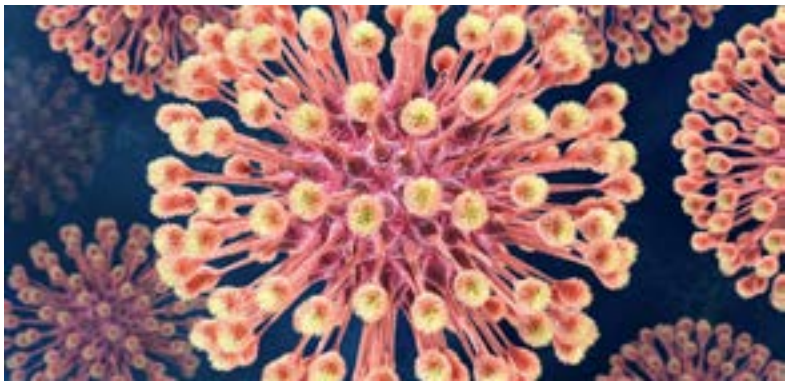
Microbial Ecology 2018



International Pre Conference Workshop on

Microbial Ecology & Eco Systems

June 28-29, 2018 | Alexandria, Egypt

SESSION-I

Oral Presentations

Day 1

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Removal of Cr VI from water using green chemistry

Mohamed R Elsheref, [1]**Abdelmonem M Ahmed,** [2]**Mona A Darwesh** and [3]**Essam Elmelegy**
[1]Chemistry Department, Faculty of Science, Alexandria University, Egypt
[2]Chemical Engineering Department, Faculty of Engineering, Tanta University, Egypt
[3]Damanhur Central Labs, Ministry of Health, Damanhour, Egypt

Removal of water pollutants is one of the most global environmental challenges of the 21st century due to discharges of toxic substances from anthropogenic activities. This investigation aimed at testing the kinetic and isothermal parameters of Chromium (Cr VI) adsorption by apricot stone powder as natural adsorbent. The adsorption capacities measured as the amount of metals adsorbed per unit mass of adsorbent and the percentage of adsorption was calculated. Using of 0.5 gm sample size of Apricot stone powder has significant removed almost 90% of Cr VI with an initial concentration of 100 ppm within 120 min. A significant increase in the removal of Cr VI with increase in the apricot stone sample size and increase in media temperature. A remarkable efficiency for apricot stone powder was in the range of metal concentration of 50 to 300 ppm, and 120 min was the optimum contact time for effective adsorption. The optimum time for highest percentage removal of Cr VI was determined by kinetics to be around 30 min, and optimum pH was 1.5. it is obvious that 1.0 gm dose is the most efficient adsorbent dose, and the ideal temperature is 25-30^{0}C.The pseudo second order kinetic model was more suitable for describing the adsorption system and the Freundlich isotherm generates a satisfactory fit to the experimental data as indicated by correlation coefficients and average percentage error than Langmuir isotherm. The thermodynamic parameters ΔG^o,ΔH^o and ΔS^o were also studied and found that the sorption was feasible, spontaneous and endothermic in nature. The positive value of entropy change suggested the increased randomness.

Keywords: Pollution, Apricot stone, Adsorption, Heavy metals, Aqueous solution, pH

Biography

Mohamed R Elsheref is a biomedical and pharmaceutical representative, He worked as a Research Assistant in the Chemistry Department, Faculty of Science, Damanhur University, Albuhera, Egypt, 2010. He is a member of Life Makers Developmental Organization, (Education is Power Project), 2013- Present. He earned his Master in Physical Chemistry, Alexandria University in 2017, Biochemistry Diploma, 2014, Zagazig Univesity, Damanhur University, Albuhera, Egypt. He is Member of Life Makers developmental organization, (Education is Power Project) June 2013- Present. Participate in campaigns to attract and inspire new volunteers, and in campaigns to open literacy classes at Alexandria suburbs and underprivileged villages. He is a member of Benna group for publication, 2015-Present, and volunteering in Benna project of translating useful websites to the Arab world.

Mohamed _elsheref@alexu.edu.eg

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Bioremediation of uranium VI from waste water by immobilized microgreen algae- spongy composite

[3]Islam S S, [2]Hassan A, [3]Maysa M, [3]Zeinab Mousa and **[1]El-Ayouty YM**
[1]Botany Department, Faculty of Science, Zagazig, University, Egypt
[2]Botany Department Ismailia, Faculty of Science, Port- Said University, Egypt
[3]Nuclear Materials Authority, El-Aattamyia, Egypt

This work aimed at attempting bioremediation of uranium VI from waste water by two unicellular immobilized microgreen algae- spongy composite, as natural biopolymers. The characterization of algae spongy composite was manifested by Scanning Electron Microscope (SEM), UV and Fourier transform infrared spectra (FTIS). FTIS clarified the presence of hydroxyl amine groups and uronic acids at the surface of algae spongy composite. An experiment for adsorption of uranium (VI) by algae- spongy composite was carried out through which the composite impeded to15 cm length glass column (2cm diameter and 50 cm length) then, multistatic pump was fixed at the top opening of the column and the other ends of the rubber tube immersed in the waste water. As the pump start and operates the sample withdraw from the waste with the rate of(2mls\min).The flow rates was repeated three times. The final effluent at each run was collected for titration. The pseudo first-order and pseudo second-order equations were used to analyze the kinetic data, and the rate constants were determined. The equilibrium adsorption data of environmental factors on U (VI) adsorption, including: contact time, pH, and initial concentrations of U (VI) were examined by the Langmuir and Freundlich. The experimental results manifested that the adsorption of U (VI) by spongy composite was strongly dependent on pH with maximum adsorption of uranium was indicated at pH 2.5, and shaking at 400 rpm. The adsorption reached equilibrium within 15 minutes. The maximum adsorption capacity was increased with increasing the concentration of U (VI) up to 125ppm. It reached 12.5mg\g free Scendesmusand 108 mg\g immobilized Scendesmus\spongy composite.

Keywords: Adsorption-isotherm, bioremediation, immobilized algae, multistatic pump, spongy composite, uranium.

Biography

Islam Samir Shaaban is currently a permanent researcher at Nuclear Materials Authority. He has an M.Sc. degree in Microbiology and Chemistry - 2006, Faculty of Science, Zagazig University, Egypt; and Diploma in Physiology and Biochemistry, Faculty of Science, Suez Canal University.

islamsamir192@gmail.com

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Removal of Aluminum (III) from water using agriculture product

[2]Mohamed A Eledkawy, [1]Abdelmonem M Ahmed, [2]Gehan A Alnaggar, [2]Alaa E. Ali and **[3]Essam Elmelegy**
[1]Chemistry department, Faculty of science, Alexandria, University, Egypt
[2]Chemistry department, Faculty of science, Damanhur, Egypt
[3]Damanhur Central Labs, Ministry of Health, Egypt

This aim of this work was to reduce or remove high levels of aluminum in drinking water by Guava leaves as natural material. The study revealed that Guava leaves was able to effectively remove significant percentage of Aluminum. Using 0.5 gm sample size of ground Guava leaves could remove about 90% of Aluminum with an initial concentration of 100 ppm within 120 min. A significant increase in the removal of Al(III) with increase in the guava leaves and increases in temperature. There is a remarkable efficiency for Guava leaves in the range of metal concentration of 50 to 250 ppm. Time 120 minutes is the suitable contact time of adsorption. The optimum pH for the percentage adsorption of metal ions was found to be acidic, (pH=6) for Aluminum solution. It is obvious that 0.5 gm dose is the most efficient adsorbent dose, and the ideal temperature is 25-30°C. The thermodynamic parameters ΔG^{o}, ΔH^{o} and ΔS^{o} was also studied and found that the sorption was feasible, spontaneous and endothermic in nature and The positive value of entropy change suggested the increased randomness.

Keywords: Adsorption, Aluminum, Aqueous solution, guava leaves, pH pollution

Biography

Mohamed A Eledkawy is a graduate of the Faculty of Science in 2009, and obtained a postgraduate diploma in petrochemicals applied studies Alexandria University in 2011. Now, he is about to complete an M.Sc. in inorganic chemistry (physical chemistry), Damanhour University. He worked as a chemist for the last six years in West Delta Electricity Production Company. He is responsible for Water treatment; clarification, purification flocculation, filtration.

edkawy8888@gmail.com

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Role of metallothionen and glutathione-s-transferase expression in *Chlamydomonas reinhardtii* for detoxification sewage water from some heavy metals

Abdelhamed M Elkbash, EL-Ayouty Y.M., Rashad Kebeish, Samy and **M M**
Botany Department, Faculty of Science, Zagazig University, Egypt

The maintenance of ion detoxification in living cells is a fundamental physiological requirement for sustainable their growth, development, and production. Metallothioneins (MTs) are a superfamily of cysteine-rich, low-molecular-weight metalloproteins that bind heavy metal ions. These cytosolic metallopeptides are widely distributed in living organisms and are thought to be involved in metal homeostasis, metal detoxification, and oxidative stress protection. Here in Transgenic *Chlamydomonas reihardtii* was constructed via cloning and sub cloning with PTRA-GST and PATRA-PT- Smta plasmds. The first one was restricted via ASC1 and BAM and the second restricted by BAM. Their products were purified according to protocol kits and to allowed to ligase. The product was introduced into Agrobacterium-mediated, and then transformed to Chlamydomonas reinhardtii. The transgenic alga was selected on solid TAP medium supplemented with Basta at concentration (12ug\ml). The efficiency of algal trasformation was confirmed by SDS –gel electrophoresis and RT- PCR. To evaluate that toxicity of heavy metal an experiment was conducted in which the wild and transgenic *Chlamydomonas reinhardtii* allowed to grow in sewage water for six days and the rate of removal heavy metal with calculated. Results revealed that, the transgenic *Chlamydomonas reinhardtii* has MtIII clearly can have an important role in metal detoxification. Transgenic *Chlamydomonas reihardtii* with metallothionen gene was selective for sequestration of cytosolic $Cd2^{+}$. It has been found that MtIII synthesis is related to degree of pollution in an aquatic environment.

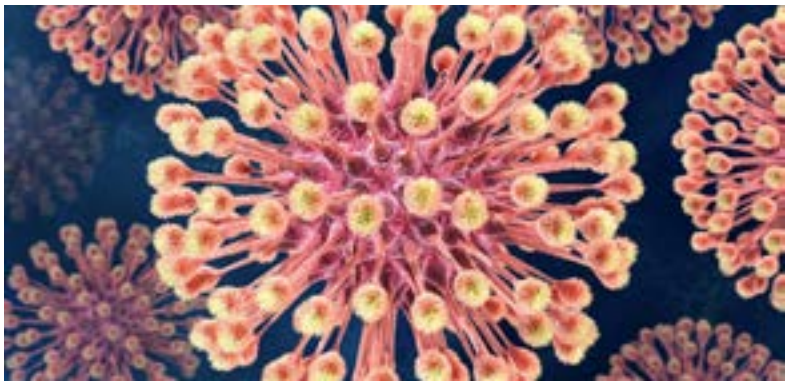
Keywords: Autophotosynthetic, biomarker, $Cd2^{+}$, *Chlamydomonas reihardtii,* glutathione-s-transferase, heavy metals, metallothionein.

Biography

Abdelhamed M Elkbash is currently a researcher at Biotechnology Labs Faculty of Science, Zagazig University, Egypt. He has Bachelor of Science, Alazher University, Microbiology Department. His scientific grade (Excellent). He works as a Biologist in the Central Lab. for drinking water, Behira Water and Drainage Company (BWADC), where he is responsible for water and wastewater treatment analysis (chemical and microbiological) for surface and ground water. He accumulated 13-years of experience in different Labs, and implementation of ISO 17025 (general requirement for competence of testing and calibration laboratories), and ISO 22000 (food safety management system) applicable for safety of drinking water.

Elkabash2020@yahoo.com

Microbial Ecology 2018



International Pre Conference Workshop on

Microbial Ecology & Eco Systems

June 28-29, 2018 | Alexandria, Egypt

SESSION-II

Oral Presentations

Day 1

Magdi M Melouk, J Ecosys Ecograph 2018, Volume: 8
DOI: 10.4172/2157-7625-C2-035

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Farmers perception of the importance of applying "Melouk Model" in improving potato production ecology in Egypt

Magdi M Melouk
Central Administration for Agricultural Extension, Ministry of Agriculture, Egypt

Melouk Model (2016) is an attempt to use ICT in a systematized manner to best manage the production chain and generate information to support farmers decision making in agriculture. The model was used here with the aim of improving potato production ecology through investigating Egyptian potato farmers' perception of the model and its use in identifying relationship between the extent of farmers understanding of the model and its importance in improving potato ecology and its independent variables. The study leads to the identification of obstacles facing potato farmers in applying the model, and their suggestions about considering the application of model beneficial to their agricultural cooperatives. A questionnaire consisting of five main sections was used, including a section on personal and economic characteristics of the respondents, a section on respondents' knowledge of the physical, chemical and biological characteristics of potato production chain and the third section on the importance of applying the model to improve the ecology of potato production, which dealt with through three stages of the perception process, including the general impression of the problem, respondents analysis of the problem, and respondents understanding of the problem. The fourth section addressed obstacles of facing farmers in using the model. The last section dealt with the views of the respondents on the need for preparing farmers to apply the model in their agricultural cooperatives. This study revealed that Melouk Model, as an application of ICT, is significantly important in strengthening agriculture extension, managing production chains and rationalizing decision making in cropping patterns management.

Keywords: cooperatives, extension, ICT, Melouk Model, potato ecology, production chain management

Biography

Magdi M Melouk is a former undersecretary of Ministry of Agriculture, Head of Agricultural Sector in Alexandria, Egypt and vice president of the Canadian Academy of Sciences, the Canadian Education Agency Inc. 2015. He earned his PhD in Agricultural Extension, Alexandria University 2015. He accumulated over 34 years of experience in agriculture, and published "Melouk Model" (2016), a model of applying ICT in management in production chains and decision support, and three books: "Normalization of ICT in business communities development", "TV satellite channels, A development forum and community participation", and "Media institutions and operations management". He served in UNDP projects in Oman and Lebanon as an extension expert and UNV specialist. He represented Ministry of Agriculture in missions to Greece, Italy, Spain, China, Tunisia, Sudan, South Sudan. Formerly, a manager of media production and head of computer section of Development Support Communication Center in the Ministry of Agriculture, Alexandria branch.

dscmelouk@gmail.com

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Detection of mango leaf spots and mealybugs diseases using deep learning "ConvNet" and LinearSVC

Mohamed S Aboalarbe and **Ammar Adl**
Beni-Suef University, Egypt

Leaf Spots and Mealybugs lesion infected a lot of plants of the local city of Beni-Suef. In this proposed paper, pre-trained ConvNet was combined with LinearSVC and some image processing techniques in the process of Detection of Leaf Spots and Mealybugs lesion at mango to enables the farmers to save their crops and improve the quality and the quantity. This research is done to achieve of detection of these two diseases at mango and predict a treatment according to each disease with accuracy of 97% in the ordinary lighting conditions using a high-quality photo or mobiles camera. This paper covers the detection process using machine learning and deep learning algorithms; LinearSVC, ConvNet and image processing techniques; noise removal filters, resizing the images. The proposed solution achieved the detection of these two diseases and methods of treatment with accuracy of 97%. The proposed system is built over state of the art machine learning, deep learning, transfer learning and image processing used for learning process of the computer vision. It is developed by combining these factors: (A) Pre-processing, (B) Features Extraction, (C) Classification, (D) Testing and Evaluating. The effect of using transfer learning on the processing time and accuracy: When we build a ConvNet from scratch, we need a very large amount of data and a lot of time-consuming to training the network. So we apply the concept of transfer learning that pre-train the ConvNet on a very large dataset e.g. ImagNet which contains about 1.2 million images with 1000 categories then we will use the ConvNet as a fixed features extractor and this led to decreasing the processing time. Features that extracted from pre-trained ConvNet are very relevant and powerful for awesome classification results and this led to increasing the model`s accuracy.

Keywords: Deep Learning, Image processing, Leaf spots Mealybugs, Mango Diseases.

Biography

Mohamed Aboalarbe is a researcher and problem solver who uses computer science-based approach to new challenges. He is passionate about development and applying software engineering concepts and principles, and committed to maintaining cutting edge technical skills and up-to-date industry knowledge. Over the last three years, he gained an extensive experience in software engineering, and training programs relevant to the field. He is particularly interested in Android development and applications using different technologies such as Java, XML, Firebase, Google Cloud, third party libraries, responsive screens, Material Design, Gradle Scripts, Nodes js, Web Services, REST, etc.

mohamedaboalarbe@fcis.bsu.edu.eg

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Symptomological, histological and biochemical alterations in male albino rats in response to exposure to the immunosuppressor, Cyclosporine A

Marwa K Emara
Alexandria University, Egypt

Cyclosporine A (CsA) is probably the strongest and safest known immunosuppressor known so far. The histological and biochemical alterations associated with exposure to the drug have been investigated. Thirty, 3-month old, male albino rats of 100-120 g body weight (B.wt.) were randomly divided into three equal groups. Rats were intubated to stomach with CsA in olive oil (1:3, v/v) for two consecutive days and escape one day for 21 days. The first and the second groups received a dose of 75 mg CsA/kg B.wt. and 50mg/kg B.wt., respectively, while the third group received only olive oil to serve as a control. Half of the rats in each group were euthanized after 10 days and the remaining half was euthanized on day 21 of the experiment. Both euthanized and dead animals were immediately dissected, internal organs (liver, kidney, spleen, brain, testes, bone marrow, femur, skull and heart) grossly examined and specimens taken for histological study. Biochemical analysis was conducted on blood samples collected from all animals after being anaesthetized immediately before euthanasia. CsA induced concentration-dependent adverse effects in terms of clinical symptomology, histological alterations and biochemical changes. Clinical symptoms included body weight loss, appetite loss, ruffled hair, mild diarrhea and anorexia. Mild to moderate congestion was observed in parenchymatous organs, serosal membranes and cerebral blood vessels with dead rats exhibiting mild haemothorax and enlarged diffusely congested spleen. The pattern of lesions in dead animals was similar, albeit more severe, in dead as compared to euthanized animals. Kidneys, testes and heart showed severe diffuse cellular swelling with marked periacinar to midzonal hepatocellular coagulative necrosis. In contrast, the brain, bone and bone marrow appeared within histological limits with only lungs showing mild bronchopneumonia. Increasing levels of alanine aminotransferase (ALT), aspartate aminotransferase (AST), urea and creatinine were consistently observed in all animals exposed to CsA.

Keywords: Cyclosporine A, histological alterations, immunosuppressor.

Biography

Marwa K. Emara is a graduate of the Faculty of Veterinary Medicine in 2002, and earned her MSc degree in pathology in 2013. In between, Ms Emara obtained a clinical pathology Diploma in 2005, mini MBA from AUC continuous program in 2010, and a Diploma in epidemiology & public health from the High Institute of Public Health in 2011. She worked as pathology specialist in El Madina Medical Lab, and then worked in UNICEF from 2014 in different development projects about cancer epidemiology and developing and advancing the primary health in Egypt.

marwaemara1979@gmail.com

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Characterization and biological activities of some colored food additive complexes

[3]**Ragab Y Sharaf**, [2]**Alaa E Ali** and [1]**Mamdouh S Masoud**,
[1]Chemistry Department, Faculty of Science, Alexandria University, Egypt
[2]Chemistry Department, Faculty of Science, Damanhur University, Egypt
[3]Regional Joint Lab, Al Beheira Governorate, Ministry of Health, Egypt

This study aims at improving the safety profile and hazardous effects of colored food additive ligation due to chemical interaction with heavy metal ions, and predicting the hazard. The study based in mixing of 0.01 M of each ligand and the same weights of metal chlorides (Cr^{+++}, Mn^{++}, Fe^{+++}, Co^{++}, Ni^{++}, Cu^{++}, Zn^{++} and Cd^{++}). The structures elucidations and thermal stability of the prepared complexes were done by IR, ESR and UV-visible, and thermal analysis. The IR spectra of ligands and their complexes showed a shift for uOH, uC-H, uC=C, uC-C, uN=N, uC-N, uS-O and dN=N due to contribution of azo group and OH group in complexation(1-2). ESR for cupper complexes showed that the structure of the complexes are octahedral structure and an isotropic symmetrical structure. The UV-Visible spectra showed that the structure of the prepared complexes are Oh with high spin nature, and the selective azo compound acts as weak ligands. The thermal stability and thermal decomposition of ligands and they complexes were obtained from thermal analysis (TG and DTA)[(3)]. In this study, 4 microorganisms representing different microbial categories, two Gram-positive *(Streptococcus pyogenes* and *Staphylococcus Epidermidis)*, two Gram negative *(Escherichia Coli* and *Klebsiella pneumoniae)* bacteria were used. Three different broadly antibiotics (Levofloxacin, Vancomycin and Amikacin) are used in this study as references. The study included 24 compounds, four ligands Sunset yellow, Red 2G, Tartrazine yellow and Newcoccine red, and 20 complexes of different metal ions. All ligands and their complexes showed no activity with Gram negative bacteria but they have different activities to Gram positive bacteria[(4-5)].

Keywords: Newcoccine red, Red 2G, Sunset yellow, Tartrazine yellow, thermal analysis and transition metals

Biography

Ragab Youssef Sharaf is a chemist at the Ministry of Health Laboratory, Damanhour, Beheira Governorate since 2012. He runs a private medical analysis laboratory. Formerly he was a medical analysis specialist at the Egyptian Red Crescent Blood Bank, and Medical representative at Nile Pharmaceutical Company. He earned his Master of Science in Analytical Chemistry, Faculty of Science, Damanhour University in 2017, Diploma in Analytical Biochemistry, Faculty of Science, Menofia University in 2007, and a Diploma in Analytical chemistry, Faculty of Science, Damanhour University in 2012. He is currently enrolled for his PhD in analytical chemistry at Faculty of Science, Damanhour University. He participated in numerous training courses including waste water treatment, air pollutants control, milk and its products analysis and fish and meats pollutants. He is a board member of the Egyptian Syndicate of Scientific Professions since 2012, and attended and organized numerous national conference of water.

r_sharaf2010@yahoo.com

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Antibacterial activity of essential oils and antibiotics on bacterial strains isolated from infected urinary tract

[1]**Marwa M Elmaghrabi** and [2]**Hanan A Ghozlan**
[1]Stem Cells and Tissue Culture Labs, CERRMA
[2]Faculty of Medicine, Alexandria University, Egypt

In this study, antibacterial activity of some traditional herbal oils and antibiotics against infected urinary tract bacterial isolates was investigated. Oil discs with the minimum inhibitory concentration MIC of each were impregnated. After culturing and incubation the results showed that Dill oil is the most effective oil that inhibited 61% of, 56% of Gram $^{(+)}$ cocci, and 33% of Gram $^{(-)}$ bacilli. Generally, it inhibited 48% of all isolates. Parsley and Celery oils inhibited 56% of Gram $^{(+)}$ cocci, followed by Gram $^{(-)}$ bacilli that showed 48% and 41% inhibition, respectively. Their effects on was much less inhibiting 29% and 21%, respectively. Generally they inhibited 41% and 34% of local urinary bacterial pathogens. Thyme's oil showed effect only on Gram $^{(-)}$ bacilli and coccobacilli reaching 37% and 21%, respectively. It had no effect on Gram $^{(+)}$ cocci. It's generally inhibited only 25% of isolates. Chamomile's oil was the weakest tested oil. It affected only the Gram $^{(-)}$ bacilli while it had no effect on Gram $^{(+)}$ cocci generally inhibited only 5% of all isolates. In this study the antibiotics tested were Amoxicillin/ Clavulanate, Pipracillin/ Tazobactam, Cefotaxim, Imipenem, Amikacin, Norfloxacin, Trimethoprim/ Salfamethoxazole (oxoid®). Two Strains of Gram $^{(+)}$ cocci were representative for VITEK® system identification as antibiotic sensitivity pattern were done. One was sensitive to all tested antibiotics except IP and AK and it was *Enterococcus faecalis*, the second was resistant to all the tested antibiotics and it was Staphylococcus aureus. 50% of all Gram $^{(-)}$ coccobacilli strains were submitted for VITEK®, and they were all found to belong to. Gram $^{(-)}$ bacilli were divided into clusters and the representatives were identified as *Morganella morganii, Pseudomonas aeruginosa, Pseudomonas fluorescens, Proteus mirabili*s, and *Klebsiella pneumoniae.*

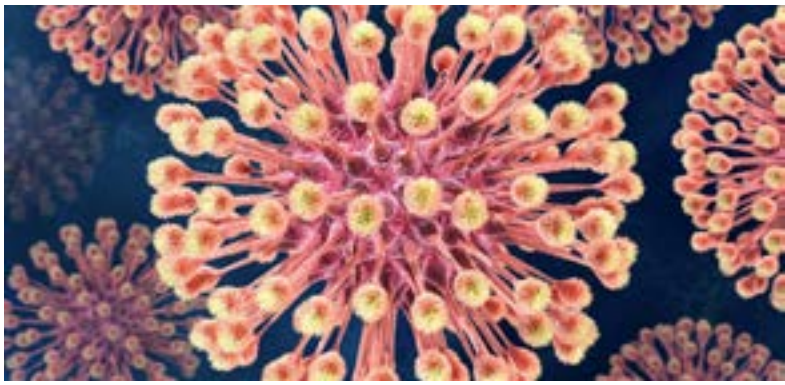
Keywords: Antibacterial activity, antibiotics, dill, herbal oils, parsley, thyme

Biography

Marwa M Elmaghrabi is currently a permanent researcher at Stem Cells and Tissue Culture Labs, Faculty of Medicine, Alexandria University, a healthcare and quality advisor at Canadian Academy of Sciences, Egypt. She has MSc in Microbiology (2012), Faculty of Science, Egypt. She accumulated 8-years of experience in quality and infection control, and appointed to a number of key jobs; ISO 9001:2015 Lead Auditor, quality manager (2015-2017) and quality and infection control manager (2013-2015) in Madina Fertility group, quality-specialist at Medical Research Institute, Alexandria University, 2015-2017, and senior quality assurance specialist and internal auditor at Hassab-Labs Company, 2010-2013. She participated in a number of regional and international conferences and as a member of Organizing Committee of Microbial Ecology-2018 pre-conference workshop. She contributed to PAN-African and electronic network project as a broadcasting lecturer. She served as a member of the Egyptian Syndicate of Scientific professions, and Arab QOSH of safety professionals' experts.

marvenmomo@yahoo.com

Microbial Ecology 2018



International Pre Conference Workshop on

Microbial Ecology & Eco Systems

June 28-29, 2018 | Alexandria, Egypt

SESSION-III

Oral Presentations

Day 1

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Isolation and characterization of a thermophilic, cellulose-degrading *Streptomyces griseorubens* SH15 strain from agricultural waste compost in Egypt

Shimaa F Ahmed, Magda M Mehanni and **Ahmed M Abdel- Hamid**
Department of Botany and Microbiology, Faculty of Science, Minia University, El-Minia, Egypt

Cellulose is the main component of plant primary cell wall and is the most abundant carbon source on earth. Biodegradation of cellulose which constitutes from 33 to 50 percent of lignocellulosic biomass provides a sustainable source for biofuel production. Cellulosic ethanol provides a cleaner and greener alternative to hydrocarbon fuels. Actinomycetes play a significant role in deconstruction of lignocellulosic biomass. In the current study, compost samples were collected from botanical garden of faculty of agriculture Minia University, Minia, Egypt. Thermophilic, cellulose degrading actinomycetes from compost samples were isolated on culture medium supplemented with amorphous cellulose (carboxy methyl cellulose) and crystalline cellulose (Avicel) as the sole carbon source at 45^{0}C. A total of 15 actinomycete isolates were selected and tested for their qualitative ability to degrade both CMC and avicel on congo red agar medium. The isolate with the highest cellulase activity on CMC and avicel was selected for further investigation. The 16S rRNA gene sequence was determined for molecular classification of the isolated strain. On the basis of phylogenetic analysis of 16S rDNA gene sequences, the isolate was classified as Streptomyces griseorubens (100% similarity). Identification was further confirmed by taxonomical criteria listed in the International Streptomycetes Project that aligned the isolated strain to the same species; hence the isolated strain was designated as Streptomyces griseorubens SH15. Factors affecting the production of cellulolytic enzymes by Streptomyces griseorubens SH15 were investigated. The highest enzyme activity was obtained at 45^{0}C and pH7. Moreover, it exhibited cellulolytic activity on various lignocellulosic substrates including wheat straw, rice straw and sugarcane bagasse. The thermophilic nature and the ability of depolymerize cellulose makes the isolated Streptomyces griseorubens SH15 a potential candidate for application in biofuel production.

Keywords: Actinomycetes, Avicel, cellulase, CMC, congo red, *Streptomyces griseorubems*.

Biography

Shimaa F. Ahmed is currently a master student in Microbiology (Bacteriology and Molecular Biology) at Department of Botany and Microbiology, Faculty of Science, Minia University, Egypt, since (2013), and had her BSc. of Microbiology, 2013 from the same Department. She accumulated 3-years of experience as a researcher in an international project on "Nanotechnological approach for the development and implementation of microbial fuel cell for energy harvesting from waste water", funded from European Union in associated with Research Development and Innovation (RDI) program, Faculty of Engineering, Minia University. She participated in a number of regional and international workshops as a member of Organizing Committee.

shimaafarg92@gmail.com

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Thermostable xylanase production from a thermophilic *Streptomyces eurythermus* MN13 strain degrading lignocellulosic materials

Mahmoud N Menshawy, Magda M Mehanni and **Ahmed M Abdel- Hamid**
Department of Botany and Microbiology, Faculty of Science, Minia University, El-Minia, Egypt

Depolymerization of lignocellulosic materials provides a promising alternative for renewable biofuel production. Xylan is a major component of hemicelluloses and is the second most common plant material in nature. Actinomycetes produce various lignocellulose degrading enzymes including xylanases and therefore can be potentially implemented in the production of biofuel and different value added chemicals. In this study 5 thermophilic xylan degrading actinomycetes were isolated from compost samples collected from botanical garden of faculty of agriculture Minia University, Minia, Egypt. All isolates were able to grow at 45^0C utilizing xylan as the sole carbon source. Qualitative and quantitative assay for xylan degradation by the isolated actinomycetes was performed. The isolate with the highest xylanolytic activity, yielding a degradation zone of 6 cm on xylan-Congo red agar and producing 1.4 mg ml-1 of reducing sugars, was selected for further molecular, phenotypical and enzymological characterization. The 16S rRNA gene sequence was determined for molecular classification of the isolated strain. Significant phenotypic properties for the taxonomy of MN13 strain were determined according to the methods of the International Streptomycetes Project. Discrepancies between results of phylogenetic analyses and results of phenetic analyses indicated that, MN13 strain taxonomically represents a novel strain of *Streptomyces eurythermus* for which the name *Streptomyces eurythermus* MN13 is proposed. The highest xylanase production was obtained at 45°C and pH 7 after 7 days of incubation with continuous shaking. However the optimum temperature for xylanase activity was at 65°C suggesting the thermostability of this enzyme. Furthermore, *Streptomyce eurythermus* MN13 was able to depolymerize the various lignocellulosic waste materials such as wheat straw, rice straw and sugar cane bagasse. The thermophilic xylanase produced by *Streptomyce eurythermus* MN13 characterized in this study provides a promising enzyme for the deconstruction of ligncellulosic biomass in various industrial applications such as biofuel production.

Keywords: Actinomycetes, congo red, Streptomyces eurythermus, xylanase, xylan.

Biography

Mahmoud N Menshawy is a Demonstrator at Botany and Microbiology department at Faculty of Science, Minia University, Egypt since 2013. He has B.Sc. in microbiology (June 2012), Minia University, Egypt. He is currently completing his Master Degree in the Department of Botany and Microbiology, Faculty of Science, Minia University, specializing in bacteriology and molecular biology. He has a wide experience in teaching microbiology, molecular biology and botany courses. He served as member of the Board of Directors of the Scientific Professions Union and he is Fund Trustee, Minia branch.

m.nagah2012@yahoo.com

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Extracellular generation of silver nanoparticles using *Fusarium solani* MH005062

[1]**Marwa R Obiedallah,** [2]**Mohamed B Aboul-Nasr,** [2]**Sabah S Mohamed** and [3]**Simon C Andrews**
[1]Botany and Microbiology department, Faculty of Science, University of Sohag, Egypt
[2]Faculty of Science, University of Sohag, Egypt
[3]School of Biological Sciences, University of Reading, UK

The mechanism of biological generation of silver nanoparticles (SNP) is still not fully understood with most studies merely providing detailed information describing the mechanism by which fungi reduce $AgNO_3$ into SNP. In our work, we demonstrate that proteins are mainly involved in the myco-generation of SNP. Fifty-three and 27 fungal isolates were obtained from *Padina* (brown algae) and *Avicennia marina* (leaves) marine samples and were assessed for SNP generation using fungal supernatants. Fifty out of 80 isolates were found to be positive for SNP generation. Due to the lack of researches discussing the exact mechanism by which *Fusarium solani* (an important plant pathogen) can generate SNP intra/extracellularly, it was selected in this study. *Fusarium solani* isolate was purified using single-spore isolation technique then molecularly identified by amplifying internal transcribed spacer (ITS), ITS1 and ITS2 sequences surrounding the 5.8S rRNA. The ITS sequence was deposited in the GenBank with an accession number: MH005062. Mycelia of F. solani MH005062 were challenged with different concentrations of $AgNO_3$, extracellular proteins were estimated by Bradford essay and results confirmed that the observed silver reduction reaction is dependent upon proteins secreted by the fungus. Fungal filtrate of four-day cultures was treated with 1 mM $AgNO_3$ which resulted in SNP production as detected using UV-Vis spectroscopy, and characterized by TEM, HR-TEM and X-ray diffraction. Two particles forms were noted with an average size of 7.58 ±0.27 and 30.5 ±1.10 nm. SNP generation was optimized using different parameters. Here, we show that heat treatment eliminated SNP generation. Our findings support the hypothesis that extracellular proteins have a key role in SNP formation, although those proteins are yet to be identified.

Keywords: Extracellular proteins, fungal filtrate, *Fusarium solani,* marine samples, Silver nanoparticles.

Biography

Marwa R. Obiedallah is currently an assistant lecturer of Microbiology at Faculty of Science, University of Sohag, Egypt. She has MSc in mycotoxins (2011), and gained wide experience in fungal natural products and mycotoxins during her study. She was offered a scholarship from the Egyptian cultural affairs and missions sector for her PhD project at the at School of Biological Sciences, University of Reading, UK, where she had the opportunity to improve her skills and experience. She is a postgraduate member at the British Mycological Society (2017-2019). Her research interests now is focusing on nanotechnology, where she is paying attention for the mechanism by which fungal species can generate nanoparticles of their metal salts. She believes that he findings will direct future researches for proteome studies of promising fungal isolates.

m.r.a.obiedallah@gmail.com

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Over expression of glutathione s-transferase in *Chlamydomonas* and the activities of antioxidant enzymes under a biotic stress

[1]Asmaa Hussein, [2]Y M El-Ayouty, [2]Mostafa M S Ismaiel, [2]Rashad Kebeish
[1]Plant Biotechnology Lab., Faculty of Science, Zagazig University, Egypt
[2]Botany Department, Plant Biotechnology Laboratory, Faculty of Science, Zagazig University, Egypt

Heavy metals (HMs) toxicity is one of the most abiotic stresses leading to hazardous effects in green algae. Their toxicities are related to the excessive accumulation of reactive oxygen species (ROS), which can cause lipid peroxidation, oxidation of protein, inactivation of enzymes, DNA damage and/or interact with other vital constituents in the cells. Green algae evolved a sophisticated antioxidant defense system not only to scavenge ROS but also tosequester by several specific binding ligands of glutathione (GSH).In both direct and indirect control of ROS and their reaction products in algal cells protecting the cells from HM-induced oxidative damage. Recent biotechnological molecular studies have shown that cloning and transformation technique of Glutathione S-transferase that cloned into pTRA-K-GST via *Agrobacterium tumefaciens* strain (GV3101) to *Chlamydomonas reinhardtii* is one of the recent techniques for the auto defense against HMs. In this regard an experiment was conducted in which both transgenic and wild Chlamydomonas sp was allowed to grow in presence of different concentrations of nickel and cadmium (25.50 and 75 µm) for the mid exponential phase (7 days) then the specific activities of GST and some antioxidant enzymes were calculated. Moreover the expression of GST in both transgenic and wild was carried out using real time PCR. Spectrophotometric studies reveal that specific activity of glutathione S-transferase and the activity of antioxidant enzymes in transgenic were obviously more than their corresponding activities in wild species. Nickle enhance the specific activity of antioxidant enzymes (peroxidase, superoxide dismutase and catalase) rather than cadmium.

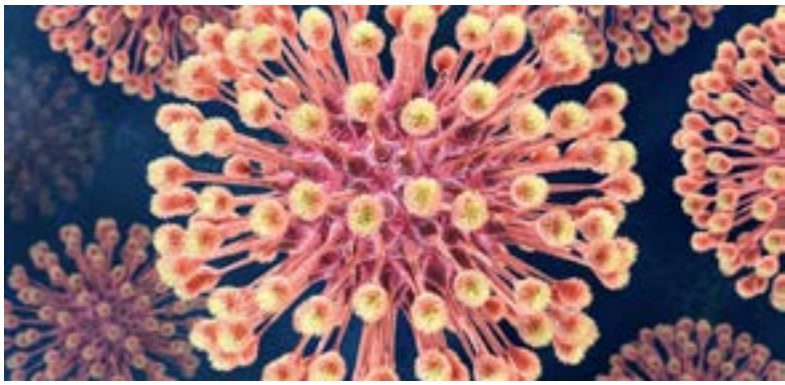
Keywords: *Agrobacterium*, antioxidants, *Chlamydomonas,* Glutathione S- transferase, heavy metals.

Biography

Asmaa Hussein is currently a assistant Lecturer at Botany Department, Plant Biotechnology Lab, Faculty of Science, Zagazig University, Egypt. She has an M.Sc. in Botany (Microbiology) - 2014. She participated in the 12th international conference on environmental sciences entitled “Basic Science and its Applications for Environmental Protection”.

bio_asmaa88@yahoo.com

Microbial Ecology 2018



International Pre Conference Workshop on

Microbial Ecology & Eco Systems

June 28-29, 2018 | Alexandria, Egypt

SESSION-V

Oral Presentations

Day 1

Tarek El Afandy, J Ecosys Ecograph 2018, Volume: 8
DOI: 10.4172/2157-7625-C2-035

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Re-engineering the methods of diagnosis and meta-therapy in the light of quantum and information vibrational medicine

Tarek El Afandy
IT and Science Consultant, NLS BioFeedback Practitioner, San Hong INC.
Former IT Manager, School of Sciences and Engineering, AUC Teaching Instructor, Engineering and Science Services, AUC

The key idea of this study is to introduce the new and re-engineered approach of conducting a mindful diagnosis and meta-therapy i.e frequency compensation of a weak organ, using a Bioresonance technology which is relying on matter-wave-energy nature of life using classical and quantum resonance to assess the entropy of the bio systems, organisms state which may identify its vitality using frequency response by stimulus signal then capturing the reverted, analyzing it, then mapping each detected vibrational frequency to its equivalent organism from Body systems organs to tissues down to cells, subcellular organelles, enzymes, coenzymes to DNA, RNA strands and any infecting microorganisms or pathogens like Viruses, Bacteria, fungi, parasites and toxins from heavy metals, aflatoxins, pesticides, insecticides, fertilizers, allergens, to information stored in a very large databases built from years of statistically conducted studies to identify each entity quantized energy by frequency response. The new technologies use typical Object Oriented, service Oriented architecture to model biological structures, properties, functions, state, behavior, input-output characteristics, apply process and performance measurements to understand variability, via setting mission critical operations of each organism, measurable attributes, critical to quality factors, normal conditions and cause-effect analysis is applied if deviation takes place from a certain assignable variable. This can show level of presence, acuteness as a probability. In the Software, the physical (anatomical) bio structures are presented as depicted images, marked with etalons that show chosen points of measurements as end points of meridians, sub-meridians, the energy super highways based on (TCM), Traditional Chines Medicine conventions and are given colored shapes as a ranking level of measurement to show activity of the part. In addition to numeric figures as probability of measured attribute. The purpose of a conducted case study on diabetes mellitus patients & normal ones is to show a strong correlation with the "*Giardia Lamblia* intestinalis Protozoa" presence on pancreatic acinus, duodenal, intestine. Investigating if it can be a significant root cause of pancreatic, other metabolic functions disorders.

Keywords: Bioresonance, Vibrational medicine, quantum, TCM, Biophotonics, PEMF, BIOfields, OOP, SOA, OOAD, Quantum Field

Biography

Tarek El Afandy is graduate of Cairo University, Faculty of Engineering, Electronics and communication Dept. 1979, Joined Perkin-Elmer International as Field service Eng. of Analytical Equipment1980-1984, the Philips X-Ray 1985, IBM 1986-1987, AUC 1987-2014, as IT manager, SSE, along years of work, teaching, managing in various domains lecturer in computer science, Experimental physics, Instrumentation, Business analysis, technology consultant for large companies like NCR, National Instruments, alfa-Med, Certified Biofeedback San Hong Inc., Sensitiv Imago from Alfa-Med.

elafandy@aucegypt.edu

Notes:

Zayed Harara et al., J Ecosys Ecograph 2018, Volume: 8
DOI: 10.4172/2157-7625-C2-035

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Bacteriological profile and antimicrobial susceptibility patterns of bacteria isolated from pus/wound swab samples in Gaza, Palestine

Zayed Harara, Hala Abdo, Nahil Rebaia, Sanaa Halies and **Khtam Tork**
Microbiology Section, Central Laboratory Department, Al-Shifa Hospital, Gaza

The main objective of this study is to isolate and identify bacteria from pus samples received in the Microbiology Lab, Al-Shifa Hospital, Gaza, Palestine, and to determine its antibiotic susceptibility to the commonly used antimicrobial agents that change due to inadvertent use of antibiotics which lead to the emergence of various drug resistant pathogens. A cross-sectional study was conducted using total of 500 pus/wound swab samples collected from patients attending surgical and ICU department in the hospital during March 2018 to April 2018. Standard microbiological culture methods were used, and bacterial colonies were identified using morphological characteristics, Gram's staining, and biochemical testing. The antimicrobial susceptibility testing was performed by modified Kirby-Bauer disc diffusion technique. Out of the 500 pus samples, 380 showed bacterial growth. Gram (+) isolates were recovered from 140 (36.9%) sample of which *Staphylococcus spp* and *Streptococcus* spp were isolated from 81.5% and 18.5% of the samples. Antibiotic susceptibility testing of the Gram(+) isolates revealed that the effectiveness of Vancomycin, Rifampicin, Ciprofloxacin, Clindamycin, Cephalexin, Erythromycin, Ampicillin and Penicillin G was 90%, 88.3%, 70%, 58.3%, 51.6%, 41.6%, 18.1% and 15%, respectively. Gram(-) isolates were recovered from 240 (65.1%) samples of *which Escherichia coli, Klebsiella Pneumonia, Pseudomonas aeruginosa, Acinetobacter baumanni, Proteus vulgaris, Enterobacter cloacae, Citrobacter freundi and Chryseomonas luteola* were isolated from 34.1%, 25%, 25%, 8.3%, 5.8%, 4.1%, 2.5% and 2.5%, respectively. Antibiotic susceptibility testing of Gram(-) isolates revealed that the effectiveness of Colistin, Meropenim, Amikacin, Ciprofloxacin and Pipracillin was 29.5%, 65.3%, 59.8%, 42.9% and 22.8%, respectively. These results showed that the most effective antibiotics against Gram (+) bacteria were Vancomycin, Rifampicin and Ciprofloxacin; whereas Ampicillin and Penicillin G were the least effective. Gram (-) bacteria, however, were most susceptibility to Colistin, Meropenim, Amikacin, Ciprofloxacin and Pipracillin.

Keywords: antimicrobials, bacterial infection, Gaza, Palestine, pus

Biography

Zayed Mohammed Harara is a pharmacist. He earned his PhD in Medical Laboratory Science (Clinical Pathology), Tunisia University, Tunisia in 2012, a Master Degree in Medical Laboratory Science (Clinical Pathology), IUG, Palestine in 2006 and Professional Diploma of Quality health management from the Ministry of Health, Palestine in 2015. He worked as a Head of Thalassemia Center, Palestine Avider, and a volunteer in Infection Control Society for graduates of health field, and a Head of Microbiology Section, Central Laboratory and Blood Bank Department, Al-Shifa Hospital, Palestine. He has professional experiences as an active member of the Palestinian Friends Society, and during participation in several activates such as the preparation and the implementation of doctors and nursing training courses, coordination and attended several conferences and seminars in the field.

zayedharara@yahoo.com

Notes:

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Isolation and identification of predominant bacterial isolates infecting urinary tract

[1]**Marwa M. Elmaghrabi** and [2]**Hanan A. Ghozlan**
[1]Stem Cells and Tissue Culture Labs, CERRMA, Faculty of Medicine, Alexandria University, Alexandria, Egypt
[2]Faculty of Science, Alexandria University, Alexandria, Egypt

In this study, bacterial isolates of the most common urinary tract infection of 100 patients were investigated. Patients comprised of equal gender and 50 patients were above 40 y/o and 50 were under 40 y/o. Only 55 patients were infected of whom 63.6% females and 36.4% males, and among them 66% were above 40 y/o, and 44% were under 40 y/o. The dipstick test revealed 24% were positive for leukocytes, 13% were positive for nitrite, 14% were positive for both leukocyte and nitrite. Phase contrast microscopy revealed 15% were positive for pyuria, and 34% were positive for bacterurea. Morphological description leucocytosis and bacterurea colonies grown on cultured on MacConkey and Blood agar plates was achieved, where 64 bacterial strains and four fungal strains were identified. Based on Gram staining and cell shapes, isolates were grouped into three categories; Gram (+) cocci, Gram (-) coccobacilli, and Gram (-) bacilli, and analyzed using SYSTAT® program. Following cluster analysis, a representative strain of each cluster was selected for identification using VITEK® system. Results showed eight groups of isolates; 28 *E. coli, 9 Klebsiella pneumonia, 6 Pseudomonas aeruginosa, 6 Proteus mirabilis, 5 Staphylococcus aurous, 4 Enterococcus faecalis, 4 Morganella morganii and 2 Pseudomonas fluorescence*. Large cells of *Candida albicans* were also identified. Results indicated that the most predominant uropathogen was *E. coli* as it was found in 43.7% of the isolates followed *by Klebsiella Pneumonia 1*4.1%. Both *Pseudomonas aeruginosa and Proteus mirabilis* were represented in 9.4% of the isolates while Staphylococcus aurous was recorded in 7.8% of the samples. Enterococcus faecalis and Morganella morganii were represented in 6.2% of the isolates however, only 3.2% was recorded for Pseudomonas fluorescence.

Keywords: bacterial description, SYSTAT®program, urinary tract infection, VITEK® system

Biography

Marwa M. Elmaghrabi is currently a permanent researcher at Stem Cells and Tissue Culture Labs, Faculty of Medicine, Alexandria University, a healthcare and quality advisor at Canadian Academy of Sciences, Egypt. She has MSc in Microbiology (2012), Faculty of Science, Egypt. She accumulated 8-years of experience in quality and infection control, and appointed to a number of key jobs; ISO 9001:2015 Lead Auditor, quality manager (2015-2017) and quality and infection control manager (2013-2015) in Madina Fertility group, quality-specialist at Medical Research Institute, Alexandria University, 2015-2017, and senior quality assurance specialist and internal auditor at Hassab-Labs Company, 2010-2013. She participated in a number of regional and international conferences and as a member of Organizing Committee of Microbial Ecology-2018 pre-conference workshop. She contributed to PAN-African and electronic network project as a broadcasting lecturer. She served as a member of the Egyptian Syndicate of Scientific professions, and Arab QOSH of safety professionals' experts.

marvenmomo@yahoo.com

Notes:

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Quantitative estimation of interleukin-17 in patients with chronic liver disorders

Noha A Ghazy, Hadeer S Okasha and **Mona G Morsi**
Faculty of Medicine Medical Microbiology & Faculty of Medicine Medical Microbiology & Immunology, Alexandria, Egypt

More than 20 years after the discovery of the HCV, it is now well established that HCV is of global importance affecting all countries, leading to a major global health problem that requires widespread active interventions for its prevention and control. Chronic hepatitis C was linked to the development of cirrhosis and hepatocellular carcinoma (HCC) in many areas of the world. WHO reported that Egypt has the highest prevalence (22%) in the world which explained by the past practice of parenteral therapy for schistosomiasis. T cells that produce IL-17 have recently been identified as a third distinct subset of effector T cells, and emerging data implicate Th17 cells as important in the pathogenesis of chronic hepatitis C infection by regulating innate and adaptive immunity, including autoimmunity. So the present study was conducted to determine the role of IL-17, with its potent pro-inflammatory properties, among chronic hepatitis C cases with or without cirrhosis and HCC aimed at future immune-therapy. The study was conducted on 60 subjects with chronic hepatitis C infection before starting antiviral therapy; 20 chronic hepatitis C, 20 cirrhotic patients and 20 HCC HCV positive as well as 10 healthy subjects negative for HCV, HBV and HIV served as controls. IL-17 was quantitated after mitogen stimulated whole peripheral venous blood by commercial enzyme linked immunosorbant assay (ELISA).Our results demonstrated a significant increase in serum levels of IL-17 among cirrhotic and HCC patients infected with HCV. While in chronic hepatitis C virus cases, elevated IL-17 values were non-significant compared to controls. It can be conclude that IL-17may play an important role in HCV immunopathogenesis. It might be used as an indicator for cirrhosis and HCC as it promotes tumor growth by facilitating angiogenesis in tumor microenvironment. Also, its therapeutic application needs to be furtherly evaluated by *in vivo* studies in experimental animals aiming at future immunotherapy.

Keywords: Chronic HCV, Cirrhosis, ELISA, HCC, Interleukin (IL)-17, T-helper 17 cell (Th17).

Biography

Noha A. Ghazy is a PhD student at the medical research institute (MRI) in Diagnostic and Molecular Microbiology. She had a master's degree in Medical Microbiology &Immunology from Alexandria University. Her current field is Lab quality assurance and lab accreditation officer keeping labs up to the international standards ISO 17025, ISO 15198 and the technical standards related to food, water and culture media preparation in central labs of Alexandria, Ministry of Health, Egypt. She is CLA quality manager, specialist in medical microbiology, food and water microbiology.

nghazy2008@gmail.com

Notes:

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Over expression of human interferon α 2a gene in Chlamydomonas reinhardtii under a biotic stress

[2]Emad Hamdy, M.Y, [2]I M El-Manawy, [3]Rashad Kebeish[1,3]Sherif Nasshy, and **[1]EL-Ayouty**
[1]Botany Department, Faculty of Science, Zagazig University, Egypt
[2]Botany Department, Faculty of Science, Suez Canal University, Egypt
[3]Clinical Pathology Department, Kaser El-Aini Medical School, Cairo University, Egypt

The Interferon- α2a (IFN- α2a) is a principle cytokine that has regulatory role in mammalian immune systems. The coding sequence of human interferon α2a(hu-IFN-α2a) gene was cloned into binary vector pTRAK, a derivative of pPAM (gi13508478). The recombinant plasmid was transferred into Agrobacterium tumefaciens strain (GV3101). Then the hu-IFN-α2a gene was introduced into Agrobacterium-mediated transformation to Chlamydomonas reinhardtii (Kumar *et al.* 2004)and (Cha *et al.* 2012), with modifications. carrying hu-IFN-α2a gene. to confirmed the well integrity and positive colonies. ten cell line were taken for PCR amplification. Results indicate that hu-IFN-α2a gene has been integrated into the Chlamydomonas reinhardtii genome, with transcription products of. hIFN-α2a. Sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) manifested a specific protein band at 19.5 KD of five different transgenic Chlamydomonas reinhardtii. Hu-IFNα2A protein was detected by the enzyme linked immunosorbant assay (ELISA) and RT-PCR. These results suggest that Chlamydomonas reinhardtii can be used to produce many biologically active mammalian proteins that accumulate in target organelles such as protein bodies with low cost with high efficiency. Cytotoxicity of hu-IFNα2a extracts from three line of transgnic alga was evaluated through intrapertioneal and subcutaneous studies using Albino mice infected with Ehrlich ascites carcinoma. The results revealed that an obvious reduction in fluid volumes by (85%,68% and 75%less than untreated animals as the infected mice injected intraperitoneal with 21.45 ug\kg body wt. Whereas under subctaneouus injection the origenal mass size reduced by 93% as compared with untreated animals.

Keywords: Human interferon α2a, *Agrobacterium tumefaciens*, SDS-PAGE, TAP medium, immunosorbant assay (ELISA), Ehrlich ascites carcinoma (EAS CELLS)

Biography

Emad hamdy is currently a permanent researcher at Biotechnology Labs, Faculty of Science, Ismailia, A Suez Canal Univeristy,I has Bachelor science in Chemist-Botany(good grade)- Faculty of Science- Zagazig- university- Sharkia – Egypt, Diploma in Applied Microbiology (good grade) - Faculty of Science - Banha-Univerisity. and MSc in Microbiology (2014), Faculty of Science, Zagazig University, Egypt. I accumulated 12-years of experience in quality and infection control, and appointed to a number of key jobs; ISO 9001:2015 Lead Auditor, quality manager and quality and infection control manager in Techno scan group, and senior quality assurance specialist and internal auditor at NSA Company, 2010- till date.

em.emad86@yahoo.com

Notes:

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Characterization and evaluation of antimicrobial activity of Chitosan nanoparticles loaded with Ciprofloxacin hydrochloride

[3]Mai M Abouelala, [1]Metwally Aly M Kotb, [1]Heba S Ramadan, Walaa Aly Hazzah[2] and **[3]Marwa M Abdelaziz**
[1]Department of Medical Biophysics-Medical Research Institute, University of Alexandria
[2]Department of Microbiology High Institute of Public Health -University of Alexandria
[3]Medical Research Institute, Alexandria University

The aim of the present study is an attempt to formulate, characterize and evaluate the antimicrobial activity and the storage stability of Chitosan nanoparticles (CSNPs) loaded with Ciprofloxacin Hydrochloride. Ciprofloxacin HCl loaded CSNPs formed characterized by using transmission electron Microscope, Zetasizer and FT-IR spectroscopy. The study clearly demonstrated that both CSNPs and Ciprofloxacin HCl loaded CSNPs were in nanosize but Ciprofloxacin HCl incorporation increases particle size of nanoparticles compared to empty nanoparticles with almost 90.713 % Ciprofloxacin HCl encapsulation efficiency. Ciprofloxacin HCl loaded CSNPs displayed a lower positive zeta potential in comparison with the free CSNPs. CSNPs inhibited Escherichia coli bacteria (gram-negative bacteria) more efficiently when compared to Staphylococcus aureus (gram-positive) bacteria. Ciprofloxacin HCl loaded CSNPs demonstrated similar antimicrobial activity when compared to Ciprofloxacin HCl for both S. aureus and E. coli so Ciprofloxacin HCl loaded CSNPs retained its antimicrobial activity throughout the manufacturing process. For pharmaceutical applications, the storage stability of the nanoparticles is a great concern. The stability of Ciprofloxacin HCl loaded CSNPs was evaluated in terms of its drug content. Ciprofloxacin HCl loaded CSNPs were stable in both storage conditions but the Ciprofloxacin HCl loaded CSNPs were more stable in storage conditions at 4°C than room temperature. Therefore, a new nanoparticulate dosage form could be prepared by ionic gelation process using Tripolyphosphate as crosslinking agent without applying harmful organic solvent, heat or vigorous agitation that are damaging to sensitive proteins and also this new nanoparticulate form could retain its antimicrobial activity throughout the manufacturing process.

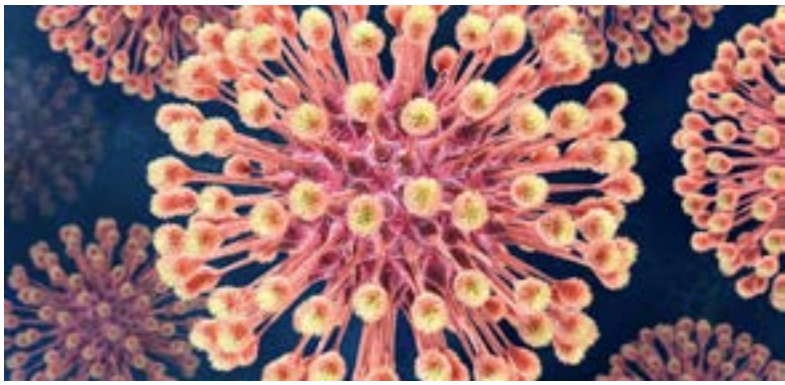
Keywords: Antimicrobial activity, Chitosan nanoparticles, CiprofloxacinHCl.

Biography

Mai M Abouelala received the B.E. degree in Pharmaceutical sciences from University of Alexandria, Egypt, in 2012, Diploma Degree in Clinical Pharmacy (Pharmacotherapy) from College of Cambridge Coatbridge, Scotland, in 2013, M.S. and PhD degrees in Medical Biophysics in Medical Biophysics from Medical Research Institute- Alexandria University in 2015 and 2018 respectively. Her research interests include nanomedicine using drug loaded nanoparticles as a controlled drug delivery systems to improve efficacy, reduce toxicity, and improve patient compliance.

d_mai.mohamed@yahoo.com

Microbial Ecology 2018



International Pre Conference Workshop on

Microbial Ecology & Eco Systems

June 28-29, 2018 | Alexandria, Egypt

Oral Presentations

Day 2

Elsayed E Wagih, J Ecosys Ecograph 2018, Volume: 8
DOI: 10.4172/2157-7625-C2-035

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Plant disease pathogens may cross the ecological border and cause diseases to humans

Elsayed E Wagih
University of Alexandria, Egypt

Plants, like animals and humans, are known to suffer from a huge number of diseases caused by various pathogens including, viroids, virusoids, viruses, mycoplasma and spiroplasma, rickettsia, bacteria, protoctista, fungi and nematodes. Due to biological differences in the anatomy, histology, cytology, physiology, biochemistry and genetic makeup, usually pathogens of each category of hosts (plants, animals and humans) are confined to only one type of hosts with many known to infect both animals and humans and are thus termed zoonosis. Although the general notion that plant pathogens are restricted to plants and cannot infect neither animals nor humans is commonly adopted, it is shown here not to be true. However, research has shown that patients with their immune systems being compromised (like those having acquired immunodifficiency syndrome, organ or bone marrow transplantations, AIDS, hepatitis B, steroid treatment, uncontrolled diabetes, cancer or undergoing chemotherapy etc.), many plant pathogens, known as opportunistic organisms, can infect them with sometimes fatal consequences.

Pseudomonas aeruginosa, the causal agent of bacterial blight on lettuce is an opportunistic, nosocomial pathogen of immunocompromised individuals. It can invade nearly any tissue in the human body, provided they are already weakened. The bacterium typically infects the airway, urinary tract, burns, and wounds, and also causes other blood infections. Symptoms vary widely from dermatitis, urinary tract infections to gastrointestinal infections, endocarditis and even systemic illness (Todar, 2006). To make matters worse, this bacterium is becoming increasingly antibiotic resistant in institutional settings.

Human health can also be affected by bacterial species used as biocontrol agents for plant diseases. *Pantoea agglomerans (formerly called Erwinia herbicola or Enterobacter agglomerans)*, which is known as a plant pathogen and some strains are used for biological control of fire blight disease of pear and apple has been recognised as an opportunistic organism in immunocompromised patients causing serious medical conditions in man including septicaemia, septic arthritis, endophthalmitis, periostitis, endocarditis, osteomyelitis and urinary-tract infections. (Paula *et al.,* 2006; Dutkiewicz, 2016). The bacterium may enter human bodies through accidental punctures by contaminated plant thorns or with contaminated intravenously-administered solutions (Dennis *et al.,* 1973).

Similarly, Mucor is a common indoor mold that is implicated in many crop storage diseases of which Mucor rot in apple is merely an example. Mucor is among the fungi that cause the group of infections in man known as zygomycosis or more precisely mucormycosis. This type of infection is caused by a number of fungi belonging to the order Mucorales (Hibbett *et al.,* 2007) with *Rhizopus oryzae* being the most common organism isolated from patients with mucormycosis and is responsible for about 70% of all cases of mucormycosis (Ribes *et al.,* 2000, Roden *et al.,* 2005). *Rhizopus oryzae* is a fungus that lives worldwide on dead organic matter. It also infects carrots, pineapples and mangoes.The fungus is an opportunistic human pathogen causaing zygomycosis (or more properly mucormycosis) to human.The infection typically involves the rhino-facial-cranial area, lungs, gastrointestinal (GI) tract, skin, or less commonly other organ systems. Black nasal ulceration and periorbital fungal infection known as Mucormycosis, or Phycomycosis is a dangerous fungal infection usually occurring in the immunocompromised patient, affecting the skin (Cutaneous Zygomycosis), mouth cavity (Mucormycosis palate) and the regions of the eye, nose, and through its growth and destruction of the periorbital tissues, it will eventually invade the brain cavity resulting in a rhinocerebral abscess. External symptoms involve necrotic lesions and presence of cotton-like growth on its surface (James *et al.,* 2016).

Aspergillus niger the causal agent of black mold disease in onion and several other crops, its spores if inhaled can infect the respiratory system causing a disease called allergic bronchopulmonary aspergillosis or pseudotuberculosis (Vlahakis and Aksamit, 2001; Greenberger, 2002; Moss, 2002) which involves breathing problems in both immuno-compromised and healthy people. In immuno-compromised patients, infection with *A. niger* or the common relative, *A. fumigatus* or *A. flavus* can be a life-threatening one. Although *A. flavus* is a rare species, it can similarly cause nasal and sinus infections in such patients *A. niger* was also found to cause fungal endophthalmitis with its two types, namely endogenous endophthalmitis, which arises from haematogenous spread from a focus of infection elsewhere in the body and exogenous endophthalmitis, resulting from primary inoculation of the eye following surgery or penetrating trauma (Kermani and Aggarwal, 2000; Machado Od Ode *et al.,* 2003; Hashemi *et al.,* 2009; Hosseini *et al.,* 2009). *Aspergillus infection can* cause general ill-health and bleeding in the lung and can worsen asthma and cause allergic sinusitis in patients

with allergic tendencies. What makes the problem even worse is that the fungus was shown to have developed signs of drug resistance (Tamgadge *et al.,* 2012).

Additionally, it was reported that most infections of otomycosis which is a chronic condition endemic in tropical and subtropical regions and is rarely reported in infants and children are due to *A. niger* or, less commonly, *A. fumigatus*. Most cases are unilateral, and patients complain of ear pain, itching of the auditory canal, and a sense of fullness. Otorrhea (decreased hearing) and tinnitus (ringing or buzzing in the ears) are less common. Examination of the auditory canal typically shows conidial "forests" or mycelial mats (Paulose *et al.,* 1989; Rutt, and Sataloff, 2008; Jia *et al.,* 2012).

Botrytis cinerea is another plant pathogen known to infect large number of fruits and vegetables causing the grey mold disease. The fungus infecting grapes may also infect man causing "winegrower's lung" among farmers (Popp *et al.,* 1987). The disease is a rare form of hypersensitivity pneumonitis (a respiratory allergic reaction in predisposed individuals). Symptoms include fever, chills, malaise, cough, chest tightness, dyspnea, rash, swelling and headache. Symptoms resolve within 12 hours to several days upon cessation of exposure (Sharma, 2006).

Despite the question about the possible direct effect of plant pathogens on humans, Plant pathogens may negatively affect human health indirectly by reducing crop quantity and quality including nutritional value. Several plant pathogens (*Aspergillus* spp., *Penicillium* spp., *Fusarium* spp., *Claviceps* spp.) can affect humans by reducing the available food or by contaminating human food with toxic compounds (Baranyi, 2013; Cary *et al.,* 2017

One of the most common ways through which plant diseases can indirectly affect human health is through excreting toxic metabolites 'mycotoxins' by fungi infecting plant products. Although the fungi producing these mycotoxins are plant pathogens and do not infect humans, they can do that indirectly through the mycotoxins they excrete causing harm to human and animal health resulting in diseases and death. Examples of fungal species producing mycotoxins include *A. flavus*, *A. parasiticus*, *Fusarium* spp. and *Penicillium* spp. Several groups of mycotoxins have been recognized, of which Aflatoxins (types = B_1, B_2, G_1 and G_2) are one of the most dangerous ones. Although Aflatoxins have long been known to be produced mainly by two main Aspergilli (*A. flavus* and *A. parasiticus*), but recently 20 different species of Aspergillus (e.g. *Aspergillus ochraceoroseus*) and other genera have been reported to produce Aflatoxins (Baranyi, 2013).

Feeding on plant parts contaminated with aflatoxins causes a syndrome known as aflatoxicosis which is characterised by vomiting, abdominal pain, pulmonary edema, convulsions, coma, and death with cerebral edema and fatty involvment of the liver, kidneys, and heart. Aflatoxins are highly carcinogenic metabolites of which Aflatoxin B_1 is frequently referred to as the most potent naturally occurring carcinogen. It is considered to be 1000 times more potent as a carcinogen than benzopyrene. The toxin is lethal at high doses and is carcinogenic to humans at low doses and can result in reduced liver function, vomiting and abdominal pain. Annual deaths in some parts of Africa due to the effect of aflatoxin have been reported to reach 250,000 annually (Wild *et al.,* 1992). Mycotoxins can be consumed indirectly by humans through the consumption of meat from animals fed on feed contaminated with mycotoxin excreting *Aspergilli*. Evidence of acute aflatoxicosis in humans has been reported from many parts of the world, namely the Third World Countries, like Taiwan, Ouganda, India, and many others.

The fungus *Claviceps purpurea*, beside some other species of the same genus, is another plant pathogen that infects cereals including wheat causing a disease called ergot (Kien and Cvak. 1999). The fungus is characterised by the production of hard fungal mycelial structures termed sclerotia that replace grains in the spikes of their hosts (Miedaner and Geiger, 2015). Sclerotia contains over 40 different toxic alkaloids. of which some may have psychedelic (e.g. Lysergic acid and Lysergic acid amide), vasoconstriction (e.g. Ergotamine, Ergochristine and Ergocryptine), smooth muscle contracting (e.g. ergometrine) and hallucinating (e.g. lysergic acid diethylamide) effects. The hallusinating compound "lysergic acid diethylamide" (known as LSD) is produced during the baking of bread made with ergot-contaminated wheat. Consumption of bread produced from contaminated flour can thus result in ergotism disease in humans. Ergotism has been reported to result in Dry gangrene of hand, foot and leg from poor circulation (Balique, 1968), loss of peripheral sensation, hallucinations or even death (Křen and Cvak, 1999; White *et al.,* 2003).

Although LSD is relatively non-toxic and non-addictive, various governments around the world outlawed it after a number of fatal accidents were reported. Such accidents involved, for example, people under the influence of LSD jumping to their deaths off high

buildings thinking they could fly.

Plant viruses and subviral pathogens (e.g. viroids and virusoids) could highly likely represent potential pathogens to animals and humans (Gibbs and Weiller, 1999), particularly those suffering from immunodeficiency (Balique *et al.,* 2015). In a recent study (Colson *et al.,* 2010) it was reported that *Pepper mild mottle virus* reacted with the immune system of humans and induced clinical symptoms including fever, abdominal pains, and pruritus. But one has to admit that no clear evidence on the pathogenic role of this plant virus in humans was provided.

The discovery of drug-resistant aspergillosis in patients who have never before taken antifungal medications suggests that drug resistance in some cases could be coming from the environment and not from previous use of antifungals. we should limit use of agricultural fungicides that are structurally similar to medically important antifungal medications. More research is needed too, she says, on the basic life cycle of fungal plant pathogens. Such knowledge could lead to more judicious use by helping farmers to better plan when in the growth cycle to apply fungicides to their crops. Indeed, fungal diseases have become a "silent" epidemic among immunocompromised individuals and the problem seems to only be exacerbating with time: Over the past year, reports have emerged of yet another frequently drug resistant hospital-associated fungal threat, *Candida auris*, in at least 16 countries around the world. As the environment around us changes and our natural defenses become more tenuous, it is warned that we need to take steps to protect ourselves, especially the most vulnerable among us (Konkel, 2017).

Although most plant pathogens do not naturally infect humans, it is a good practice to avoid eating rotted vegetables and fruits or plant produce contaminated by toxin-producing bacteria and fungi. Removing diseased parts of leaves and fruits with some apparently healthy tissues surrounding them may help reduce pathogen inoculum and amount of toxins ingested. However, this may not ensure that all toxic substances has been excluded as some may have diffused into apparently healthy parts of fruits. While cooking may result in the destruction of some mycotoxins, some are not destroyed by high heating. The effects of some mycotoxins can be minimised or eliminated by adding some mycotoxin-binding agents or through deactivation.

More research is needed on the direct effects of plant pathogens and diseases on humans. Special attention should be given to mycotoxin-producing fungi and their presence in human food and animal feed. Efforts should be directed towards avoiding plant disease epidemics similar to the late blight disease of potatoes in Ireland through food diversification and the development of effective plant disease management strategies. Awareness of community about the ways by which plant diseases can affect human health is also important.

Biography

Elasayed Elsayed Wagih (Ph.D, DIC, CIDTT) is an Egyptian Professor of Virology and Biotechnology and Acting President of the Arab Society for Biotechnology. He received a B.Sc. in Plant Pathology from University of Alexandria and in 1970. He obtained an M.Sc. degree in Plant Bacterial Diseases from the same university. In 1981, he gained a PhD degree in Virology from the Imperial College of Science (Technology and Medicine), University of London and was awarded in the same year a DIC from the Royal College of Science. In March 2008, he earned The Cambridge International Diploma for Teaching and Training (CIDTT) from University of Cambridge, United Kingdom. Since June 26, 1992, Prof. Wagih has been working as Professor of Plant Pathology and Biotechnology in the Department of Plant Pathology, College of Agriculture, University of Alexandria, Egypt. He is the former Head of the Department and former Vice Director of research of the Biotechnology Centre of the College. He harvested a number of local and international awards, prizes and certificates of appreciation, the last most important of which was the "Highest National Award for Scientific Research Achievement" awarded by The Egyptian Academy of Science and Technology in 1998. Prof. Wagih has served as a member of the National Committee for Promoting University Faculty, a position granted through a national merit-based competitive procedure conducted by the Supreme Council of Egyptian Universities for more than five years. He is also the former Representative of North Africa and a Board Member of the Governing Council of the African Crop Science Society (ACSS) for three successive election periods. He was invited as a visiting scientist to carry out collaborative research at several world famous institutes including: Imperial College of Science, Technology and Medicine, University of London, Oklahoma State University, USA, John Innes Centre, Norwich, UK and PNG-Unitech., North of Australia. His research involved different aspects of molecular plant pathology with particular emphasis on viral replication, sub-genomic messages in protoplasts, gene expression, protein synthesis, probing and cDNA technology for pathological studies, gene silencing and genetic engineering to generate virus-resistant transgenic plants. He discovered two plant viruses, "Peanut Chlorotic Ringspot Virus" and "Peanut Top Paralysis" and invented two new techniques, "Zymoblot" and "Mirror Image *in vivo* electroblotting technique" for the detection of gene expression in terms of enzyme activity and self/non-self proteins.Prof. Wagih has over 40 years of teaching experience and is the author of a series of the first and most popular and comprehensive books on Biotechnology in Egypt and the rest of the Arabic–speaking countries. He established the field of Modern Biotechnology at the College of Agriculture, University of Alexandria and was the first to design the syllabi and teach the relevant courses for both under and postgraduate students. His web page entitled "Biotech. Knowledge Capsules" has been designed to serve an educational purpose and for this it included a series of recorded episodes on the YouTube explaining different topics and concepts of biotechnology.

eewagih@gmail.com

Tito N Habib, J Ecosys Ecograph 2018, Volume: 8
DOI: 10.4172/2157-7625-C2-035

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Genes and the Environment: The Science of Epigenetics

Tito N Habib
Head of Molecular Genetics' Lab., Zoology Department, Faculty of Science, Sohag University, Egypt

At one time scientists believed our DNA held the key to preventing and reversing disease. But we now know that our environment—not our genes—is the primary driver of health and longevity. The science of epigenetics is turning what we've long held true about biological destiny upside down. Although it remains true that our DNA—our genetic code—provides the blueprint for our physiological makeup, researchers have discovered that there's something extra controlling our genes—and food and herbs may in fact be the most important factors in our genetic well-being. That extra "something" controlling our genes is the epigenome, the cellular material that sits on top of the genome (the complete set of genetic material present in a cell or organism). While epigenomes do not alter the genetic code, they direct genes to switch on (becoming active) or off (becoming dormant) through a variety of biological mechanisms. This intriguing finding means that your genetic heritage is not the primary determinant of your health, disease risk, or longevity.

In other words, whether or not you develop a disease is determined by how your genome is being directed to express itself. The abnormal gene (genotype) isn't necessarily a player in forming the phenotype (the characteristics of an individual resulting from the interaction of the genotype with the environment). These changes in gene activity do not involve alterations to the genetic code, but are in great part determined by the choices we make. For example, increased chronic activation of the sympathetic nervous system can cause the β-adrenergic receptors to promote the metastatic phenotype in breast cancer and other cancers. So here we have a strong link between high stress behavior, and specifically lack of vagus nerve activity (the most important nerve of the parasympathetic nervous system that extends throughout the body and calms us down), determining gene expression.1

Most of these factors influencing the genome are pretty straightforward—diet, lifestyle, exercise, sleep habits, environmental factors, stress, and social relationships have all been shown to influence the expression of your genetic inheritance. Other factors, including aging, cause chemical modifications that switch genes on and off. And certain diseases, such as cancer, initiate changes that cause genes to deviate from their normal, healthy state. We now know that genes account for about 10 percent of human disease. So if our genes aren't driving disease, what is?

The Exposome as the Primary Driver of Health and Disease: The "exposome" is a concept that was originally proposed by Christopher Wild in 2005. It refers to the sum of all non-genetic exposures in an individual lifetime, starting from the moment of conception. It encompasses everything from the food we eat, to the water we drink, to the air we breathe, to the social interactions we have, to the lifestyle choices we make, to the health of our parents at the time of our conception. In short, it's the word scientists are using to describe the full range of environmental exposures that influence our health. The exposome has been broken down into the following three categories:

1. **Specific External Environment:** This includes diet, physical activity, water, consumer and personal care products, lifestyle choices like smoking, infectious agents, chemical pollutants, etc. It also includes our environment at the earliest stages of our life, including our mother and father's health at the time of our conception and gestation, the method of our birth, whether we were breastfed or not, and our early life bond with our mother and other social and psychological influences.

2. **General External Environment:** This includes climate; urban vs. rural setting; traffic; our wider economic, social, and psychological influences including social status, education, financial status, and stress.

3. **Internal Environment:** This includes internal biological factors such as metabolism, the microbiome, inflammation, hormones, and oxidative stress.

The reason the exposome is important as a concept is that we now know it is the primary driver of human health and disease. If genes cause less than 10 percent of disease, it follows that the exposome—our diet, lifestyle, and environment—drive the remaining 90 percent. The emerging field of epigenetics holds great promise for complex diseases including cancer, Alzheimer's, cardiovascular disease, and autoimmune, reproductive, and neurobehavioral illnesses. Through the process of epigenetic reprograming, using whole foods and botanicals rich in a diversity of molecular health-promoting compounds, it is possible to rewrite the instructions to your cells, activating desirable genes while deactivating undesirable genes. As an herbalist, I'm particularly intrigued by traditional herbs and spices that exhibit

epigenetic influence through protection and repair—as well as the miraculous ability to identify unrepairable cellular damage and to induce cell death through apoptosis.

Epigenetics and Cancer: Epigenetic modifications play a critical role in many cellular processes, including DNA methylation, histone modification (acetylation, methylation, and phosphorylation), and microRNA expression. Massive deregulation of all components of the epigenetic machinery is a hallmark of cancer. These alterations affect normal gene regulation and impede normal cellular processes including cell cycle, DNA repair, cell growth, differentiation and apoptosis.2 Because epigenetic alterations appear early in cancer development and represent potentially initiating events during carcinogenesis, they are promising targets for anticancer interventions by chemopreventive and chemotherapeutic strategies using epigenetically active agents. Like gene mutations, epigenetic lesions that disrupt gene expression probably occur in both driver and passenger forms—many lesions won't contribute to tumor formation while a critical few will promote carcinogenesis. Epigenetic lesions can result from gene mutations, but environmental exposures can also cause epigenetic aberrations.3

The Quality Control Theory of Aging and The ETMS: The quality control (QC) theory of aging is based on the concept that aging is the result of a reduction in QC of cellular systems designed to maintain lifelong homeostasis. Four QC systems associated with aging are 1) inadequate protein processing in a distressed endoplasmic reticulum (ER); 2) histone deacetylase (HDAC) processing of genomic histones and gene silencing; 3) suppressed AMPK nutrient sensing with inefficient energy utilization and excessive fat accumulation; and 4) beta-adrenergic receptor (BAR) signaling and environmental and emotional stress. Reprogramming these systems to maintain efficiency and prevent aging would be a rational strategy for increased lifespan and improved health.4 The "Quality Control Theory of Disease & Aging" represents the need for a comprehensive botanical and nutritional plan, such as I recommend in the Eclectic Triphasic Medical System (ETMS).

Botanicals and Epigenetic Modification: Epigenetic modifications include DNA methylation, histone modification, and other patterns. These processes are associated with carcinogenesis and cancer progression. Thus, epigenetic modification-related enzymes, such as DNA methyltransferases (DNMTs), histone methyltransferases (HMTs), histone demethylases (HDMTs), histone acetyltransferases (HATs), and histone deacetylases (HDACs), as well as some related proteins, including methyl-CpG binding proteins (MBPs) and DNMT1-associated protein (DMAP 1), are considered potential targets for cancer prevention and therapy. Many natural compounds derived from medicinal herbs (ranging from polyphenols and flavonoids to mineral salts), inhibit the growth and development of various cancers by targeting multiple genetic and epigenetic alterations.

Plant-derived epigenetic modulators are like jazz musicians, who improvise according to harmonic structure, melody, rhythm, tempo, and the "feel" of a song, all the while listening to everything going on within and around which is in constant flux. The bandleader of botanical epigenetic modulators is the "Life Force," and their mission is to normalize and aid in innate auto-regulation. Plant-derived epigenetic modulators have numerous intracellular targets, including the cellular processes of proliferation, differentiation, cell death, inflammation, angiogenesis and invasion; the targets also include the mechanisms of inflammation and carcinogenesis. These pleiotropic effects may be the reason why botanical epigenetic modulators are efficient at killing tumor cells presenting multiple alterations of their regulatory mechanisms, but have limited toxicity on normal cells.5

Studies show that plant-derived phenolic compounds with antioxidant and anti-inflammatory activities improve mitochondrial biogenesis and modulate the AMPK/ mTOR pathway (a central regulator of cell metabolism, growth, proliferation and survival) and traditional culinary herbs and species rich in phytonutrients aid in epigenetic modification and expression.6

Biography

Tito N. Habib is the head of molecular genetics' Lab., Zoology department, Faculty of Science, Sohag University, since 2015 till 2018, and a professor of genetics and molecular Biology. He got his PhD from Texas A& M University, in 1999 as visiting scholar in the department of wildlife and fisheries, Bryan-College Station, Texas, USA, in the field of Molecular Genetics. He followed his promotion as assistant professor of molecular Genetics, Zoology department, Faculty of Science, Sohag University, Egypt, (2007-2011), and Head of Biology Department, Faculty of Science, Balgurashi, Albaha University, KSA (2011-2015). He served as HEEPF project council member (B-035-P1) for the development of Genetics' courses, Faculty of Science, Sohag University, Egypt. He was a main advisor for 2 PhD, and 2 Master Thesis in Medical Genetics topics, Faculty of Medicine, Sohag University. He became a head of Sohag- Syndicate of Scientific professions in Sohag-Branch from December, 2017 till February, 2020. He works as a reviewer for journal of Clinical Pathology and Forensic Medicine, Chronicle Journal of Cancer Science. He got an invitation from 7th International Conference on Biomedical Engineering and Biotechnology (ICBEB 2018) which will be hold in October 17th - 20th, 2018, Nanjing, China.

titohabib99@yahoo.com

Mohamed E Wagih, J Ecosys Ecograph 2018, Volume: 8
DOI: 10.4172/2157-7625-C2-035

International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Art and skills of scientific writing: English as a second language prospective

Mohamed E Wagih
Professor of Genetics and Biotechnology & President of the Canadian Academy of Sciences

Scientific writing is an art and skill that must be learned through repetitive practice in reading, writing and review. During school and academic life, there are different moments you learn writing skills. These skills are not only necessary to successfully write your research paper, thesis or book writing; they are also a prerequisite for effective communication with colleagues or the general public in your academic or professional life. This workshop aims to provide brief guidelines and guidelines for the content, structure and method of scientific reporting with examples of what to do and what to do. You are encouraged to actively participate in the discussion, volunteer opinion, ask questions and promote learning. Our active discussion will create an environment in which all can have the opportunity to learn more from a variety of viewpoints.

I will give an extended introduction to the subject, then we will talk about the content and the necessary method, structure and design, page numbering, paragraph, tables and figures, literature, references, and bibliography. Syntax, word use, temporal use, passive / active sound, spelling too are hot topics. I will share with you information about "plagiarism" and "scientific misconduct". These are very serious matters.

Are you excited? Let's meet and enjoy the workshop.

Biography

Mohamed E. Wagih is a life and accredited member of the Egyptian Association of Translators and Interpreters, and the president of the Canadian Academy of Sciences. He earned his PhD from the School of Land, Crop and Food Sciences, University of Queensland, Australia in 1990 in Geneticist and Biotechnologist. He accumulated over 35 years of experience in tertiary education. Formerly, he is a Professor in the Faculty of Sciences, and the Academic Advisor of Al-Baha University from Jan 2012 to Aug 2016. He had worked at the University of New Brunswick, Canada since 2008-2012, Hasanuddin University, Indonesia 2004-2006, and Executive Director of the Biotechnology Centre, University of Technology, North of Australia 1992-2004, and University of Alexandria 1978-1982, 1989-1991, and 2006-2007. He was invited as a Visiting Scientist/Professor to ULP France, GERI Egypt, ICRASAT India, IRRI Philippines, and many others. He initiated and Chaired or became a Member of Organising Committees of numerous scientific forums, and published more than 100 scientific papers in a wide range of refereed Journals, text Books and monographs. He presented research papers in over 60 international conferences worldwide, and served as a member of the APEC Biotechnology Experts Group from 1997-2004

mewagih@gmail.com

Notes: