Gerais, Brazil

Title: **Virus-like particles and oncogenic virus (HPV-HCV) applications in biotechnology**
Rachel Siqueira de Queiroz Simões, Oswaldo Cruz Institute, Brazil

Henrique M Baudel, J Biotechnol Biomater 2018, Volume: 8
DOI: 10.4172/2155-952X-C7-106

Novel saccharification of lignocellulosic biomasses using "whole broth" enzymes: Towards on-site manufacturing (osm) of enzymes for production of 2nd generation ethanol from *eucalyptus* wastes in biorefinery configurations

Henrique M Baudel
Samerica Biomass Technologies, Brazil

Saccharification of lignocellulosic biomasses using enzymatic hydrolysis has been proven to be an attractive route for the production of second generation (2G) ethanol from abundant low-cost renewable feedstocks such as eucalyptus wastes. Nevertheless, approximately 30-40% of the overall production cost of ethanol from biomasses might be attributed to the price of outsourced enzymes, which incorporates significant cost parameters related to the need for purification, stabilization, packing, transportation, storage and conservation, among others. In this scenario, the use of crude non-purified "whole broth" enzyme cocktails produced on-site (OSM, onsite manufacturing) emerges as a promising option to significantly reduce the impact of the cost of the enzymes on the overall production cost of the cellulosic ethanol. As result, economically feasible biorefineries for the production of ethanol from eucalyptus wastes might become a commercial reality in countries such as Brazil and Portugal, for example. In this study, cellulosic sugars were produced from Eucalyptus grandis wastes using "whole broth" cellulases produced from *Penicillium echinulatum*. Fed-batch enzymatic hydrolyzes of steam-only pretreated and steam treated/organosolv delignified chips were performed at 15% WIS at 50°C and pH 4.8-5.2 for 48h runtime. "Whole broth" cellulase cocktails of 6mgP/g product (Bradford method) were employed to achieve an enzyme load of 6 mgP/g DM. A commercial enzyme cocktail (160mgP/g product) was used as control at similar protein load. Cellulose conversions of 62% and 76% and glucose (monomer) yields of 292kg/ton DM and 358kg/ton DM were achieved from the enzymatic hydrolyzes of the steam-only pretreated and steam treated/organosolv delignified eucalyptus chips, respectively, using "whole broth" enzymes. Conversely, cellulose conversions of 77% and 84% and glucose (monomer) yields of 363kg/ton DM and 396kg/ton DM were obtained from the enzymatic hydrolyzes of the respective pretreated eucalyptus chips using commercial enzyme cocktails.

Biography

Henrique Baudel has completed his PhD in Environmental Sciences from University of Concepción (Chile), Chemical Engineering from Federal University of Pernambuco (Brazil) and Postdoctoral studies from Lund University (Sweden). He works as P&D and Technology Director of America Biomass Technologies, a premier chem and biotech company. His publications reach more than 50 works including papers in journals and proceedings, patents and specialized technical reports. He has been working as a Supervisor of research works at both academia and industry, as well as serving as Reviewer and Editorial Board Member of repute.

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Notes:

3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil

Mutation breeding in Malaysia

Sobri Bin Hussein, Abdul Rahim Bin Harun, Shakinah Binti Salleh, Sakinah A, Zaiton A, Khairuddin Bin Abdul Rahim, Faiz Bin Ahmad, Mustapha A, Phua Choo Kwai Hoe, Zahid A, Maznah M, Ahmad Nazrul AW, Latiffah Binti Nordin, Atsushi Tanaka, Anna Ling Pick Kiong, Mohd Rafii Bin Yusop and **Kogeethavani R**

Malaysian Nuclear Agency, Malaysia

In Malaysia, the development of mutation induction technology has progressed well, from the phases of capacity building and infrastructure upgrading to research applications in many crops including ornamental plants, which ultimately lead to the generation of new and beneficial mutant lines and varieties. Currently, most of the mutation breeding projects are funded by grants from the Ministry of Science, Technology and Innovation (MOSTI) viz. ScienceFund, TechnoFund, Community Innovation Fund (CIF), MOSTI Social Innovation (MSI), Fundamental Research Grant Scheme (FRGS) from Ministry of Higher Education (MoHE) and International Atomic Energy Agency (IAEA). These projects are mainly collaborative efforts involving various government departments and agencies, research institutes and institutions of higher learning. In agriculture and life sciences, Malaysian Nuclear Agency (Nuclear Malaysia) conducts research and development (R&D) using nuclear technology for the improvement of food and industrial crops and ornamental plants, management of agro-ecosystems for productivity enhancement as well as the development of radiation based bioproducts and bioprocesses. Rice industry has always been a priority based on the strategic importance of rice as a staple food commodity. Although the production of rice is increasing towards population increase, Malaysia still depends on imported rice to fulfill consumer's demand. Malaysia managed to achieve 72% self-sufficiency level in rice with the current average rice yield of 4.1t/ha/season. In this situation, about 28% of the local demand will have to depend on rice imports. In Peninsula Malaysia, rice production depends largely on the irrigated lowland production system. Through ten years of R&D, Nuclear Malaysia succeeded in generating five potential rice mutant lines through ion beam (irradiated at TARRI, formerly known as AVF-Cyclotron, Japan Atomic Energy Research Institute) and gamma rays radiation. Of these, 3 mutant lines (ML3, ML10 & ML30) were produced through ion beam radiation while another 2 mutant lines (NMR151 and NM152) were derived from gamma radiation.

Biography

Sobri Bin Hussein has a wide experience in the area of mutation breeding and advanced air-lift bioreactor system for plant propagation. During the past few years, he and his research team managed to produce many potential mutant lines that can benefit many farmers in his country. Apart from he also manages to publish many research papers in the area of plant biotechnology and plant breeding.

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Notes:

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December 03-04, 2018 Sao Paulo, Brazil

Analysis of the expression of the SlMYB gene during the reproductive development of tomato (*Solanum lycopersicum*)

Jose Linares, Concha Gomez Mena, Jose Pio Beltran Porter and **S Chem**
Polytechnic University of Valencia, Spain

Statement of the Problem: In tomato, the development of the fruit is a highly regulated process at the genetic level that can be negatively affected by changes in environmental conditions, mainly humidity and temperature. The knowledge of the molecular mechanisms that control the setting and development of the fruit is very important to identify improvement targets for this crop. Plant development processes are often controlled by networks of regulatory genes that encode transcription factors. In a previous work of the laboratory, a transcription factor type MYB (SlMYB) was identified whose expression is induced in androsterile tomato plants whose ovaries develop in the absence of pollination, giving rise to fruits without seeds (parthenocarpic). By expression analysis, it was determined that this gene is expressed only in developing flowers.

Methodology & Theoretical Orientation: The *in situ* hybridization technique is very suitable to obtain information about the expression patterns of genes in plants, also, express promotor of SlMYB with GUS gene in *Arabidopsis* could reveal the potential of these genes as a biotechnological tool.

Findings: Involved primary research with the expression pattern of a gene on the floral structure of *Solanum lycopersicum* and *Arabidopsis thaliana* in the laboratory of Dr Concha Gómez-Mena. Our results show that the messenger of this gene is located in the sporogenic tissue of the anther, in the developing titles and in the transmission tissue of the pistil. On the other hand, transgenic *Arabidopsis* pSlMYB::GUS lines have been obtained that show a 2kb sequence of the SlMYB gene promoter capable of directing the expression of the GUS reporter gene to anther and style tissues.

Conclusion & Significance: One important conclusion of this research is this gene could regulate male and female meiosis.

Biography

Jose Linares Master Degree in Molecular and Cell Plant Biotechnology at the Polytechnic University of Valencia. A biologist at National University of San Marcos (UNMSM), specialized in genetics and plant biotechnology. Experience in Scientific Research and Intellectual Property (patents and plant varieties); development of research projects related to the characterization of plant genetic diversity at the cellular, biochemical and genetic level; Knowledge of laboratory techniques (cytogenetic, biochemical and molecular biology, microbiology, genetic engineering). Working about four years as a Consultant of Intellectual Property related to plant biology.

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Notes:

Kimiko Yabe et al., J Biotechnol Biomater 2018, Volume: 8
DOI: 10.4172/2155-952X-C7-106

The dichlorvos-ammonia method for visible detection of aflatoxigenic fungi from environments

Kimiko Yabe[1] and **Masayo Kushiro**[2]
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[2]NARO, Japan

Aflatoxins are the most potent carcinogenic and toxic substances among mycotoxins and its contamination in food and feed crops has serious effects on the health of humans and animals. To monitor and to regulate the aflatoxin contamination in crops, the simple and precise detection method for aflatoxigenic fungi is necessary. We recently developed a visual detection method, the dichlorvos-ammonia (DV-AM) method, in which DV inhibits the esterase in aflatoxin biosynthesis causing the accumulation of anthraquinone precursors (versiconal hemiacetal acetate and versiconol acetate) of AFs in mycelia on the agar plate, followed by a change of the color of the colonies from light yellow to brilliant purple-red by the AM vapor treatment. This method enabled the direct isolation of aflatoxigenic fungi as well as non-aflatoxigenic fungi from environmental samples such as soils. However, when this method was applied to the soils containing many and various kinds of microorganisms, we found that they drastically inhibited the growth of fungi. Therefore, we further search for a semi-selection medium for aflatoxigenic fungi which is useful for the DV-AM method. We finally establish the medium and we succeeded in the detection of aflatoxigenic fungi from various soils in Japan. The DV-AM method using the semi-selection medium will be useful for clarification of the distribution as well as the dynamic movements of aflatoxigenic fungi in environments.

Biography

Kimiko Yabe has her expertise in biochemistry and molecular biology of toxic fungi. She has investigated the biosynthetic pathway of aflatoxins in collaboration with Dr. Hiromitsu Nakajima, Tottori University, Japan for more than 30 years. They have clarified most of all enzymatic reactions in aflatoxin biosynthesis by co-work with many great researchers inside and outside of Japan. Recently, she developed the DV-AM method, a simple method to detect aflatoxigenic fungi, in collaboration with Dr Masayo Kushiro, NARO, Japan. They have a dream that this method will be widely used and will be useful for people to develop an effective preventing method for aflatoxin contamination in crops all over the world.

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3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil

Antioxidant enzyme characterization in the liver of Mediterranean barbel (*Barbus merdionalis*) from Osor river (Catalonia)

Guluzar Atli[1], **Helena Guasch**[1] and **Francesc Rubio Gracia**[2]
[1]Girona University, Spain
[2]Çukurova University, Adana, Turkiye

Antioxidant system parameters have still gained considerable importance due to their pivotal role in detoxification mechanisms. Optimization assays were carried out for antioxidant enzymes (Superoxide dismutase (SOD); Catalase (CAT); Glutathione peroxidase (GPX); Glutathione reductase (GR) and Glutathione S-transferase (GST) in the liver of Mediterranean barbel *(Barbus meridionalis)*. The characterization of the antioxidant enzymes was carried out for several incubation media parameters. For the pH optimization, the range of 6.0-8.0 was assayed and the maximal enzyme activities were found at pH 7.0 for SOD and GPX and pH 7.5 for the CAT, GST and GR. Phosphate buffer concentrations in the range of 50-150mM were examined and generally, all enzymes showed their highest activities at 100mM phosphate buffer except SOD activity which was maximally at 150mM. Specific enzyme activity (Vmax) and Km values were also determined. Optimal values of other incubation media for each antioxidant enzyme were mostly found in similar ranges when compared to several fish species in the literature. Characterization assays of these parameters in native fish based on its physiological and ecological importance may be useful for biomonitoring of aquatic ecosystems health and also present fundamental data for utilization in further studies in the area of ecotoxicology.

Biography

Guluzar Atli has her expertise in the research area of molecular ecotoxicology and ecophysiology. She is an Academician in Cukurova University Biotechnology Center both as a Lecturer and Researcher. The response of significant and sensitive biomarkers both enzymatic and non-enzymatic parameters in the antioxidant and osmoregulatory system in several bio-indicator organisms against toxicants are investigated in her articles. In this sense, ATPase activities, antioxidant enzymes and non-enzymatic antioxidants such as metallothioneins related to exposures of metals and also environmental factors such as salinity are, particularly in her research area.

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Notes:

Helio Gomes da Silva, J Biotechnol Biomater 2018, Volume: 8
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Lingual space of maximum size as an electromagnetic field of the human body: Health and disease-biotechnological factors

Helio Gomes da Silva
University of Taubate, Brazil

The importance of functional lingual space for human health and quality of life was first emphasized by Willem Balters (German doctor MD, in 1962) when he concluded that the reduction of the buccal space and glossoptosis (tongue drop down) can compromise the individual's physiological, physical, biochemical and emotional balance. This correlation has been highlighted by several journals (articles, books, etc.) in Europe, South America, North America and especially in Brazil. According to the latest advances in biotechnology, it is now possible to evaluate and quantify, in human saliva, several inflammatory markers and the main hormones that control all metabolism. This work has provided dentists, doctors (MD) and other related professionals with better possibilities for the diagnosis and treatment of a number of chronic diseases that also present an important oral component, which is still forgotten. Therefore, this work aims to highlight the importance of maximum size buccal space and the functional influence of this powerful electromagnetic field, acting as a box of physiological hormonal resonance for the individual's cellular metabolism according to the concepts of quantum and energetic medicine.

Biography

Helio Gomes da Silva, Doctor in Dentistry (PhD, MSD, DDS), author of 3 books and numerous scientific articles which correlates the deformation of the shape and volume of functional lingual space with different physical, chemical and emotional changes of human beings, who participating in a context of chronic disease; developed and HGS-RA system (intra-oral devices for the treatment of snoring and sleep apnea); Researcher since 1990 on the symptoms of TMJ, dysfunction, relating to the occlusal disharmony with repercussions in the spine, CTA Research Center of the Brazilian Air Force in São José dos Campos, Brazil; Researcher UNITAU- (University of Taubaté-Sao Paulo State, where he completed a survey of the daily performance and psychosocial conditions of young adults undergoing orthodontic treatment; currently, teacher graduate program coordinator in dentistry in orthodontics Faculty IMED (RS-Brazil) and College IPENO (SC-Brazil).

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December 03-04, 2018 Sao Paulo, Brazil

The effect of growth conditions on the active compounds found in medicinal plants

Alexandra C H F Sawaya
University of Campinas, Brazil

Statement of the Problem: In spite of the world-renowned Brazilian biodiversity and the therapeutic potential of its medicinal plants, lack of information regarding the correct identification and quality control of these species is an obstacle to their use. The use of medicinal plants in Brazilian health policy has been increasingly promoted by governmental guidelines and syrup using two species of Guaco is currently supplied by the Health System (SUS) as a cough medicine. Although the commercialization of herbal medicines in Brazil is governed by several laws, the quality of raw material interferes with the safety, quality and expected efficacy of herbal medicines. Different conditions of cultivation of medicinal plants result in variations in the concentrations of active principles and may affect these parameters.

Methodology and Theoretical Orientation: The variation of secondary metabolites of these two species was influenced by the variations in the cultivation conditions of: temperature, luminosity, soil, mechanical damages and water supply, as well as field monitoring of fluctuations due to the period of collection or seasonality. Extracts were made from the leaves and their composition was evaluated by liquid chromatography with mass spectrometry, following the content of its marker (coumarin) as well as the profile of the other components.

Conclusion and Significance: The highest variation among the secondary metabolites was found between the two guaco species, *M. glomerata and M.laevigata*, so they cannot be used interchangeably. In seasonality, M. laevigata seems to suffer mainly from air temperature in the production of secondary metabolites; already for *M. glomerata* it was possible to notice the influences of the flowering in the decrease of chlorogenic acid. No significant variations were observed in relation to collection time (morning, noon or afternoon). Regarding the treatments, a single condition was not found to increase all the metabolites of therapeutic interest of these species.

Biography

Alexandra C H F Sawaya holds a Bachelor's degree in Pharmacy and Biochemistry from the faculty of Pharmaceutical Sciences of the University of Sao Paulo, a Master's degree in Pharmaceutical Sciences from Sao Francisco University, a PhD in Chemistry from the State University of Campinas and postdoctoral studies in the Department of Plant Biology (UNICAMP) between 2008-2013. She worked as a Lecturer at UNIBAN in the Pharmacy and Biomedicine Courses (2006-8) and in the Professional Master's Degree in Pharmacy. She is currently Assistant Professor at the Pharmacy Course at UNICAMP and active in the programs of Biosciences and Technology of Bioactive Products and Plant Biology of IB, UNICAMP. Her area of expertise is of mass spectrometry and chromatography in studies of bee products, food, herbs and herbal products.

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Notes:

3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil

Production and evaluation of the starch and fiber from young bamboo culm for food and biotechnological applications

Maria Teresa Pedrosa Silva Clerici, Mária Hermínia Ferrari Felisberto, Elson de Araújo Montagno and **Antonio Ludovico Beraldo**
University of Campinas, Brazil

Bamboo is a perennial crop that grows rapidly, without the need of replanting, does not require pesticides, is a high-yield renewable resource, cheap and abundant across the globe. In our staff, we verify that the starch and fibers present in the young bamboo culms can bring benefits to the food and biotechnological industries, which is in growing demand of eco-friendly ingredients obtained from renewable sources. Besides, increasing fiber consumption is widely reported in the current literature as a beneficial effect for the population. Thus, the purpose of this lecture is to demonstrate the state of the art in research and development of flour, starch and fiber of young bamboo culm. We will show our results about the potential production and commercialization capacity of bamboo for industries, specify its physical-chemical and technological characteristics for many applications, and, in the end, explain the scientific challenges which we already overcame and the future perspectives for young bamboo culm.

Biography

Maria Teresa Pedrosa Silva Clerici graduate in Biochemistry Pharmacy from the Federal University of Ouro Preto (1988), Master in Science and Technology of the Food from the Federal University of Lavras (1991) and a Doctorate in Science and Technology of the Food from the University of Campinas (1997). Nowadays, is an MS-3.1 Professor at the University of Campinas (UNICAMP- Brazil). Has to experience in Science and Technology of Food, focusing on Science and Technology of cereals, roots and tubers and acting on the subjects of baking, pasta, roots, tubers, thermoplastic extrusion, starches, fibers and researching new ingredients.

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Notes:

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December 03-04, 2018 Sao Paulo, Brazil

Mannosylerythritol lipids production by *Pseudozyma aphidis* UFMG-Y3468: A process optimization approach

Glaucia M Pastore[1], **Bruno N Paulino** and **Carlos A Rosa**[2]
[1]University of Campinas, Brazil
[2]Federal University of Minas Gerais, Brazil

Statement of the Problem: Yeasts from Ustilaginaceae family have been highlighted in the last years as a promising source of industrial interesting compounds, including enzymes, sugars, lipids, organic acids and glycolipids biosurfactants. Among the biosurfactants produced by these yeasts, the mannosylerythritol lipids (MELs) have been attracted the attention of the scientific community in recent years due to its potential applications in several fields including medical, cosmetics and food. Considering the high costs associated with the production of biosurfactants, this work focused on the use of response surface methodology (RSM) to optimize the carbon and nitrogen sources in the medium for the production of MELs by a *Pseudozyma aphidis* strain isolated from Brazilian water sample.

Methodology & Theoretical Orientation: After a screening study, one strain of yeast belonging to the *Pseudozyma* genus showed able to produce MEL in mineral medium with glucose. A central composite design (24), 28 experiments, was used for optimization of glucose, soybean oil, yeast extract and sodium nitrate concentrations in mineral medium applied for production of MELs by *P. aphidis* UFMG-Y3468. The process was carried in a controlled incubator at 30°C and 200rpm for 10 days.

Findings: The production of crude MEL extract ranged of 5,87g/L to 27,25g/L and the mathematical model obtained with significative parameters (soybean oil, glucose and yeast extract) showed good results after analysis of variance. In addition, after the chemical characterization using high-resolution mass spectrometry and nuclear magnetic resonance was observed the presence of MEL-A, MEL-B, MEL-C.

Conclusion & Significance: The use of RSM for optimization of MEL production can be considered an important tool to reduce of costs of medium composition applied in the biotechnological processes. This approach can be considered promising since it allowed to find the optimum concentration levels of the substrates used for MEL production.

Biography

Glaucia M Pastore, Full Professor, Department of Food Science, Faculty of Food Engineering, Campinas University, UNICA Bachelor of Biological Science, Catholic University of Campinas (1976) MS in Food Science, Campinas University-Unicamp (1982), Enzyme Technology Course Osaka Technical Institute Japan (1985), PhD in Food Biochemistry, Campinas State University-Unicamp (1991), Post-doctorate: Ohio State University USA, 1993. Responsible for graduate and undergraduate courses in Food Biochemistry and Principes of Food Biotechnology, Biotransformation of Agriculture wastes. Author of several chapters in international and national books, more than 100 research papers in international journals.

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Notes:

Nuretin Heybeli, J Biotechnol Biomater 2018, Volume: 8
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Intra-articular use of a unique combination of a medical device composed of Glucosamine and Chondroitin sulfate with Hyaluronic acid

Nuretin Heybeli
Trakya University, Turkey

Knee osteoarthritis (KOA) is a major health problem. Injections have long been associated with the use of Hyaluronic acid under the general definition of "viscosupplementation". However, with the recent improvements in biotechnology, we can move further. Glucosamine and chondroitin sulfate, are promising therapeutic approaches, both showing efficiency with oral formulas. Glucosamine is the basic precursor of the structure of glycosaminoglycans and subsequently of aggrecan and other proteoglycans present in the cartilage. Chondroitin sulfate (CS) is a natural glycosaminoglycan found in the structure of the aggrecan molecule of the cartilage. It has many beneficial biological properties for cartilage including anti-inflammatory activity, wound healing, the ability to inhibit the enzymes responsible for cartilage degradation and a biological activity at the cellular level that helps restore arthritic joint functions. Among other properties, CS is responsible for the water retention of cartilage, due to the negative charge ensured by its structure. It is considered a possible candidate for the treatment of a joint defect. The safety of chondroitin sulfate sodium is supported by multiple well designed human clinical trials and animal studies. "Genvisc" is the medical device that combines these three essential molecules. In this study, We aimed to assess the feasibility and safety of repeated intra-articular knee injection of this unique combination to treat KOA as well as efficacy. The study protocol was approved in April 2016 by the Ethics Committee of Trakya University. After the approval of the local ethics committee, patients suffering from KOA with Kellgren-Lawrence grade II and III, aged between 35 to 80 years were included. Patients were prospectively evaluated at baseline and then at 2, 6 and 12 months of follow-up using the International Knee Documentation Committee (IKDC) subjective score (main outcome), Knee injury and Osteoarthritis Outcome Score, EuroQol visual analog scale and Tegner score. The range of motion, transpatellar circumference, patient satisfaction and adverse events were also recorded. A significant improvement was found in the study group with acceptable side effects.

Biography

Nuretin Heybeli serves as a Professor at the Trakya University School of Medicine, Department of Orthopedics and Traumatology in Edirne, Turkey. Besides his career on orthopedic surgery since 1992, he has also completed his Masters' Degree on Biomedical Engineering at Boğaziçi University in 2010. His main areas of expertise include foot and ankle reconstruction, arthroscopy, sports injuries and adult reconstruction. His special interests include cartilage, ankle arthritis and total ankle arthroplasty, an area he personally pioneered in Turkey. He was named the "Physician of the Year" in 2014 by Istanbul Directorate of Health and has won the "Crystal Seagull" award in 2015, given by the Alumni Association of KALID for personal achievement. He was a traveling fellow for The European Federation of National Associations of Orthopaedics and Traumatology (EFORT) in 1997 and for European Foot and Ankle Society (EFAS) in 2004. Some of his awards are the following: Best Study at the First Turkish Shoulder and Elbow Surgery Congress, 2000; Second Place at the XVII.

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Notes:

3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil

Freeze-dried wafers for anti-inflammatory topical delivery

Laura de Oliveira and **Juliana Souza Ribeiro Costa**
University of Campinas, Brazil

Statement of the Problem: Damage to the skin, like wounds, triggers the cascade of events that generally culminate in tissue repair. In some severe conditions, the complete repair of skin is prolonged or impaired due to excessive inflammation. These cases requires wound dressings, generally carrying drugs to prevent contamination and other properties. Curcumin, a major component of the rhizomes of Curcuma longa, has anti-inflammatory and antimicrobial properties known for centuries in Indian medicine, but is undervalued as a dressing active. Concerning the dressing matrix, natural biopolymers are biocompatible, biodegradable and allows sustained active release. Although they are extensively studied, freeze-dried formulations are practically inexistent. Therefore, the objective of this study was to develop and characterize physicochemical aspects of a bio-polymeric topical wafer for sustained release of curcumin.

Methodology & Theoretical Orientation: The wafers were obtained by freeze-drying alginate and gelatin gels in micro-well plates under a product temperature driven process (Lyostar 3 pilot freeze-drier). Characterization consisted on evaluation of critical quality attributes pre and post freeze-drying. Pre evaluation considered pH, zeta potential and gel rheology. Post evaluation included visual appearance, residual moisture and drug release profile.

Findings: Gels presented pH of 6.4, adequate to topical application, zeta potential of -30.2 mV (± 2.7 mV) and a rheological profile showed in figure 1. Wafers showed a uniform yellowish color, adequate residual moisture and easy detachment of the well. Preliminary drug dissolution studies over a 2-hour period showed 37.8 % (± 4.2 %) cumulative drug release for the wafers obtained from gels containing curcumin.

Conclusion & Significance: These results show the physicochemical feasibility of developing a sustained delivery system for curcumin by combining gelatin and sodium alginate, which allows further in vitro/in vivo studies of wound repair.

Biography

Laura de Oliveira Nascimento is a pharmacist (USP, Brazil -2007), with PhD in Pharmaceutical Sciences (USP, Brazil - 2011) and doctorate Sandwich at Boston University, MA, USA (2009). She is currently Professor of Pharmaceutical Technology of the University of Campinas (Unicamp, Brazil). Her research focus is the delivery of pharmaceutical active ingredients by nanostructured and lyophilized systems.

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3RD WORLD BIOTECHNOLOGY CONGRESS

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Feasible technical and economic solutions for EPA production by *Pythium irregulare* using vinasse, wastewater, as main raw material

Bruna S Fernandes[1], Bruno C Klein[2], Joao Paulo Fernandes Vieira[3], Reinaldo Ferreira[4], Marcelo Zaiat[5], Rubens Maciel Filho[1], José GC Pradella[5]

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[2]Brazilian Centre of Research in Energy and Materials, Brazil

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[4]Dedini S/A Indústrias de Base, Brazil

[5]University of São Paulo, Brazil

Vinasse is a rich carbon source and low-cost feedstock produced in huge amounts from the process of ethanol production. In 2019, the Brazilian Ministry of Agriculture, Livestock and Food Supply estimate growth of ethanol domestic consumption of 58.8 billion liters, more than double the amount recorded in 2008. This represents the annual production of more than 58.8 billion liters of vinasse, which is currently used as fertilizer in the sugarcane crop, due to its high concentration of minerals, mainly potassium. However, studies indicate some disadvantages such as the generation of Greenhouse Gas emission during vinasse distribution in the crop, as well as the possibility of contaminating the groundwater and soil. Therefore, the development of programs for sustainable use of vinasse is a priority. One profitable process is the bioconversion of vinasse into biocompounds such as lipids, by microorganisms. Promising high value-added lipids, for instance, polyunsaturated fatty acids (PUFAS), with a predicted market of millions of US$, can be produced using vinasse as a carbon source, to guide an innovative e feasible concept for sustainable production. In this context, Omega 3 Eicosapentaenoic acid (EPA), a PUFA, not synthesized by humans but an important dietary supplement with a promising market, was produced by *Pythium irregulare*, an oleaginous Oomycete, able to accumulate large amounts of lipids and the production was evaluated according to several technical and economic solutions and scenarios. The results of this study showed a great alternative for EPA production applied to human consumption, considering different microbial bioreactors configuration, alternative extraction and refinement processes.

Biography

Bruna Soares Fernandes graduated from University Federal of São Carlos (Brazil) on chemical engineering. She did Master and Doctoral degree at University of São Paulo (Brazil) on Hydraulic and Sanitation engineering. She worked at Dedini/Paques BV as new technologies leader focused on wastewater treatment. During the four last years, she got a position as Technical Coordinator of R&D project of Ergostech, Sapporo Brewery and Petrobras. She and her team developed a process, in which it was patented. Since 2015, she is in a Postdoctoral position at the Brazilian Centre of Research in Energy and Materials and University of Campinas. Her main interests are waste treatment and bio-products obtainment from biological processes.

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Notes:

Valeria M Cardoso, J Biotechnol Biomater 2018, Volume: 8
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The influence of seasons and ripening time on yeast communities of a traditional Brazilian cheese

Valeria M Cardoso
Federal University of Minas Gerais, Brazil

Traditional Minas cheese is an artisanal cheese manufactured by farmers on a small scale, utilizing raw bovine milk. The occurrence and effects of the dry and rainy seasons on yeast populations in traditional Serro Minas cheese, one of the most popular cheeses produced in Brazil, were studied over the course of 60 days of ripening. A total of 19 yeast species were identified via sequence analysis of the D1/D2 domains of the large subunit of the rRNA gene. Fourteen yeast species were obtained from cheese produced during the dry season and fifteen species were obtained from cheese produced during the rainy season. High diversity indices for the yeast species were determined for cheese manufactured during both seasons (average H'D=1.7 and H'R=1.5, respectively). The predominant species in Serro Minas cheese included *Debaryomyces hansenii, Kodamaea ohmeri and Kluyveromyces marxianus. Debaryomyces hansenii* 28.12 showed low lipolytic and high proteolytic activity. *Kluyveromyces marxianus* 83F and 60P demonstrated lipolytic and β-galactosidase activity, respectively. *Kodamaea ohmeri* 88A displayed low lipolytic and β-galactosidase activity. Maximal lipase, β-galactosidase and protease activity were observed at 20°C and pH 6.0, 30°C and pH 7.0 and 50°C and pH 6.0, respectively. Considering that D. *hansenii* 28.12, K. *ohmeri* 88A and K *marxianus* 60P together showed protease, lipase and β-galactosidase activity in this study, further research on the possibility of including these yeasts as part of a starter culture and research on their effects on the sensory properties of Serro Minas cheese merit more study.

Biography

Valeria Macedo Cardoso is a Pharmaceutical, with Master in Pharmaceutical Science and PhD in Food Microbiology (2011) from the Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil. She is a permanent Professor in the Pharmacy Department, Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM), Diamantina, Minas Gerais, Brazil. Her research focuses on the area of food microbiology and food quality issues.

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December 03-04, 2018 Sao Paulo, Brazil

Virus-like particles and oncogenic virus (HPV-HCV) applications in biotechnology

Rachel Siqueira de Queiroz Simoes
Oswaldo Cruz Institute, Brazil

Human papillomavirus (HPV) is the most common sexually transmitted disease and have been described in the *Alphapapillomavirus* genus. Clinical samples (n=100) were collected with a cervical cytobrush immersed in 10Mm Tris and stored at -20□. The participants, who spontaneously accessed gynecology ambulatory, were randomly selected and interviewed about demographic and socio-economic characteristics. Women were considered eligible for enrolment if they were sexually active regardless of age, were not pregnant, had not been vaccinated against HPV and had no previous history of cervical lesions. Women with an immune suppressive disease were excluded from this study. Cervical samples were analyzed by PCR amplification of L1 ORF (450bp). HPV-DNA samples were detected by consensus (MY09/MY11), Nested PCR (GP5+/GP6+) and specific primers (HPV16/18/31/45). Swab samples DNA quality was amplified by β-globin PCR primers (PC04/GH20). Restriction fragment length polymorphism (RFLP) assay patterns for mucosal HPVs were used to genotyping of high-risk HPV types. The ultrastructural cell morphology in SiHa (HPV-16) and HeLa (HPV-18) cell lines (3x106 cells) detected by electron microscopy were also investigated. Papillomavirus can also be used as viral vectors in the gene therapy and new therapeutic targets. In addition, our project analyzed nucleotide sequence similarity of animal papillomavirus types to their closest related PV types and HPV sequences deposited in the Gen Bank, molecular and epidemiology study as support for the development of HPV recombinant vaccines and virus-like particles (VLP). Therefore, another virus studied was Hepatitis C Virus (HCV) that affects more than 70% of the estimated 170 million people inducing chronic lesions hepatitis leads to severe fibrosis and cirrhosis, hepatic failure, or hepatocellular carcinoma. New biotechnologies in molecular biology as chimeric vaccine bivalent production using conserved peptide are possible candidate peptide vaccine against HCV infection.

Biography

Rachel Siqueira de Queiroz Simoes has completed her PhD in Tropical Medicine at Oswaldo Cruz Foundation. During her Postdoctoral studies, she worked with chimeric vaccines at Molecular Virology Laboratory and Human papillomavirus at Laboratory of Morphology and Viral Morphogenesis, Oswaldo Cruz Institute. As expertise in Biotechnology, her abilities in the field of biomedicine approaches a great experience at the Papillomavirus area. Her dedication to research resulted in a high productivity with publications in impact journals, courses and post-graduate activities. Recently, in 2017, she received honorable mention of best work during Advanced Symposium of Virology. And two consecutive times, she also received honorable mention at the HPV Congress in Rio de Janeiro 2015 and 2016. She is very requested an ad hoc reviewer of projects from funding agencies and journals. Currently, she is a Scientific Advisor and Organizer of the book of human and veterinary virology written two chapters.

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3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil

Keynote Forum

Day 2

3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil



Kathleen Hefferon

University of Toronto, Canada

Production of a universal plant-based substrate system for cellulase activity assays

Cellulases and other cell wall degrading enzymes are currently being engineered with improved traits for application in the breakdown of lignocellulosic biomass. The majority of assays with these 'designer' enzymes have been carried out using synthetic substrates such as crystalline bacterial micro cellulose (BMCC). The use of synthetic substrates may not reflect the actual action of these cellulases on real plants. In the following study, suspension cell walls from several plant species were examined as possible alternatives for synthetic cellulose substrates. The results suggest that isolated plant cell walls can be used to reproducibly assay for cellulase activity.

Biography

Kathleen Hefferon has completed her PhD from the University of Toronto and postdoctoral studies from the Department of Food Sciences, Cornell University. She is the Fulbright Canada Research Chair of Global Food Security. She is currently on Faculty at Cornell University and is writing a second edition to her book "Biopharmaceuticals in Plants". She has published in multiple research journals and has edited 6 books. She just completed as editor of an Encyclopedia on Food Security and Sustainability. .

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Suresh K Alahari

LSUHSC School of Medicine, USA

MicroRNAs from bench to bedside

MicroRNAs have recently been reported to be present in human blood, stably circulating under the aegis of protein and lipid carrier forms. While the origins and purpose of circulating miRNAs remain unclear, considerable efforts have been made toward evaluating their potential for use as a practical and informative disease biomarker. Published evidence suggests that the content and composition of circulating miRNA in healthy individuals may be distinctly altered among those with certain diseases, including cancer. Given the urgent need for improved screening tests for human cancer, we wished to investigate whether serum miRNA could be used in breast cancer patients as a novel diagnostic and prognostic marker. Thus, we procured serum samples from over 100 breast cancer patients at various stages of management (including at the time of diagnosis, after endocrine therapy but prior to surgery and following completion of all management). Our goal here was to identify whether a particular miRNA or panel of miRNAs is able to detect the presence of breast cancer and whether it is likely to respond to a particular course of treatment better than others. An RNA-seq analysis of some samples revealed multiple miRNAs were altered between breast cancer and control patients. In triple negative breast cancer (TNBC) patients, miR-223 and miR-23a (among others) were increased significantly, while miR-375 and miR-10b were decreased. Remarkably, these trends were reversed in the samples from the very same patients following treatment. The return of these cancer-associated miRNAs to normal levels in response to treatment raises the possibility that these miRNAs could be tumor-derived. In summary, we believe these results need further investigation, currently validating the current RNA-seq findings by qRT-PCR. Additionally, we wish to explore whether these miRNAs are associated with patient outcomes as we continue to monitor the progress of patients during follow up.

Biography

Suresh K Alahari obtained his Bachelor of Science in Biology and Master of Science in Human Genetics from India in 1983 and 1986 respectively. His PhD in Molecular Biology was awarded by Drexel University, Philadelphia in the year 1994. From 1994 to 1998, he did a Post-doctoral Fellowship at the University of North Carolina at Chapel Hill. Since 1998, he has been a faculty member at the University of North Carolina and in 2004 joined the LSUHSC as Associate Professor of the Department of Biochemistry. During his tenure at the University of North Carolina, he discovered a novel protein that he termed, Nischarin. He has published several papers describing the function of Nischarin. He has served on Editorial Review Boards and studies sections. In addition, he availed Visiting Professorships at the University of Pennsylvania, Philadelphia and Rockefeller University, New York.

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Sonia Marli Zingaretti

Ribeirao Preto University, Brazil

Molecular mechanisms of sugarcane response to abiotic stress

Sugarcane (*Saccharum* spp.) as an important source of sugar and ethanol became the third most produced commodities in the world (1.4G). In this context, Brazil figure as a major sugarcane producer (500M tons) followed by India (300M), China, Thailand and others. The projections, based on the worldwide increasing demand for food and energy, are that sugarcane global production will increase by 21% until 2024. Among the main factors that can affect agricultural productivity, soil has fundamental importance since it offers not only physical support but also water and the necessary nutrients for plant growth. Aluminum (Al) together with silicon and oxygen are the three most abundant elements in earth crust. Although metallic elements are required for plant growth, aluminum ions (Al^{+3}) can be considered one of the major abiotic factors affecting agriculture productivity. Al is a non-essential element found naturally in the soil but it is toxic and its bioavailability is highest on acidic soils (pH of 5.5 or lower), resulting in inhibition of root growth, architecture alteration and elongation disruption. Plants under stress conditions can undergo gene expression changes or post-transcriptional gene regulation that can led to resistance. Our goal is to understand the molecular mechanisms of abiotic stress tolerance in sugarcane and the role of miRNA's in this response to aluminum stress. To identify the miRNAs involved in the aluminum stress response four-miRNA libraries, generated from the sugarcane roots of two contrasting sugarcane cultivars CTC-2 (Tolerant Aluminum Stress) and RB-855453 (Sensitive Aluminum Stress), under aluminum stress for seven days, were sequenced using Illumina technology. By comparing miRNA libraries sequences from the two contrasting cultivars, we were able to identify 394 differentially expressed miRNAs. The contrast of the cultivars seen in the field is reflected in the microtranscriptome with opposing expression profile. For the tolerant cultivar (TAS) we observed that while 64% of microRNAs are been induced in the sensitive the majority of microRNAs (85%) are been repressed under aluminum stress condition.

Biography

Sonia Marli Zingaretti is an Agricultural Engineer with a Master in Genetics and Plant Breeding and a PhD in Genetics from FMRP-USP. Full Professor at the Biotechnology Unit in the University of Ribeirao Preto, where she has been working in the Graduate Program in Biotechnology since 2005, responsible for Biotechnology, Genomics and Proteomics, she is also a member of the Graduate Committee. She works concurrently also in the Master's/PhD program in Genetics and Plant Breeding at FCAV-UNESP, as Professor responsible for the disciplines of Plant Biotechnology and Fundamentals of Molecular Biology. From 2001 to 2006 she was a curator of the BCCCenter (Brazilian Clone Collection Center) a FAPESP / UNESP project, in Brazil. She is also a reviewer of several international journal articles and ad hoc advisor of projects submitted to FAPESP and CNPq. Performance in Molecular Biology of plants, especially in the analysis of differential gene expression linked to biotic and abiotic stresses. She has published more than 53 papers in reputed journals and has been serving as an editorial board member of repute.

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3RD WORLD BIOTECHNOLOGY CONGRESS

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Scientific Tracks & Abstracts

Day 2

Animal Biotechnology | Genetics and Tissue Science & Engineering | Medical Biotechnology | Microbial Biotechnology | Molecular Biology

Session Chair
Alexandre Libanio Silva Reis
Federal University of Pernambuco, Brazil

Session Co-chair
Sonia Marli Zingaretti
Ribeirao Preto University, Brazil

Session Introduction

Title: **Evaluating the feasibility of the direct L-Ascorbic acid synthesis using a one-stage process and a single strain of *Pleurotus ostreatus***
Jorge L Betancurt, National University of Colombia, Columbia

Title: **The future of the biopharmaceutical and biotechnology market and research in Brazil with the next president (2019-2023) – getting ready**
Wilker Ribeiro, Reger Institute, Brazil

Title: **Attenuated *Salmonella* strains have showed great potential as live vectors with broad applications in veterinary medicine**
Luciana Helena Antoniassi da Silva, University of Campinas, Brazil

Title: **Calcium carbonate from bacteria isolated from soils**
Sandra Patricia, Pedagogical and Technological University of Colombia, Colombia

Title: **Alkaline hydrogen pretreatment lignocellulosic biomass: Status, perspectives and energy policy**
Alexandre Libanio Silva Reis, Federal University of Pernambuco, Brazil

Title: **Title: Paper spray tandem mass spectrometry: Applications to drugs determination in body fluids**
Heloa Santos, University of Goias, Brazil

Title: **Nanoparticles mediate dsRNA delivery to control the crop insect pest cotton boll weevil, *Anthonomus grandis***
Rayssa A Garcia, EMBRAPA, Brazil

Title: **New trends in the treatment of grade II furcation defects using second generation platelet concentrates**
Juan Pablo Pava Lozano, National University Columbia, Columbia

Title: **Utilization of tissue culture and laser capture (LCM) as acquire innovative biotech strategies for nematode control in cotton**
Sanaa Haroon, Fayoum University, Egypt

3RD WORLD BIOTECHNOLOGY CONGRESS

December 03-04, 2018 Sao Paulo, Brazil

Evaluating the feasibility of the direct L-Ascorbic acid synthesis using a one-stage process and a single strain of *Pleurotus ostreatus*

Jorge L Betancurt, Juan M Parra, Diego A Montoya, Héctor J Osorio and **Susana Hernández**
National University of Colombia, Columbia

L-ascorbic acid (L-AA) also known as vitamin C is currently produced on a commercial scale by a complex and costly two-stage process which involves two chemical catalysis steps and two aerobic fermentation procedures. To simplify the industrial production of L-AA by a one-stage, single-strain process has been a major research goal for nearly three decades, but this has not yet been accomplished. In this study, the direct L-AA synthesis using a one-stage process and a *Pleurotus ostreatus* strain was evaluated on a laboratory scale. Inoculation of the strain for induction of mycelial growth was done on sucrose-asparagine (SA) and yeast malt extract (YM) media to determine the more suitable nutrient conditions. The vegetative cultures were grown in the dark at 25 oC for 10 days. Fungal mycelia were harvested from YM agar plates and the L-AA content was extracted with 5% metaphosphoric acid and analyzed using high performance liquid chromatography (HPLC). Our results show that invasive mycelial growth occurred only on YM medium. On a fresh weight (fw) basis, the *P. ostreatus* mycelia contain 97.17 mg/100 g of L-AA. Our findings indicate that the direct L-AA synthesis using a one-stage process and a single strain of *P. ostreatus* is feasible.

Biography

Jorge L. Betancurt is an undergraduate student at Universidad Nacional de Colombia Manizales Campus, Colombia, South America. I am expected to receive my Chemical Engineer degree in September 2020. I joined the Bioproducts Research Group of Susana Hernandez at the same University in February 2017 to work on the 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 simplify industrial processes and solve health and nutrition problems..

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The future of the biopharmaceutical and biotechnology market and research in Brazil with the next president (2019-2023) – getting ready

Wilker Ribeiro Filho
Regar Institute, Brazil

Brazil has now about 208 million inhabitants and the country's constitution says that "every citizen has the right to access the public healthcare" and this make a permanent opportunity for pharmaceutical companies. According to SINDUSFARMA in its website's documents, in 2017 the Brazilian market was about US$ 18 billion being the #1 in Latin America, around the 8th in the world with 241 companies registered (144 national e 97 from abroad). Just the public investments and purchases though the national's Ministry of Health was about US$ 3.6 billion. Yet, the government's investment's depend on considerable volatile public policy's that may change depending on the government, which is not that different from other countries. From the year 2019 to the year 2023, a new president will rule the country when the pharma companies shall be aware of its intentions regarding the public healthcare system, public acquisition of drugs etc, so companies can get ready for new and bigger partnerships with the government or also new challenges. The public expenditure with healthcare has increased considerably in some aspects, specially to supply the patients with high cost medicines such as biopharmaceuticals and changes also may occur with public policies for funding science and technology projects, innovation programs' support and investments in education. As these activities are mainly performed in public institutions, with very low percentage of private investments, they are in the campaign's programs of the stronger candidates. Biotechnology is still considered a "technology of the future" in the country so the government still gives considerable attention to the matter, but less than it used to give up to 3 years ago. In this brief presentation I shall discuss possibilities for the next president term in Brazil, regarding public policies to come, how it can impact the biopharmaceutical healthcare support with the billionaire market of the public purchases, as much as the bioscience and technology public funding. By the time this presentation takes place, the new president will already be elected and interesting scenarios shall be possible to discuss.

Biography

Wilker Ribeiro is a biologist, PhD in Medical Science, specialist in pharmaceutical technology and MBA in Business Management. Experienced in public policies for industrial development of the biotech industry, businesses evaluation and management, innovation, building and managing triple helix teams with technical and C level participants, project's management and international strategic win-win relations. With the experience from lab tests to higher level management, has interest in relearning things from bottom and up, manage interesting and challenging businesses and/or science projects. Innovative, brings and forms new views and ideas when gathering "old" information with new ones, some yet to come, to improve competitiveness and results for partners, companies and other stake holders.

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Attenuated *Salmonella* strains have showed great potential as live vectors with broad applications in veterinary medicine

Luciana Helena Antoniassi da Silva
University of Campinas, Brazil

Salmonella belong to the Enterobacteriaceae family are enteric Gram-negative and facultatively anaerobic bacteria that comprises pathogens of worldwide economic and health importance. The symptoms range from gastroenteritis to severe systemic fevers they cause disease in several animals such as mammals, birds and reptiles. Attenuated *Salmonella* strains have been developed as live vaccines for humans and animals to prevent disease caused by *Salmonella* infections. By introduction of mutations in the genes or deletions of genes that are essential for metabolism, virulence or survival in the host organism. Live vaccine vehicles offer a powerful approach for inducing protective immunity against pathogenic microorganisms. Genetically engineered and attenuated agents provide a method for delivering heterologous antigens derived from other pathogens. Main objective was: characterization the *ihfA* and *ihfAB* mutants constructed from *S. enterica* Typhimurium strains marked with luminescence by introducing the *luxCDABE* operon using bioluminescence imaging technique, in which we assessed the dynamics of colonization of these mutants compared to the wild-type strain, confirming the attenuation profile our mutants. Methodology: One-day-old chicks and mice were orally immunized through crop of 0.1 mL with *Salmonella* Typhimurium wild-type group, single mutant *ihfA* group and double mutant *ihfAB* group. The control group was kept as nomimmunized control and was given 0.1 mL sterile PBS group. We compare the attenuation of serotype Typhimurium IHF mutants in two different animal models. Ours results show the attenuation after oral infection in these two animal models chickens and murine. Our findings suggest that future studies of both the chick and murine are needed to determine the role of this important microbial community in the differential development of gastrointestinal disease caused by *Salmonella* and on containing systemic spread of these organisms in different host species.

Biography

Luciana Helena Antoniassi da Silva has her PhD in Genetics and Molecular Biology. She has her expertise in molecular biology and strong experience in microbiology with emphasis on Virology working mainly with human and animal respiratory viruses. She has knowledge in biotechnology and genetic modification of microorganism like *Salmonella*.

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3RD WORLD BIOTECHNOLOGY CONGRESS

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Calcium carbonate from bacteria isolated from soils

Sandra Patricia Chaparro Acuna
Pedagogical and Technological University of Colombia, Colombia

Ureolytic bacteria are microorganisms found in soils and in presence of urea and calcium they can produce calcium carbonate, a process known as microbiologically induced calcium precipitation (MICP). Twenty-five bacterial strains with urease activity were isolated from the garden, agricultural and stables soils. The three best strains were evaluated (8H, 9H and 13H) and of these 9H was selected due to the higher urease activity and calcium carbonate production. Molecular characterization showed that the chosen bacteria corresponded to *Sporosarcina pasteurii* with a similarity of 99%. Bacteria growth conditions were optimized. Culture media, other carbon sources addition, calcium chloride and urea concentration. The nutrient broth was the best media, followed by yeast extract and finally the tryptone, with $CaCO_3$ yields of 99.7%, 85.5% and 76.2%, respectively. The cost of the media at the laboratory level was established, verifying that the most economical media was nutrient broth. Of the additional carbon sources, sucrose, then glycerol and finally glucose stood out, with yields of 99.5%, 96.9% and 95.8%, respectively. When comparing these yields with those provided only with the nutritive broth, it was concluded that there are no significant differences and the addition of one of these would imply an increase in the costs of the media. Urea and calcium chloride optimum concentration was 5g/L. XDR results showed calcite (12.5%) and vaterite (87.5%).

Biography

Sandra Patricia Chaparro Acuna is in third year of her PhD studies in Chemistry Sciences. She has published more than 15 papers in some journals. She is currently working at Pedagogical and Technological University of Colombia at Colombia..

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Alkaline hydrogen pretreatment lignocellulosic biomass: Status, perspectives and energy policy

Alexandre Libanio Silva Reis
Federal University of Pernambuco, Brazil

Lignocellulosic biomass is a renewable and abundant resource suitable for the production of bio-based products such as biofuels and chemicals. However, because of its complex chemical composition, requires a process that enhances the release of sugars. Pre-treatment is an essential step to increase the efficiency of enzymatic hydrolysis of lignocellulosic biomass. The most widely used pre-treatment methods operate at high temperatures (160-290°C) and pressures (0.69 to 4.9MPa) and generate biological growth inhibitors such as furfural and hydroxymethylfurfural (HMF). Thus, the search for new approaches to an effective pre-treatment that operates in ambient temperature and pressure and minimize the generation of inhibitors was intensified. Among these methods, the alkaline hydrogen peroxide (AHP) has gained space because is effective for a wide range of lignocellulosic biomass, enabling high enzymatic hydrolysis efficiency. However, little is discussed in major literature reviews. Therefore, the aim of this study was to investigate the use of alkaline hydrogen peroxide (H_2O_2) as oxidative pre-treatment agent to improve the efficiency of enzymatic hydrolysis for different types of biomass and discuss the key points of the pre-treatment. Finally, the main challenges of this method for large-scale application are discussed. Also, for this talk, will be discussed the historical evolution of regional Brazil and state energy policy support for and the currently attractive social and economics of the production and use of ethanol from biomass.

Biography

Alexandre Libanio Silva Reis is a Bachelor's degree in Biological Sciences from the Federal Rural University of Pernambuco (2000), a Master's Degree in Biochemistry from the Federal University of Pernambuco (2004) and a PhD in Biology from the University of Pernambuco (2014). He is currently Administrative and Scientific Director of Fungi Nordeste Biotecnologia, working in the area of inovative and development of new nutraceutical products from the cultivation of filamentous fungi. He has experience in the field of biochemistry and biomass conversion, with emphasis on enzymology, purification, characterization, immobilization of proteins and genetics of fungi for alcoholic fermentation.

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Paper spray tandem mass spectrometry: Applications to drugs determination in body fluids

Heloa Santos, Ricardo A Bernardo, Boniek G Vaz and **Andrea R Chaves**
University of Goias, Brazil

Forensic science aims to identify the origin cause of a death or a crime, or evaluate the human behavior, generally applied to traffic safety and the operation of a motor vehicle, as well as to doping in sport, or to demonstrate an analysis of body fluids such as urine, blood and oral fluid (OF). Forensic toxicology has been applied in the elucidation of issues that occur in legal proceedings related to intoxications. It is important to choose the appropriate matrix for the purpose in cases where drugs of abuse are investigated. The OF and urine matrix including easy and non-invasiveness collection. OF is an indicator of recent drug intake and closer relationship to plasma free-drug concentrations than urine and the collection procedures can be done on-site under close supervision. The drug analysis in non-conventional biological fluids, such as OF and urine, is attracting interest due to recent legislation changes in Brazil and a greater police surveillance. However, complex matrix samples have a large amount of endogenous, exogenous and other interfering compounds. In this way, sample preparation is an important tool for rapid and sensitive analytical methods. Paper spray ionization (PSI) has emerged as an ambient ionization method for analysis in mass spectrometry (MS). This source has an easy operation, rapid analysis, low cost and it has demonstrated great potential in forensic science, but PS performance is dependent on the surface properties of the substrate (paper). Paper modified with graphene oxide (GO-paper) was applied for creatinine analysis in urine samples. The PSI-GO/MS method showed acceptable linearity (0.1-100.0 ppm) with R^2 values greater than 0.991. Precision values were between 1.1 to 6.8% and accuracy above 96.8%. Restricted access materials (RAM) are able to exclusion of endogenous compounds and extraction of analytes in just one step. So, another methodology was applied with internal surface reversed phase (ISRP-RAM) on the paper for proteins exclusion in complex samples by MS analysis. Catecholamines and antidepressants were identified by ISRP-RAM/MS with 98.9% of protein exclusion, linear range in 10.0-1000.0 ppb, precision values lower 15%, accuracy and recoveries between 85.6 and 101.9%. Another way to apply PSI-MS was with molecularly imprinted polymers (MIP) synthesized directly on the paper surface (cellulose membrane) for cocaine analysis. The membrane containing MIP was selective and had a greater signal intensity than chromatographic paper and non-imprinted polymers (NIP) by PSI-MS. MIP-PSI method was acceptable linearity (1-100 ppb) with R^2 values greater than 0.998. The methods showed accuracy and precision values below 15%, recoveries above 80%. The use of conductive polymers (CP) as a substrate in PSI-MS has applied some pharmaceuticals, abuse drugs and adulterants, metabolites and CP-paper showed higher absolute intensity signal compared to the conventional filter paper. The linearity and performance of CP-coated papers were demonstrated for a range of analytes, proving that CP-coated papers are alternative for use in the qualitative and quantitative analysis. In addition, the results were promising and analysis time by classical methods, such as liquid chromatography (LC-MS). All techniques were standardized and validated according to ANVISA's normative.

Biography

Heloa Santos has completed his Ph.D. in Chemistry at the age of 29 years from University of Espírito Santo (UFES, Brazil) and she had a split Ph.D. for one year at the department of forensic and investigative science in West Virginia University (WVU, US). She is postdoctoral research in Dr. Chaves´s group from the University of Goiás (UFG, Brazil). She worked with ambient ionization sources, such as paper spray ionization mass spectrometry (PSI-MS) and direct analysis in real time mass spectrometry (DART-MS). She has experience in body fluids analysis and method validation in forensic science. She has published 10 papers in reputed journals.

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Notes:

Rayssa A Garcia, J Biotechnol Biomater 2018, Volume: 8
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Nanoparticles mediate dsRNA delivery to control the crop insect pest cotton boll weevil, *Anthonomus grandis*

Rayssa A Garcia
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Statement of the Problem: In past decades chemical pesticides are gradually losing effectiveness against crop insect pests, as well as Bt crops. RNA interference (RNAi) came as an alternative to overcome this problem. This control method works well in some insects through dsRNA oral administration but is not very effective against others. Despite great efforts, however, some insects, such as cotton boll weevil (CBW), *Anthonomus grandis*, have gut nucleases that degrade dsRNAs, hampering dsRNA cell internalization and RNAi response. This study offers a strategy to increase dsRNA stability and enhance dsRNA cellular uptake using chitosan nanoparticles coated with a surfactant.

Methodology & Theoretical Orientation: The optimal proportion of dsRNA:chitosan:surfactant to form a self-assembling nanoparticle was established by dynamic light scattering (DLS), which also provides the nanoparticle size and cargo. It was verified the nanoparticle resistance to CBW´s gut nucleases and then it was administered through oral delivery to CBW. The gene silencing was assessed by RT-qPCR. Nanoparticles were also dispersed on cotton leaves in order to analyze its wettability.

Findings: The dsRNA:chitosan:surfactant nanoparticle size is approximately 300nm with a positive charge of 25mV. The dsRNA coated with chitosan and surfactant is resistant to CBW´s gut nuclease degradation, which improves gene silencing through dsRNA oral delivery. Also, the nanoparticle coated with surfactant spreads in a uniform way in cotton leaves, when compared to non-surfactant-coated nanoparticles.

Conclusion & Significance: There is a necessity for an environmentally friendly strategy to control crop insect pests and the use of dsRNA coupled with chitosan in order to form self-assembling nanoparticles came as a green approach. This method of control is very effective against CBW and can be exploited to greenhouses and possibly cotton fields, making the control of this insect sustainable and less expensive. This strategy can also be applied to other crop insect pests.

Biography

Rayssa Garcia is a PhD student at the University of Brasilia, Brazil, in the program of Molecular Biology. She is under the orientation of Dr Maria Fátima Grossi-de-Sá at the Plant-Plague Molecular Interaction at Embrapa Genetic Resources and Biotechnology. Her master was focused on characterization and gene silencing of nucleases present in the gut of cotton boll weevil, *Anthonomus grandis*, an important crop insect pest. She also works with viroid-like dsRNAs that are known to improve gene silencing in different organisms. Now her studies focus on improving dsRNA stability and cellular uptake through the development of self-assembling nanoparticles, which are an environmentally friendly strategy to control crop insect pests and overcome dsRNA degradation by gut nucleases.

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Notes:

Juan Pablo Pava Lozano, J Biotechnol Biomater 2018, Volume: 8
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New trends in the treatment of grade II furcation defects using second generation platelet concentrates

Juan Pablo Pava Lozano
National University, Columbia

The furcation defect is defined as the pathological reabsorption of interradicular bone that occurs in multi-rooted teeth in advanced stages of periodontal disease. Some surgical strategies to cover furcation defects and exposed roots include free gingival grafts, pedicle flaps, subepithelial connective tissue grafts and application of different biomaterial-based grafts. The Platelet Rich Fibrin (PRF) has different characteristics like a high concentration of platelet and leukocytes, as well as fibrin/fibronectin and a low concentration of thrombin that makes flexible its structure, facilitating the uptake of cytokines and migration of other cells involved in the regenerative process. Two furcation defects on 47 and 46 teeth grade I/II (n=2) respectively were evaluated from a healthy male patient 46 years-old who was receiving dental treatment on dentistry Faculty of Antonio Nariño university. He was treated with coronally displaced flap (CDF) and PRF. A mucoperiosteal partial superficial thickness flap was lifted up from affected teeth and PRF was obtained from a patient blood sample (10mL) in a glass tube without anticoagulant, which was immediately processed. The flap was repositioned to coronal level beyond the cementoenamel line with 2 PRF membranes placed on the root surfaces and sutured. Morphometric and clinical measurement was performed 6 months after the procedure to analyze the interradicular molar zones. RESULTS The CDF with PRF performed showed presence of hard and soft tissues evaluated clinically and tomographically with a significant coverage of $p < 0.05$ in the fornix zones of the molars. On the interradicular area morphometric values shows that tooth 46 there was a decrease (0.0005) of -1.127 (2.104 ± 0.06 vs 0.977 ± 0.07) of defect and tooth 47 (0.0047) of -0.850 (1.891 ± 0.04) vs 1.041 ± 0.05) CONCLUSION Use of CDF together with PRF can be considered as a treatment option because it achieves a ostensibly osteoconductive, biocompatible function and reduces patient recovery time improving the prognosis of established defects.

Biography

Dr. Juan Pablo Pava Lozano is currently working as Periodontist at the University Antonio Nariño, member of Bucal Innovation group endorsed by COLCIENCIAS. Dr Pava completed his specialization studies in Periodontics at the National University of Colombia. He then worked as Invited professor at the University of Valle. Author "Clinical description of the tissue response to intraoral tattoos (new forms of body art): Pilot study". Dr Pava has presented as academic speaker in some international conferences as XXII International congress of dental iberolatinamerican federation (Puerto Vallarta Mexico may 24-27/2017), IX Metropolitan dental congress (Caracas Venezuela may 28-31 2015) and his investigation lines reflect his research interests in tissue engineer.

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Sanaa Haroon, J Biotechnol Biomater 2018, Volume: 8
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Utilization of Tissue culture and laser Capture (LCM) as Acquire innovative biotech strategies for Nematode control in cotton

Sanaa Haroon
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Root-knot nematode (*Meloidogyne spp*.) is one of the major pests all over the world, causing yield losses to many economic crops. Application of biotechnology to nematode control tactics influence applied nematology in diverse ways, from nematode identification to the development of resistant cultivars that improve effectiveness and increase the number of management strategies and allow refinement of old technique. The new advanced LCM and tissue culture techniques was used in cotton as economically important crop that heavily infected with the root-knot nematode, M. incognita race 3 exhibited histological responses. Microscopic examination of the infected cotton roots detected the second stage juveniles (J2) that penetrate the cotton roots at their tips, migrated in the root cortex and had orientated parallel with the longitudinal root axis towards the vascular region, J4 were observed very close to the stellar region. The young females were noticed within the cortical layers, inserting their anterior parts inside a cluster of giant cells, while mature females were found with their egg-masses embedded within the root tissues, causing a great pressure on the cortical layer, endodermis, per cycle and stellar region. The crushing effect of the exhaustive giant cells and the developing nematodes resulted in malformation and destroying of the vascular tissues and their neighboring cells. Such abnormalities in the anatomical structure of the roots interfere greatly with the function of the root system. Giant Cell morphology and biochemistry shown large number of nucleus also the measurement of adult female body was different in resistant and susceptible varieties of cotton plant. Several genes expressed in giant cells of susceptible plants that didn't expressed in resistant cultivars, Promoters of some of these genes will allow targeting of agents to block giant cell so the nematode will dying from starving.

Biography

Sanaa Haroon, Molecular Nematologist MS. PhD Florida University, USA. Director of Nematology and Biotechnology lab, Fayoum University, Egypt. the Egyptian Representative in the International Federation of Nematology till now. Published 72 papers. She has Awarded by the Prime Minister in the Global Environmental (Biocontrol), the Excellence prize 2007 in Molecular nematology area and National Promotion for Science from the academy of science. Participated in 18 international conferences. Grant coordinator of 16 projects through her scientific life (USA, Germany, Holland, Sweden, European Union). Member in 9 scientific organizations. Has international link to (Germany, Holland, USA, Sweden, Australia, Italy and South Africa).

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Poster Presentations

Henrique M Baudel et al., J Biotechnol Biomater 2018, Volume: 8
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Thermo-Biorrefineries: A promising concept for production of bio-electricity, 2nd generation ethanol and renewable chemicals in Portugal

Henrique M Baudel and **Eduardo Diebold**
America Biomass Technologies, Brazil

Bioelectricity production from woody wastes has been pointed out as a promising way to mitigate risks of fire incidence and propagation within forest plantations in Portugal along the most dry and hot periods of the year. Nevertheless, consistent price reductions resulting from the increasing availability of electricity, including cheaper sources such as solar energy has limited the economic feasibility of small and medium-scale thermo-electricity (only) units in Portugal. In this scenario, the adoption of a biorrefinery concept has emerged as an interesting alternative to improve and increase the economic envoltory of the biomass-to-electricity activity. Additionally to the bio-electricity itself as product, a biorefinery constituted by integrated plants and processes deliveries multiple products from lignocellulosic biomasses, thus making feasible the economic exploitation of a myriad of low-value agrondustrial wastes. In principle, different biomass components can be converted into sugars and other carbon-rich products, which in turn can be transformed into high-valued chemical products and high-volume biofuels, while generating bio-electricity and process heat for self-consumption and commercialization. In this scenario, the high-value products enhance profitability, the high-volume fuels contribute to support energy needs and the power production reduces costs while avoiding greenhouse gas emissions. Hence, the biorefinery concept envisages the maximization of the energy-value derived from the biomass feedstock at minimal impact to the environment. This paper describes the concept, technologies and economics related to the Thermo-Biorrefineries (TBR), which are integrated plants that produce bio-electricity, second-generation ethanol and chemicals using low-cost and abundant lignocellulosic biomasses such as eucalyptus wastes as feedstocks. The mentioned Thermo-Biorefinery (TBR) concept has been built on two different biomass-to-products platforms. Basically, the "sugar platform" is based on chemical and biochemical conversion processes, particularly the fermentation of C_5-sugars extracted from the hemicelluloses, while the "carbon platform" is based on the thermal conversion of the cellulignin fractions into bio-electricity and other valuable products.

Biography

Henrique Baudel has completed his PhD in Environmental Sciences from University of Concepción (Chile), Chemical Engineering from Federal University of Pernambuco (Brazil) and Postdoctoral studies from Lund University (Sweden). He works as P&D and Technology director of America Biomass Technologies, a premier chem and biotech company. His publications reach more than 50 works including papers in journals and proceedings, patents and specialised technical reports. He has been working as supervisor of research works at both academia and industry, as well as serving as reviewer and editorial board member of repute.

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Characterization of cubosomes, nanoparticles for drug delivery applications and its interaction with miltefosine, a model drug

Barbara Malheiros, Raphael Dias de Castro, Mayra Lotierzo, Giovana Firpo Rodrigues and **Leandro Ramos Souza Barbosa**
University of Sao Paulo, Brazil

Nanomedicine is a growing research field nowadays. The use of nanoparticles is hoped to improve the bioavailability of drugs while decreasing undesired side effects. Therefore, nanoparticles offer both a protection for the active molecules and drugs as a carrying vehicle. Cubosomes are nanoparticles capable of storing both hydrophilic, hydrophobic and amphiphilic molecules within its structure. They have approximately 50% hydrophobic area, being able to carry more molecules than liposomes or micelles for instance. Particularly, cubosomes are quite easy to fabricate in which lipids (mainly monoglycerides (monoolein-GMO), glycolipids, urea amphiphiles, phytantriol (PHY), etc.) self-assembly in water medium. A model drug, miltefosine (MILT), was chosen as study case for the interaction with the nanoparticles, in concentrations ranging from 1% w/w to 15% w/w, added after queue cubosomal dispersion was formed. The aim was to obtain cubosomes in sizes smaller than 500nm, with controlled polydispersion. PHY-based cubosomes were reproducible from the chosen bottom-up approach protocol and studied in PBS and AcPhBo (pH 4.5) buffer. SAXS reveals nanoparticles with crystallographic structure Pn3m and lattice parameter 6.74(07)nm. DLS presents particles with mean diameter ~450nm and moderate polydispersion 0.161(10). TEM and cryo-EM reveals particles with internal structure and varied sizes, confirming DLS polydispersion. NTA measurements reveal particle concentration approximately 10^16 particles/mL. Up to 5% w/w the cubosomes incorporated MILT without loss of crystallographic structure, but at 10%, 15% and 20% w/w, the drug provoked phase change for Im3m symmetry. At the lower concentrations, MILT enlarged the lattice parameter of cubosomes and it was hypothesized that MILT inserted itself into the bilayer of the nanoparticles. GMO-based cubosomes were produced by a proposed bottom-up approach, in both PBS and AcPhBo (pH 4.5) buffer. Nanoparticles presented crystallographic structure Im3m and lattice parameter ~12.30(12) nm, differently from PHY-cubosomes. DLS revealed particle mean diameter ~300nm an low polydispersion 0.100(21). TEM presents particles with varied size. Up to 4% MILT incorporated into the cubosomes and enlarged the lattice parameter, also being hypothesized to be in the lipidic bilayer of the water channels. Experiments to encapsulate higher amounts of MILT are undergoing, as well as encapsulation efficiency for both GMO and PHY cubosomes.

Biography

Barbara Malheiros is a physicist by the University of Sao Paulo (Brazil), during her undergraduate, she had an exchange period at University of Groningen, working with thermal simulations for a slit system at the FAIR facility. After finishing her undergraduate, she followed a master in sciences through the Faculty of Pharmaceutical Sciences in a very interdisciplinary project, in which a nanoparticle was characterized by biophysical experiments. There, she gained some experience with both nanoparticle production and electron microscopy (conventional and cryo-EM). Some biophysical techniques were learned in the master, like small angle X-rays scattering (SAXS) and dynamic light scattering (DLS), along with electron microscopy. She also has some experience with programming in python for data analysis. Today, she is already enrolled for a PhD at University of Antwerp for working with polymorphism of organic molecules in order to better understand these structures and their potential medical applications.

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Genetic characterization of *Rubus glaucus* Benth progenitors through SNPS and SSR

Ana Maria Lopez Gutierrez and **Marta Leonor Marulanda Angel**
Technological University of Pereira, Colombia

Rosacea family comprise nearly 90 genera, with Rubus genus among them with 750 species (Longhi et al., 2014). This genus also includes a plant commonly known as *mora de Castilla* or *mora de los Andes* (Rubus glaucus). Genetic variability of the genus is well documented and has been widely studied considering phenotypic, morphologic, chromosomic and molecular features, highlighting important aspects such number of chromosomes, polyploidy and hybridization (Alice and Campbell, 1999). *Rubus glaucus Benth* (*mora de Castilla*) is an agricultural product with one of the biggest potential within Colombian-Andean Region. In the country, along 2014 it was achieved a total production of 150 thousand tons/year and in 2015, the plant's area accounted 66.770 hectares with average yielding of 11 tons per hectare per year (ENA, 2015). In this sense, the agricultural-food chain of *mora de Castilla* in Colombia is constituted by associated producers, with the intention of increasing performances through the behavior evaluation of promising plant material against high impact-phytopathogenic agents. Accordingly, this work pretends to strengthen the species characterization process of *mora de Castilla* through last generation molecular markers SSR and SNPs tending to identify tolerance-related genes in *Rubus glaucus* cultivars against anthracnose caused by *Colletotrichum gloesporioides* through transcriptome analysis (RNAseq) in susceptible species. Hence, 15 SRR markers showed positive amplification with a bi-allelic behavior for 14 of them, giving place to 29 loci and 58 alleles. Moreover, from 78 SPNs markers, only 36 yielded positive amplification. Obtained sequences showed high homology with species belonging Rosaceae family, as a result, genetic diversity based on SNPs data consisting in 8837 loci with 1082 effective alleles and an average polymorphism of 12.49% Revealed that genetic libraries constructed with SNPs and SSR markers showed high discrimination power for commercial cultivars of *Rubus glaucus*.

Biography

Ana Maria Lopez Gutierrez possesses wide experience into the fields of plant biology and plant genetics. Her work has concentrated in the investigation of plant diversity using SSR, SNPs and AFLP markers but also tending to the identification of resistance genes in susceptible and tolerant species against bacterial and fungal infections affecting crops with commercial/food interests.

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Liliana Isaza Valencia et al., J Biotechnol Biomater 2018, Volume: 8
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Morphologic and genetic characterization of *Botrytis cinerea* Pers. isolates responsible for gray mold in *Rubus glaucus* Benth in Colombia

Liliana Isaza Valencia, Marta Leonor Marulanda Angel and **Yeny Paola Zuluaga**
Technological University of Pereira, Colombia

Botrytis cinerea Pers. is considered the most common and severe specie within *Botrytis genus*, a taxon which comprises 301 accepted names (Ferrada et al. 2016; IMA 2016). This fungus induces gray mold or fruit rot in some *Rubus* species, in almost all berries crops, but also causes the considerable economic loss in nearly 200 agriculturally important crops (Suresh *et al*. 2010; Zhou *et al*. 2014). *Botrytis cinerea* is considered as a complex system of species instead of a single variable one in which have been identified two sympatric groups based onto multiple-gene genealogies (Fournier *et al*. 2005). All these factors have created a great intrapopulation genetic variation affecting phenotypical features, such as adaptability, mycelial growth and pathogenicity. As a result, many studies tried to assess and characterize the genetic diversity of local *B. cinerea* species isolated from different cultivars. Thus, this paper pretends to explore and evaluate the diversity of *B. cinerea* isolates across Colombian cultivars using morphological and molecular approaches over 50 collected isolates, assessing mycelial growth (vertical and horizontal elongation), sclerotial distribution, color and SSR genetic diversity. Results showed the high correlation among both types of growth with statistical differences over the population average for seven strains. Similarly, the vertical and horizontal size of sclerotium were recorded, finding significant differences inside the studied group. In addition, genetic characterization driven data resulted in the construction of a phylogenic tree showing a mid-tendency of clustering depending on the geographical regions of the collection. Finally, fungal isolates of *B. cinerea* collected in different Colombian Rubus glaucus Benth cultivars of showed significant differences regarding mycelial growth and genotypic clustering pattern regarding its origin area. This general behaviour could support further pathogenicity studies in order to understand explore differential severity among them.

Biography

Liliana Isaza Valencia possesses wide experience into the field of plant tissue culture and in vitro culture of strategic plant species with economic and agricultural importance, including species of Heliconia and Rubus genus. In addition, she had performed research related to the characterization of genetic diversity of the mentioned plant species.

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Commercial opportunities behind genetic and climatic characterization with management culture approaches of *Heliconia* species in central-occident region of Colombia

Liliana Isaza Valencia
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Heliconia genus has a growing commercial importance in the international flowers trade, which has increased the planted areas in countries in Central and South America, bringing a broader offer and demand of the product (Quirós, 2012).). In addition, the Colombian flower-producer sector has an important effect in terms of job creation (SUPERSOCIEDADES, 2016). The importance of *Heliconia* species in the cut flower trade is rising due to its phenotypic features (morphologic changes and color variations in flowers and inflorescences) which creates the necessity to explore the identification of different cultivars over this genera (Sheela et al. 2006). Within this paper 47 cultivars compromising four species and one interspecific hybrid of *Heliconia* species with great commercial potential were subjected to genetic characterization together with a climatologic description of the collection places. The first, based in the systematical collection of data derived from 7 weather stations controlled by Cenicafé and IDEAM located in the area of study and the latter, through the amplification of SSR obtained from the previous development of a genomic library for *Heliconia stricta* cv. Iris red. From 18 initial tested primers, there were identified 13 informative SSR from which the most polymorphic were HES69, HES 63, HES 57, HES 67 and HES 55 with a discrimination power and polymorphic information content (PIC) ranging among 0.620 and 0.970 in every studied specie. To conclude, from the genomic SSR library developed for *H. stricta* cv. Iris Red, 13 loci SSR are required in order to distinguish single Heliconia species. In addition, climatic evaluation demonstrated that the central-west region of Colombia possess the optimum conditions oriented to the production of Heliconia species with commercial purposes.

Biography

Liliana Isaza Valencia possess wide experience into the field of plant tissue culture and *in vitro* culture of strategic plant species with economic and agricultural importance, including species of Heliconia and Rubus genus. In addition, she had performed research related to characterization of genetic diversity of the mentioned plant species.

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Development of oil-in-water multilayer emulsion as an effective encapsulation systems of astaxanthin

Eduardo Morales Antonio
University of La Frontera, Chile

Interfacial deposition of biopolymer layers on oil droplets may be a suitable strategy for increasing the emulsion stability and protection of functional ingredients. The aim of this study was to design oil-in-water multilayer emulsions stabilized by ionic biopolymers as encapsulation systems of astaxanthin. The emulsions were produced by sequential adsorption of biopolymers with opposite charges at pH 3.0: Lupin protein isolate (LPI), ι-carrageenan and chitosan. The primary emulsion (PE) obtained by homogenization pressures from 100 to 500 Bar and cycles from 1 to 5 was investigated. Then, the secondary (SE) and tertiary (TE) emulsions were homogenized at 5.000rpm for 2min. The physical stability of emulsions under different environmental stresses (pH: 3 to 7, temperature: 25 to 85°C and NaCl concentration: 25 to 300mM) was evaluated. The results showed that PE has stabilized with 0.50% w/w of LPI at 300 bar and 5 cycles. It was stable to a phase separation after 24h of storage at 25°C. Then, the saturation concentration of ι-carrageenan and chitosan were 0.11 and 0.09% w/w on the droplets of SE and TE, respectively. The PE was unstable to droplet aggregation at pH values between 4 and 5. The SE was stable at all pH range and TE was unstable at pH between 6 and 7. The emulsions were stable from 25 to 65°C and at all the NaCl concentration evaluated. Therefore, SE and TE presented greater physical stability than PE providing a stable system of astaxanthin encapsulation for food applications.

Biography

Eduardo Morales Antonio is Food Engineer and Master in Engineering Sciences with specialization in Biotechnology. Currently, he is the student in the Doctoral Program in Engineering Sciences with Specialization in Bioprocesses at Universidad of La Frontera, Temuco, Chile. His research is focused on "Multilayer emulsion as an effective encapsulation system of astaxanthin to develop a powdered beverage"..

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Effect of the degree of cross-linking in nanosponges on the efficiency of piperine encapsulation

Juan Pablo Guineo Alvarado
University of la Frontera, Chile

Nanosponges (NSs) is a novel method of encapsulation, formed by the bonding of microscopic particles that form cavities of nanometric diameter (less than 1µm) capable of encapsulating a great variety of compounds of food interest. These cavities can incorporate lipophilic and hydrophilic compounds.The objective of this work was to evaluate the effect of the cross-linking degree in NSs. NSs were formed with beta-cyclodextrin (β-CD) and diphenyl carbonate (DPC) through the microwave-assisted method. ß-CD: DPC molar ratios of 1:2, 1:6 and 1:10 were tested and NSs were characterized through FTIR, the degree of substitution (DS) and specific surface (SBET) analysis. The appearance of characteristic peaks of ß-CD at 1155cm-1 belonging to the glycosidic bonds was observed. In addition, a peak was identified at 1750cm-1 which is an indicator of the carbonyl group (C=O), which also demonstrate the esterification between DPC and the hydroxyl groups of the ß-CD. The results showed NS 1:2 DS=0.345, NS 1:6 DS=0.629 and NS 1:10 DS=0.878 and NS 1:2 SS=0.77, NS 1:6 SS=1.22 and NS 1:10 SS=2.00m2/g. Therefore, the higher the molar ratio, the higher the DS and the higher the specific surfaces of NSs. In addition, the pore size range was from 23 to 63 Å classified as mesopores. It confirms the crosslinking process between the ß-CDs, obtaining NS synthesis. Therefore, increasing the number of substituents increases the probability of generating greater cross-linking and specific area to facilitate the inclusion of lipophilic compounds.

Biography

Juan Pablo Guineo Alvarado is a Food Engineer from the University of La Frontera, Temuco, Chile. Currently, he is a student of the Master's Program in Engineering Sciences with specialization in Biotechnology. His thesis is entitled “Effect of the degree of cross-linking in nanosponges on the encapsulation efficiency and release of piperine”, supported by Fondecyt project N°1160558. “Nanoencapsulation of polyunsaturated fatty acids and pungency alkaloids using nanosponges as carrier model to deliver lipophilic compounds of high biological value”. This research was supported by funding from Conicyt through Fondecyt project.

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Study of the conditions of encapsulation of piperine in microwave-assisted nanosponges

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Nanosponges (NS) is a class of colloidal structures based on hyper-crosslinked polymers that are made up of microscopic particles with nanometric cavities in which a large variety of substances can be encapsulated. These cavities can incorporate lipophilic and hydrophilic compounds. The objective of this work was to evaluate the effect of NS with different degree of crosslinking, the type of solvent (SOLV) used in the loading process and the load ratio PIP-NS (w/w) on the encapsulation efficiency of piperine (PIP) in the microwave-assisted cyclodextrin-based nanosponges. The NS was formed with β-cyclodextrin (β-CD) and diphenyl carbonate (DPC) through the microwave-assisted method. NS of molar ratios 1:2, 1:6 and 1:10 (β-CD-DPC) were used to perform loads of PIP-NS (2:1, 1:1 and 1:2) (w/w). The solvents used in the fillers were dichloromethane, acetone and ethanol. Characteristic peaks were identified for PIP and displacement of peaks attributable to inclusion as methylenedioxy phenyl at 928cm-1. ANOVA was performed to determine if there were statistically significant differences for each of the variables on the encapsulation efficiency response. NS and PIP-NS are significant ($p \leq 0.05$), on the other hand, SOLV was not significant ($p \geq 0.05$) on the response. For the NS variable, the molar ratio that presented the best responses were 1:6=77.12a and 1:10=78.74a followed by 1:2=71.55b. For the PIP-NS variable, the load ratio that presented the best response was 1:2=84.08a, followed by 2:1=77.28b and finally 1:1=66.05c.

Biography

Jeyson Alan Hermosilla Gajardo is a biotechnologist from the University of La Frontera, Temuco, Chile. He has worked on several projects at the University in the micro and nanoencapsulation area, currently working on the Fondecyt project N°1160558 “Nanoencapsulation of polyunsaturated fatty acids and pungency alkaloids using nanosponges as carrier model to deliver lipophilic compounds of high biological value”.

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Notes:

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Study of nanosponge based on cyclodextrin and carbonate as a nanoencapsulation system of lipophilic compound

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Nanosponges (NSs) are able to capture, transport and selectively release a huge variety of substances, they can be used to mask the unpleasant flavor. The objective of this work was to evaluate nanosponges based on cyclodextrin and carbonate as piperine (PIP) nanoencapsulation system. The NS was formed with a molar ratio of polymer (β-cyclodextrin) and crosslinker (diphenyl carbonate) of 1:2, 1:6 and 1:10 by the solvent method, but only molar ratios 1:6 and 1:10. The NS 1:6 and 1:10 were loaded with piperine in different encapsulation media (ethanol and acetone) and determine its loading efficiency. Both for the NSs and the inclusion complex (PIP:NS) were characterized with FTIR, hyperspectral FTIR images and Degree of Substitution. The appearance of characteristic peaks of ß-CD at 1155cm^{-1} belonging to the glycosidic bonds was observed. In addition, a peak was identified at 1750cm^{-1} which is an indicator of the carbonyl group (C=O), which also demonstrate the esterification between DPC and the hydroxyl groups of the ß-CD. The results showed NS 1:6 DS=2.613 and NS 1:10 DS=3.429. Both NSs 1:6 and 1:10 obtained a high load capacity with the different means of encapsulation. Therefore the formation of cyclodextrin-based NSs by solvent method was demonstrated. Moreover, the capacity of cyclodextrin-based NSs to encapsulate PIP was confirmed. The NSs are an effective encapsulation system of PIP and they protect the bioactive properties of the PIP. Therefore the formation of cyclodextrin-based NSs by solvent method was demonstrated. Moreover, the capacity of cyclodextrin-based NSs to encapsulate PIP was confirmed showing that PIP is distributed in a dispersed way, not forming large clusters or concentrating in a single zone. The NSs are an effective encapsulation system of PIP and they protect the bioactive properties of the PIP. Supported by funding from Conicyt through Fondecyt project 1090516.

Biography

Sofía Belen Gonzalez Lezana is a Food Engineer from the Universidad of La Frontera, Temuco, Chile. Currently, she is a working in Fondecyt project N°1160558. "Nanoencapsulation of polyunsaturated fatty acids and pungency alkaloids using nanosponges as carrier model to deliver lipophilic compounds of high biological value". This research was supported by funding from Conicyt through Fondecyt project.

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Synthesis structural characterization and antioxidant activity of alkyltrimethylammonium thiotungstate

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An emerging area of research in the field of oxidative stress is the use of inorganic drugs, possessing redox properties, which act as effective free radical scavengers, a starting point for the development of new therapies to combat oxidative damage. In this way, it was found in the literature that some ammonium thiosalts, as tetrathiomolybdate (TMA), have anticancer, anti-angiogenic, antioxidant, anti-inflammatory and have been tried as copper-chelator drugs, including preclinical, animal and human studies. Although the biological activity of TMA suggests that related inorganic species such as thiotungstate salts might show analogous behavior, to the author's knowledge, the biological activity of tungstate thiosalts has not been evaluated. In this work, ammonium thiotungstate (TTA) were synthesized, characterized and their antioxidant activity was evaluated. In addition, an alkyl chain was incorporated into TTA and the influence of carbon on biological activity was evaluated. TTA was prepared by direct sulfidation in an aqueous ammonia solution of ammonium metatungstate. The alkyltrimethylammonium thiotungstate $(R\text{-}(CH_3)_3N)_2WS_4$ (R=octyl, dodecyl or hexadecyl) were prepared by means of a simple reaction of ATT with alkyltrimethylammonium halogens in aqueous solution. The synthesized thiotungstates were characterized using Fourier transform infrared (FTIR) and ultraviolet (UV) spectroscopic techniques for determining their chemical structures. Thiotungstate salts antioxidant activity was evaluated using DPPH and ABTS assays. The preliminary results suggest that the influence of carbon derived from the hydrocarbon chain on the properties of the resulting biomaterials improved their antioxidant activity.

Biography

J Horta Marron has earned his Bachelor's degree in Industrial Chemistry from the Autonomous University of Baja California and is currently working on research. He has worked as a quality control technician in several Mexican industries such as petrochemical, alimentary and water waste. He has also collaborated with various Mexican researchers on projects involving nanotechnology and environmental sciences. Recently, he participated in the Congress of the Faculty of Chemical Engineering located in the Autonomous University of Yucatán where he presented a ceramic material created from sewage sludge.

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Encapsulation of carotenoid in nanofibers by emulsion electrospinning: Termal and oxidative stability

Camila Medina
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The canola oil, rich in polyunsaturated fatty acid has been used in emulsions/nanoemulsions as the carrier for lipophilic compounds encapsulation due to its therapeutic potential and anti-inflammatory effect. Specifically, astaxanthin is a carotenoid of commercial interest due to its potential health benefits. However, the therapeutic benefits of this carotenoid is limited due to its low bioavailability, chemical, thermal and shelf stability. In this work, Bovine Serum Albumin (BSA) was studied as a model protein for the nanofiber production with astaxanthin enriched canola oil by emulsion electrospinning. Significant independent variables: BSA emulsion, Poly Ethylene Oxide (PEO) concentration and solution pH, were selected for the nanofiber optimization based on methodology surface response. Nanofibers were characterized by scanning electron microscopy, thermogravimetric analysis and peroxide value for 7 days at 50°C. Nanofibers without bead defects were produced with 10% w/w BSA emulsion, 5% w/w PEO and pH 3. Astaxanthin loading efficiency of 97.43% was obtained under optimal conditions. Moreover, the encapsulated oil was randomly distributed as droplets inside the fibers. Melting temperature (Tm) of PEO was approximately 400°C and the Tm of loaded BSA emulsion-PEO nanofibers was 440°C. The shift to higher temperatures means that better thermal stability of astaxanthin was found in loaded nanofiber. Finally, BSA protein through the nanoemulsion and nanofiber protect canola oil from oxidative stability. Therefore, emulsion electrospinning results offer an alternative for the development of an astaxanthin encapsulation system with enhanced thermal and oxidative stability compared with electrospinning where the oil is added into the nanofiber without being emulsified.

Biography

Camila Medina is a PhD student in the Doctoral program in Sciences of Natural Resources, at University of La Frontera, Temuco, Chile. She is a Food Engineer and has a Master's Degree of Engineering Sciences with Specialization in Biotechnology. She has focused her research on the micro/nano encapsulations of bioactive compounds for food and pharmacological applications. She is currently working on “The behavior of the release of a lipophilic drug from protein by O/W-emulsion electrospinning”.

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Augmentation of the immune response of Atlantic salmon through the oral delivery of alginate encapsulated salmon rickettsial septicaemia antigens

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Salmon rickettsial septicaemia (SRS) is the infectious disease that produces the highest losses in the Chilean salmon industry. Disease outbreaks continue to emerge despite the use of vaccines and antibiotics.Therefore, as a new strategy for the control of SRS outbreaks, in this study we evaluated the effect of Alginate-Encapsulated SRS Antigens (AESA) incorporated in the feed as an oral vaccine to induce the immune response of Atlantic salmon. 960 healthy Atlantic salmon (40g) were distributed into three groups (Injectable vaccine, oral vaccine high dose, oral vaccine low dose) with four tanks being assigned to each group. The feed intake was assessed during the entire trial. To evaluate the effect of the experimental feed on the fish immune system, blood samples were taken at four sampling points (0 degree days post vaccination (DD), 300DD, 600DD and 800DD). The *P. salmonis* specific IgM levels in blood plasma were measured by ELISA. During the vaccination period, the feed intake rates were 100% for all groups indicating that the addition of AESA did not affect the palatability of the fish feed. The oral vaccine effectively enhanced the immune response of fish. There was a significant increase in the IgM levels at 800DD for both experimental groups. Furthermore, there were no significant differences when comparing the IgM levels of the experimental groups with those of the injectable vaccine. These findings suggest that AESA incorporated in the feed can be an effective alternative to enhance the immune response in Atlantic salmon.

Biography

Daniela Sotomayor Gerding is a fourth year student in the Doctoral Program in Sciences of Natural Resources, at University of La Frontera, Temuco, Chile. She has a Master's degree in Engineering Sciences and has a professional degree in Civil Engineering in Biotechnology. She has focused her research on the development of new oral delivery systems for bioactive compounds through microencapsulation techniques and she is currently working in collaboration with the company Cargill Aqua Nutrition in the development of a new oral delivery system for immunostimulants against Piscicricketsia salmonis infections in Atlantic salmon.

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Production of poly-3-hydroxybutyrate microfibers and gelatin nanofibers as scaffolding material using electrospinning process

Claudia Sanhueza, Jeyson Hermosilla and **Francisca Acevedo**
University of La Frontera, Chile

The poly-3-hydroxybutyrate (PHB) is a biodegradable and biocompatible polymer produced by microorganisms. It is suitable for biomedical applications; however, the biodegradation rate of PHB is low. On the other side, gelatin (GE) is an hydrolyzed of collagen highly used in tissue engineering due to its biocompatibility. Electrospinning is an electrodynamic technique that allows to produce scaffolds from different polymers, increasing the polymers biodegradation rate and improving their mechanical properties. The objective proposed in this study was to produce and to combine PHB-microfibers and gelatin-nanofibers by electrospinning, controlling some process variables. For obtaining PHB-microfibers and gelatin-nanofibers, electrospinning conditions such as polymer concentration, voltage and flow rate, weretested at three different levels. Diameter and morphology of the micro and nanofibers were analysed by scanning electron microscopy and their thermogravimetric properties and FTIR spectrum were investigated the process variables evaluated showed to have a significant effect over fiber diameter. Continuous and smooth PHB-microfibers were obtained at 8%w/v, 25kV and 0.5mL*h-1 with a diameter of 1.252±0.174 μm and a morphology index of 0.950. On the other hand, ultrafine GE-nanofiber were obtained at 30%w/v, 25kV and 0.5mL*h-1 with a diameter of 0.222±0.047 μm and a morphology index of 1.000. The FT-IR and TGA-DSC spectrum of GE-nanofibers showed the formation of secondary structures by the electrospinning process, for PHB was possible to observe a decrease on PHB crystallinity. It was possible to obtain good quality PHB-microfibers and GE-nanofibers under similar process conditions reaching a high morphology index. The combination of PHB-microfibers and GE-nanofibers was successfully done.

Biography

Claudia Sanhueza is Biochemist from the University of La Frontera. Now a days, she is a PhD student from the doctoral program in Sciences of Natural Resources. Her doctoral thesis is entitled “Development of a skin scaffold of PHB from B. xenovorans LB 400 and gelatin for dermal tissue regeneration”. This study was partially supported by Direction of Investigation, University of La Frontera, Conicyt Scholarship N° 21160515 and Proyecto Anillo Conicyt N° ACT1721288.

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e-Poster

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Bioremediation of polluted water using unicellular algae native from Argentina

Andrea Trentini[1], **María Daniela Groppa**[2], **Myriam Zawoznik**[3], **Roxana Bigi**[4], **Carlos Nadra**[5], **Patricia Eleonora Perelman**[3] and **Patricia Laura Marconi**[1]
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Physicochemical and microflora characterization of water samples from Cildañez stream at Ciudad Autónoma de Buenos Aires shows that these waters are mainly polluted by cloacal microorganisms, metals and compounds that raise the COD and BOD. In the present work, the remediation of these waters by bioprocesses in agitated tank bioreactors was simulated using cultures of a native strain of *Chlorella vulgaris* immobilized in alginate beads. The bioremediation processes were carried out in bioreactors with a marine impeller in autotrophic conditions for 7 days allowed the decrease of the microbial population particularly *Escherichia coli* and total coliforms reduction (over 95%) and several physical-chemical parameters and heavy metals. The percentage of pollutants removed was: ammoniacal nitrogen (96%), nitrates (86%), nitrites (98%) and total phosphorus (53%) content. Moreover, significant results were observed with lead content reduction (95%). In addition, the evaluation and monitoring of contaminated water can be done following the mitotic index and germinative power of *Allium cepa* seeds (Datsch Silveira *et al*., 2017). This economic test evaluates cytostatic effects, DNA instability and inhibition of cell division, caused by xenobiotics. The test was done before and after each bioprocess using distilled water as negative control. Germination and mitotic indexes showed that treated waters after bioprocess recovers the values similar to the negative control. The results obtained demonstrate the potential of this algae to be used in integrated processes that seek removal of xenobiotics.

Biography

Carlos Nadra is Currently working as the Researcher at APRA-CIFA at Argentina. Her research interests include Bioremediation, Cytostatic effects.

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Accepted Abstracts

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Tissue engineering and 3D bioprinting of humam tissues: From technology to challenges

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The treatment of damaged, disease or non-functional tissue and organs through tissue engineering is still a major challenge. Within this context, recent advances in the development of biomaterials for regenerative medicine and the combination of fabrication techniques, such as 3D Printing, have allowed the three-dimensional fabrication of biocompatible matrices with a great precision, which can be associated with cells and bioactive molecules. The association of cells could be improved in a 3D cell organization in a form of building blocks called spheroids, which can closely mimic the natural microenvironment of organs and tissues, consisting of an attractive approach for the development of tissue engineering and cell therapies. Then, with the tissue engineering techniques combined with the information technology and engineering aspects, homogeneous spheroids could be obtained. These spheroids could be placed in a 3D bioprinting, in which the tissues manufacturing aspects could be precisiously controlled. This technology permits the biofabrication in different shapes, with sophisticated geometry and when combined with bioactive agents could promote the functionalization of the tissues. The area which combines all those fields cited before is called biofabrication, which is growing, maturing and receiving the collaboration of scientists with various backgrounds, characterizing its multidisciplinary aspect. Nowadays, one of the main bottlenecks of biofabrication is to promote the synergy and integration of all those techniques, which is a huge challenge.

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Meta-analysis of RNA seq data to gain insight into crop responses to environmental stresses

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RNA-Seq analysis is a strong tool to gain insight into the molecular responses to biotic stresses in plants. Transcriptomic studies are usually conducted in a singular time, they do not provide any repetition across different seasons and frequently they are performed in field conditions where environmental variability is high and disturbing factors are frequently present. The identification of up- or down-regulated genes is often not enough to draw meaningful biological conclusions because it is hard to identify which gene plays a key role in specific signaling networks in host responses. This issue leads to high difficulties in deriving conclusive models for understanding disease symptomatology. For these reasons, more meta-analysis is needed in order to validate singular transcriptomic works with other similar studies performed with the same research purposes. Meta-analysis of transcriptomic data will identify commonalities and differences between differentially regulated gene lists and will allow screen which genes are key players in gene-gene and protein-protein interaction networks. These analyses will allow delivering important information on how a specific environmental factor affects plant molecular responses and how plants activate general stress responses to environmental stresses. An early "stress condition" in plants is similar to the "inflammatory response" occurring in animals in response to pathogen-associated factors. The objective of this work is to identify specific and common molecular features (genes, proteins, gene sets, pathways), linked to both abiotic and biotic stress resistances among key crops. The identification of common genes between different biotic stress will allow to gain insight into these general responses and help the diagnosis of an early "stress state" of the plants. These analyses will help in monitoring stressed plants to start early specific management procedures for each disease or disorder.

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Impact of mineral fertilizer on the yield of groundnut and soil available phosphorus in the Karaga district of Ghana

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Field experiments were carried out to ascertain the impact of mineral fertilizer application on the yield of groundnut and the soil available phosphorus at Nyong Guma, Pishegu and Cheshegu. Mineral nutrients applied were phosphorus(P), potassium(K), magnesium(Mg), sulphur(S), zinc(Zn) and boron(B). Triple superphosphate(TSP) fertilizer was used for P, potassium chloride(KCL) for K, zinc sulphate monohydrate(HOSZn) for Z, magnesium sulphate (MgSO4) for Mg and S and finally borax for B. The experiments were laid in a randomized complete block design(RCBD) with six treatments. Response parameters measured were shooting biomass at 50% flowering, grain yield, agronomic efficiency and value cost ratio. Buffer rows were created to avoid over-spill of inputs between plots and the non-leguminous crop was used as a reference crop in the case of estimation of biological nitrogen fixation. Soil pH was determined by using temp pH meter. Barkley and Black method were used to determine the organic carbon. Kjeldahl distillation method was used to determine total nitrogen. Bray 1 extraction method was used to determine phosphorus. Exchangeable cations were determined using ammonium acetate at pH of 7.0. All data were subjected to Analysis of Variance (ANOVA) and means were separated using GENSTAT statistical package 12th edition. Least significant difference (Lsd) at 5% probability level was used to compare the treatment means. Chinese variety of groundnut was used and planted at a spacing of 60cm between rows and 20cm between plants for spreading type or 50cm row and 15cm plant to plant for erect types. None of the mineral fertilizers applied significantly ($P<0.05$) increased in shoot biomass. The use of PK increased the biomass yield at 50% flowering by 62% over the control. The sole application of P yielded the highest agronomic efficiency. The use of PKMgS had the highest grain yield of 800kg/ha which was however not a significant ($P<0.05$) increase over control in all the study sites. All the mineral fertilizer application options were not cost effective.

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Application of quantitative post translational modification proteomics and interactomics in plant biology study

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Quantitative and functional post-translational modification (PTM) proteomics and interactomics have emerged as powerful omics approaches in studying cellular events in various model organisms. In this seminar, I intend to show several examples on how to apply in planta metabolic labeling and *in vitro* chemical labeling-based (4C) quantitative PTM proteomic and interactomic workflow (SILIA, SQUA-D and AQUIP) in investigation of cell signaling in the model plant *Arabidopsis* and its potential impact in the plant cell biology research in general. To elucidate the molecular mechanism underlying plant hormone ethylene signaling in *Arabidopsis* on a number of plant responses, several well-known *Arabidopsis* ethylene response loss-of-function mutants (ctr1-1, rcn1-1, ein2-5 and eil3eil1) were selected as target plant materials for both stable isotope metabolic labeling (SILIA) and *in vitro* dimethyl labeling (SQUA-D) for the PTM quantitation. The 4C quantitative proteomics and interactomics results clearly revealed that there exist multiple PTM-mediated signaling pathways in *Arabidopsis*. This quantitative PTM proteomics was able to identify rapidly phosphorylated proteins, such as TREPH1, MAP Kinase Kinases, CPKs, in response to 40 second of touch or 150 seconds of gravity stimulation in *Arabidopsis.* The following reverse genetic and transgenic plant approaches in combination with cell biology studies validated the biological functions of these key candidate phosphoproteins in these internal and external signals-mediated cellular events and dramatic plant responses. These successful research results suggest that our PTM proteomic approach can be quantitative, repeatable, accurate and versatile in addressing many important biological questions in life sciences.

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Organic phosphorus mineralization and phytase activity by fungi isolated from coffee plants rhizosphere

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The coffee industry has a big importance in the Colombian economy, in the coffee zone prevails soils with low disponibility of phosphorus (P), it is an essential nutrient for plant growth [1,6]; in order to correct this problem it is necessary to apply big quantities of chemical fertilizers, causing high production costs and environmental damage. The organic P is between 30 and 70% of the total P in agricultural soils [2], it has been reported that approximately the half of the microorganisms in soil associated to the plants' rhizosphere have the capacity of mineralizing organic phosphates[4,5]. The aim of this work was to isolate microorganisms associated with rhizosphere of coffee plants with the ability to mineralize organic P and to evaluate their phytase activity. Soil Rhizosphere samples were collected from coffee crops located in two towns in Antioquia, Colombia. For isolation of microorganisms, it was done serial dilutions until 10^{-6} and they were plated by duplicated on selective solid medium in order to detect phytase producers. After to select more promising fungi, they were evaluated by *in vitro* assays with medium supplemented with wheat bran and their enzymatic activity was measured according to Lee et al. (2005) with modifications. In total 13 microorganisms were found in the analyzed samples and 8 fungi were selected to later assays. One fungus (*Penicillium* sp.) showed the ability to mineralize organic P and five fungi presented phytase activity. Two of these fungi have been selected to carry out additional greenhouse trials, which are in course. This is the first study of organic P mineralizers present in coffee crops and it is very important due to the use of these microorganisms could be an alternative to enhance the plant nutrition and a solution to the overfertilization of P in coffee and other crops

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Brewer spent yeast susceptibility to protein hydrolysis: Effect of serial repitching and yeast strain

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School of Food Engineering, Brazil

Many different yeast strains and cultivars are available for beer production because each one may result in a different flavor profile. They are chosen considering brewing conditions and beer style. Brewer spent yeast (BSY) is the second most relevant sub-product generated from the brewing industry but it is usually discarded or used as inexpensive animal feed. However, this material is rich in proteins and may be a source of bioactive peptides, which can be obtained through proteolytic treatment. The aim of this study was to investigate the susceptibility to hydrolysis of two commonly used yeast strains for Lager Pilsen production (*Saccharomyces cerevisiae* and *Saccharomyces pastorianus*) using Alcalase™ 2.4L, Protamex™ (Novozymes, Denmark) and a commercial protease mixture for yeast cell hydrolysis, Brauzyn® 100L (Prozyn, Brazil). Three samples of brewer spent yeast from Lager Pilsen beer production were collected after 11 days of maturation: Repitched *Saccharomyces pastorianus* (RSP), non-repitched *Saccharomyces pastorianus* (NSP) and non-repitched *Saccharomyces cerevisiae* (NSC). Firstly, protease activity of the commercial proteases was determined for each studied condition using azocasein as substrate. Then, the effect of serial repitching (no repitching and 5 times repitching) and yeast strain on the degree of hydrolysis (DH*) with those three enzymes was studied, at the same hydrolysis conditions, using an automatic titrator. Protease activity results show that maximum Brauzyn® activity was achieved at low pH (5.6) and high temperature (74°C), but this enzyme showed 17 and 2 times less protease activity per mL when compared to Alcalase™ and Protamex™. In order to take into account the different protease activities of the enzymes, enzyme/substrate ratio (E:S) was determined in U g protein-1. When comparing non-repitched yeasts from different strains, NSC samples presented 18.5% higher DH* than NSP samples, when hydrolyzed using Brauzyn®. The effect of serial repitching of *Saccharomyces pastorianus* showed that non-repitched yeast samples were more easily hydrolyzed than the repitched ones. At the same hydrolysis conditions (pH, temperature and E:S) RSP samples took 3.5× more time to achieve the same DH* (3.2%) using Brauzyn®. Very low DH* was achieved using Brauzyn®, for a wide range of E:S, from 50 to 1500U g protein-1, which would indicate that this enzyme could not effectively break RSP yeast cells. Using Alcalase™, higher DH* could be obtained, but RSP had to be diluted 1.4 times and a higher E:S was needed to reach the same degree of hydrolysis of NSP yeast during 2h of hydrolysis. These results show that repitched cells seemed to be more difficult to break down. Indeed, although all fermentation yeasts are imposed to stressful conditions during beer production, the successive reuse of cells in repeated cycles of fermentation makes them more exhausted in terms of its cell components and their cell wall get thicker and more resistant to rupture treatments such as enzymatic hydrolysis. In conclusion, technologies and approaches proposed to add value and reuse BSY must contemplate yeasts differences in terms of its characteristics and susceptibility to break down so that they can be successfully transformed and processed.

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Statistical analysis for the production of secondary metabolites and its chemical characterization from Streptomyces parvulus C5-5Y

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Introduction: The needs for an increase in novel drugs urged to discover and develop new antibiotics with biopotential. The natural products have been developed from medicinal plants and the recent research has mainly focused on the microbial sources for novel antibiotics with bioactivities and this is economical in the state. In this investigation, we have developed a new bioactive compound with maximum antioxidant and antimicrobial activities.

Methodology: In order to increase the metabolite production as well as the organism's growth we aimed to optimize the medium with economical parameters and sources rapidly. The investigation followed the one factor at a time, Plackett-Burman design and Box Behnken design to get the optimized medium for the enhanced metabolites production. Stat-Ease design expert software was used for this investigation. On purification, the secondary metabolite which was exhibiting maximum activity at a minimum concentration was taken for structural elucidation analysis through UV-VIS, FTIR, NMR and HRLC MS/MS analysis.

Results: The bioactive compound was elucidated from *Streptomyces parvulus*. The maximum growth and pigment production were evaluated with the standard formula and the production was higher in optimal pH, temperature, carbon and nitrogen sources. The carbon sources are found to increase the growth of the organism, especially in starch. The mass production was obtained in the optimized medium and the extracted pigments were subjected to HPLC analysis where the peak 4 was eluted and found to contain bioactivity through antimicrobial assessment. The compound AP_4 was structurally elucidated with raw data, finally, the AP_4 was 4-MHA (4-Methyl 3-Hydroxy anthranilic acid) pentapeptide lactone and it represents the half actinomycin structure with antioxidant properties. Further studies will be focused on two-dimensional NMR spectroscopy to confirm the structure and application of pigment as pharma product in *in vivo* studies.

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Effect of medicinal plant pesticide and microbial insecticides for the control of Dengue vector, *Aedes aegypti* (Insecta: Diptera: Culicidae)

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Mosquitoes can transmit more diseases than any other group of arthropods and affect millions of people throughout the world. Dengue is an acute viral infection with potentially fatal complications. Dengue fever is spread by the bite of infected *Aedes* mosquitoes. *Aedes aegypti* mosquito is the principal vector of the viruses responsible for urban yellow fever, dengue, dengue hemorrhagic fever, as well as Zika and Chikungunya in Brazil. To prevent the proliferation of mosquito-borne diseases and to improve the quality of the environment and public health, mosquito control is essential. Biopesticides provide an alternative to synthetic pesticides because of their generally low environmental pollution, low toxicity to humans and other advantages. Many herbal products have been used as natural insecticides before the discovery of synthetic organic insecticides and also some of the biological control agents have been evaluated against larval stages of mosquitoes, of which the most successful ones comprise bacteria such as *Bacillus megaterium*. The purpose of this investigation is to determine the larvicidal and pupicidal activity of *Justicia adhatoda* and microbial insecticide, *Bacillus megaterium* on dengue vector, Aedes aegypti. Lethal dose concentrations (LC50 and LC90) were calculated for different larval instars and pupal stages. Field trials were conducted at the breeding sites of the A. aegypti and the mortality was observed after 72 hours of treatment.

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Notes:

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Fermentation conditions for the production of flavonoids from *Streptomyces hygroscopicus* AVS7 by statistical approaches

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Introduction: Statistically optimized fermentation conditions for the maximized pigmented metabolites production from *S. hygroscopicus* AVS7 isolated from western ghats regions was estimated using basic economical carbon and nitrogen sources. Normally in Starch Casein Broth (SCN), the strain AVS7 produced about 2.92g/L of metabolites from the biomass. In order to increase metabolites production, the parameters were optimized using statistical experiments with Design expert software. Basic parameters pH, temperature, incubation period, carbon and nitrogen sources were optimized using one factor at a time experiment and the highest production profile remarked by pH, temperature and incubation period were kept as constant. The factors were evaluated for Plackett-Burman design and under this factorial design three significant factors potato pulp, sucrose and maltose influenced the highest pigmented metabolite production. These three factors were further investigated using Response Surface Methodology (RSM) Box Behnken design; the results were displayed as a contour and 3D surface plots. The analysis of variance implied the model to be significant with a p-value of 0.0011 and lack of fit was not significant. The production of metabolites in RSM was 4.91g/L which was 2 fold increases from the basic medium. Finally, the model was validated and the highest response area was targeted as an optimized medium for maximized metabolite production. The pigment production was 2.98g/L in normal medium and it was about 4.91g/L in the optimized medium. The pigment showed a two-fold increase through optimization. This optimized medium was taken for further studies. The crude metabolite extract was purified under chromatographic techniques using a gradient solvent system. About six fractions were eluted from the preparative HPLC system and antimicrobial assessment was carried out for all the fractions, in which fourth fraction F4 explicit highest antimicrobial profile. This fraction F4 was taken a spectral range which displayed a peak at 527nm and it was also determined for flavonoids presence. This study explores the biomolecule and its fermentation conditions to increase its production to explore the anticancer potentiality by animal models. This is the first report in the production of secondary metabolites from an actinomycete- *S. hygroscopicus* AVS7.

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