



2<sup>nd</sup> International Conference on

## **ENVIRONMENTAL HEALTH & GLOBAL CLIMATE CHANGE**

September 7-8, 2017 | Paris, France

# Scientific Tracks & Abstracts Day 1

Environmental Health 2017

# Major Sessions:

Thursday, September 7, 2017 | Day 1

**Environmental and Occupational health | Biomedical Waste | Human Health | Toxicology and Health | Pollution Research | Non Communicable Diseases | Biodiversity | Public Health**

**Session Chair**  
**Ali Bahloul**  
IRSST | Canada

**Session Co-chair**  
**Natalia Pozdnyakova**  
Russian Academy of Sciences | Russia

## Session Introduction

**Title: The role of energy efficiency governance on environmental health and climate change**

**Ali Emami Meibodi** | Allameh Tabataba'i University | Iran

**Title: The greenhouse effect**

**Valery P Oktyabrskiy** | Peter the Great St. Petersburg Polytechnic University | Russia

**Title: A global perspective on preventable cardiovascular diseases from sulfur oxides reduction in coal-fired power plants**

**Cheng-Kuan Lin** | Harvard Chan School of Public Health | USA

**Title: Greenhouse ozone and human health**

**Valery P Oktyabrskiy** | Peter the Great St. Petersburg Polytechnic University | Russia

**Title: Social determinants of health – from concept to practice in the outcomes of unintended pregnancies which result in induced abortion**

**Carmen Fusco** | Research and Promotion of Women's Health and Rights Association | Brazil

**Title: Contribution to know the attitude and the cultural level of the healthcare professionals on the management system of the hospitable waste: case study**

**Kharzi Rabeh** | University Brothers Mentouri Constantine | Algeria

**Title: Equity in Sustainability: Case studies demonstrating that sustainability projects must include participation and equity processes**

**Bo Chung** | University of California | USA

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## THE ROLE OF ENERGY EFFICIENCY GOVERNANCE ON ENVIRONMENTAL HEALTH AND CLIMATE CHANGE

**Ali Emami Meibodi\***

\*Allameh Tabataba'i University, Iran

Energy and environment issues are addressed simultaneously. Energy use is a major cause of pollution and climate change. The extensive and inefficient use of exhaustible resources to meet energy demand worsens the levels of Green House Gases (GHG) emissions and environmental health. More articles have been written on the role of energy management in delivering energy efficiency. However, in this paper the emphasis is on the Energy Efficiency Governance. We look at the economics of pollution within the criteria of society's progress. Only the economic progress is not enough. A society which able to address basic human needs, such as Social Health, Gross National Happiness and equip citizens to improve their quality of life, protect the environment, and provide opportunity for its citizens is succeeding. Therefore, the chronological evolution of related measures of the society's progress is presented.

We shall lay the foundation for understanding the policy approach to controlling the pollution and improve the climate change. It is analysed, the environmental policies (international, regional co-operation and national policies) in relation to energy efficiency governance and environmental health. It is also shown that Measurement and analysis of environmental efficiency and green productivity have important policy implications for climate change and environmental health.

### Biography

Ali Emami Meibodi has completed his PhD from Department of Economics, University of Surrey, UK in 1998. At present he is associate professor of Energy Economics at Allameh Tabataba'i University, Tehran, IRAN. He has published 4 books and more than 50 papers (some of them in the reputed English Journals) in the area of Energy and Environment subjects.

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## THE GREENHOUSE EFFECT

**Valery P Oktyabrskiy\***

\*Peter the Great St. Petersburg Polytechnic University, Russia

**Problem statement:** in recent years, the influence by the atmosphere, in particular, the "Greenhouse Effect" (GE), on the climate is widely discussed by the international community. In accordance with the concept of GE the Earth's atmosphere is a "Greenhouse Glass" (GG). The aim of this study is to analyze the correspondence between the actually occurring physical and chemical processes in the Earth's atmosphere and the concept of GE.

**Methodology:** the absorption of the solar radiation by the gases existing in the Earth's atmosphere has been examined from UV to far IR region. It has been compared with the theory, including the theory of point groups of symmetry.

**Results:** it was demonstrated that, despite the absorption of radiation from the Earth's surface in middle and far IR regions, there is strong absorption of overtones and composite frequencies of water vapor in the band of solar radiation (visible and near-IR spectral region) i.e. the bandwidth of the GG.

**Conclusions:** the Earth's atmosphere cannot be described by the conventional notion of the GE, and so it does not perform such a function. Therefore, the terms GE and "greenhouse gases" lost their original meaning. So, in our opinion, the processes occurring on Earth are, instead of the GE, those of the absorption of the heat flux of solar radiation (mainly by water vapor) and its reemission by the atmosphere. At the same time, the atmosphere absorbs and re-radiate thermal radiation coming from the Earth's surface into interplanetary space. And this process, which is one of the natural pathways by which the incident solar radiation penetrates the surface of the Earth and is re-radiated by it, of course, must be taken into account in the analysis of the atmospheric influence on Earth's climate.

### Biography

Valery P Oktyabrskiy specialist in the field of molecular spectroscopy. He has obtained his doctoral degree from the Leningrad state University. Currently he is an assistant Professor at the St. Petersburg Polytechnic University. His areas of interest included physics of the atmosphere including the greenhouse effect.

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## A GLOBAL PERSPECTIVE ON PREVENTABLE CARDIOVASCULAR DISEASES FROM SULFUR OXIDES REDUCTION IN COAL-FIRED POWER PLANTS

**Cheng-Kuan Lin<sup>a</sup>, Ro-Ting Lin and David C Christiani**<sup>a</sup>Harvard Chan School of Public Health, USA

**Introduction:** The majority of ambient Sulfur Dioxides (SO<sub>2</sub>) are from coal-fired power plants. Previous studies have shown the short-term effect of SO<sub>2</sub> on Cardio Vascular Diseases (CVD), which is the leading cause of both mortality and healthcare cost. We estimated the relative risks and incident cases of CVD and Ischemic Heart Disease (IHD) attributable to SO<sub>2</sub> emission from coal-fired power plants from a global perspective.

**Method:** National SO<sub>2</sub> reduction was defined as the average SO<sub>2</sub> reduction percentage weighted by generating capacities of individual plants in a given country. We applied a poisson regression to analyze the relative risk of age-standardized CVD incidence associated with national SO<sub>2</sub> reduction, adjusted for behavior, economic and regional factors. CVD incident cases attributable to suboptimal emission controls are estimated in all studied countries, assuming every country can reach 95% emission reduction. We further applied subgroup analysis for IHD and rheumatic heart disease.

**Results:** A total of 13,581 power generating units in 79 countries that used coal as the primary energy source were included in the study. For 1% decrease in national SO<sub>2</sub> emission from coal-fired power plants, the adjusted age-standardized CVD incidence rate could decrease by 0.03% for males and 0.17% for females respectively. The effects on IHD are twice as strong as among males than females (0.28%, 95%CI=0.20%-0.36% vs 0.12%, 95%CI=0.02%-0.22%). The average population attribution factors due to SO<sub>2</sub> reduction were up to 1.43% and 8.06% for males and females respectively.

**Conclusion:** Reducing SO<sub>2</sub> emissions from coal-fired power plants has a marked association with the decrease in CVD incidence, especially IHD. Since SO<sub>2</sub> emission is majorly from coal combustion, enhancing regulations on SO<sub>2</sub> emission control presents a key target for national and international intervention to prevent CVD.

### Biography

Cheng-Kuan Lin has his research interests on air pollution, power plants and related diseases, global burden of diseases at national and/or international levels and quality of life, Quality-Adjusted Life Year (QALY). After being physician for 1 year in Taiwan, He went to Arequipa, Peru as an NGO worker and wrote a first exhaustive travel guide in Mandarin in Taiwan. Now, he is currently doctoral candidate in Harvard Chan School of Public Health and conducts researches on energy policies.

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## GREENHOUSE OZONE AND HUMAN HEALTH

**Valery P Oktyabrskiy\***

\*Peter the Great St. Petersburg Polytechnic University, Russia

**Problem statement:** the environment is of concern to many people because of the impact on climate and therefore on human health. The aim of this study is to show that in addition to the thermal radiation of the Earth there is still such a natural source in the range of radiation (absorption) of the human body, which is also beneficial on it as IR emitters.

**Methodology:** This work compares IR absorption spectra existing in the Earth's atmosphere gases with frequencies close to the frequency of the maximum intensity of thermal radiation (absorption) of human.

**Results:** it is shown that such a gas is ozone, whose absorption and re-radiation of thermal emission coming from the Earth's surface in the IR region is in the transparency window of the atmosphere. Due to the "greenhouse effect" (using conventional terminology) and the proximity of frequencies "Greenhouse Ozone" (GO) has beneficial effects on the human body because, as we know, the impact with the appropriate infrared energy with a wavelength of 9.6 microns causes a phenomenon called "resonance absorption", when the external energy is actively absorbed by the human body, fueling the energy. If the recharge is weakened, for example, because of the smog in major cities due to the strong scattering of radiation of the Earth and GO, the human feels much worse than in the woods or by the sea.

**Conclusions:** Need to protect the environment, no matter how traditional this conclusion is not shown, because nature itself gives natural sources of radiation, which are beneficial for human health.

### Biography

Valery P Oktyabrskiy specialist in the field of molecular spectroscopy. He has obtained his doctoral degree from the Leningrad state University. Currently he is an assistant Professor at the St. Petersburg Polytechnic University. His areas of interest included physics of the atmosphere including the greenhouse effect.

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## SOCIAL DETERMINANTS OF HEALTH – FROM CONCEPT TO PRACTICE IN THE OUTCOMES OF UNINTENDED PREGNANCIES WHICH RESULT IN INDUCED ABORTION

**Carmen L B Fusco\***

\*Research and Promotion of Women's Health and Rights Association, Brazil

The present research is a continuation of another one previously developed about Unsafe Abortion (UA), associated Socio-Demographic Characteristics (SDC) and morbidity, and goes further in its analysis of the Social Determinants of Health (SDH) that influence this occurrence, generating inequities in health.

This study compared data of three groups of 51 women (total of 153) submitted to induced abortion (IA), as per situation and site of the procedure: one with “unsafe abortion” (Slum), one with “legal and safe” IA (Public hospital) and a third group with “illegal and safe” IA (Private clinics with appropriate standard of care). Univariate and multinomial logistic regression analyses were performed for the three categories with private as reference. In the final model (MMLR), the variables that proved to have a statistically significant association with IA (CI=95%; p<0, 05) were: income, level of schooling, ethnicity/color and place of birth for Slum and, for the Hospital location, the variable ethnicity lost significance. Morbidity, resulting from the outcome, showed a highly significant discrepancy between the first sample (Slum), with 94.12% of women who reported post-abortion complications, and the other two samples (Hospital and Private) in which no case of complication was identified or reported.

A critical analysis was also made on the influence of the SDH implied in abortion in all samples, and on the degree of inequity generated in each one (intra-group) and among them. We aimed to better understand SDH concepts in practice. Proposals of action/intervention related to the “entry points” and findings were also suggested.

### Biography

Carmen L. B. Fusco is President of “Research and Promotion of Women's Health and Rights Association” Brazil. He has a doctoral degree in Collective Health. Main research areas are Social Determinants of Health, Sexual and Reproductive Health, SDT's, HIV, Unsafe Abortion, Women's Health, and Women's Rights.

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## CONTRIBUTION TO KNOW THE ATTITUDE AND THE CULTURAL LEVEL OF THE HEALTHCARE PROFESSIONALS ON THE MANAGEMENT SYSTEM OF THE HOSPITABLE WASTE: CASE STUDY

**Kharzi Rabeh<sup>a</sup>, Chaib Rachid<sup>a</sup> and Akni Ahcene<sup>a</sup>**<sup>a</sup>University Brothers Mentouri Constantine, Algeria

The waste of the activities of care is by their harmfulness, become today a major object of concern in the various hospitals, even in various private hospitals and local authorities. This waste engenders all over the world crucial economic, health and ecological problems. Among these wastes, we find hospitable wastes which represent the real threat to the public health and the environment. From now on, this chap of waste must be treated according to very specific procedures. In this work we are interested to know the level cultural security at the Constantine's hospital, for a highlighting of an action plan answering the sanitary and hygienic requirements of the waste of the activities of care on the public health. This study has for global objective to give specific perspective, knowledge, attitudes and practices of the staff on the management system of the hospitable waste. As scopes we chose Constantine's hospitable university center in a purpose to bring new reflections on the sanitary impacts, the techniques and the measures the most adequate to the management of this type of waste, even manage to promote a culture of prevention within the Algerian establishments of health. The method of work is based on a questionnaire, an investigation led at the level of the hospital in question. The proposed approach will thus allow to analyze the cultural level in current security hygiene regarding waste management and to set up effective actions to improve the identified weaknesses. The work is forwarded by judged recommendations necessary regarding waste management.

### Biography

Kharzi Rabeh currently working as researcher in University Brothers Mentouri Constantine, Algeria. He has pursued two post-graduation degrees they are Master in Management, Engineering of Transport System Maintenance and Post-graduation L.M.D at University of Mentouri

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## EQUITY IN SUSTAINABILITY: CASE STUDIES DEMONSTRATING THAT SUSTAINABILITY PROJECTS MUST INCLUDE PARTICIPATION AND EQUITY PROCESSES

**Bo Chung**<sup>a</sup>.<sup>a</sup>University of California, USA

**Statement of the Problem:** The mitigation of and adaptation to climate change is often framed within language that involve sustainability and resilience. The increasing speed of which humanity is urbanizing and increasing incomes have equaled greater consumption of resources, thus placing greater focus on sustainability of the built environment. However, the approach of creating sustainable urban spaces have generally been technical in nature and often involved quantitative measurements that exclude the impact on communities. Often times, this has led to the masking of deleterious effects of sustainability projects that include gentrification and displacement. Without the consideration of equity in sustainability, sustainable urban spaces often become unaffordable for segments of the community that are the most vulnerable, and displace people to spaces that rely on greater consumption of resources such as driving, thereby defeating the benefit of sustainable urban spaces.

**Methodology & Theoretical Orientation:** A literature review of sustainable neighborhoods and key informant interviews of certain case studies in Latin America. This paper will examine the case studies through the Commission on Social Determinants of Health (CDSH) from work formulated by the World Health Organization (WHO) to focus on the innumerable systems and policies that govern cities and recognize its impacts on health outcomes of people that live within those cities or are displaced.

**Findings:** The case studies have varying measures of success, even the definition of success are unique to each case study. This challenges the conventional notion of a successful sustainable neighborhood and how it is determined.

**Conclusion & Significance:** Current definitions and measurements of sustainable urban environments are insufficient in capturing the complexities of cities. The review of these successful case studies incorporates integral principles of participation and equity. Recommendations are made for more comprehensive approaches to developing sustainable healthy neighborhoods.

### Biography

Bo Chung is in his final year of a concurrent master program in city planning and public health at the University of California, Berkeley. The focus of his studies has been centered on equity and the need for more comprehensive inclusion in the built environment. Areas of particular interest include community base participatory research, restorative justice in city planning and public health policies, and health in all policies.

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# Scientific Tracks & Abstracts Day 2

Environmental Health 2017

# Major Sessions:

Friday, September 8, 2017 | Day 2

**Water Born Diseases | Zoonotic Diseases | Mental Health | Infectious Diseases | Vector Born Diseases | Environmental Health | Climate Change**

Session Chair  
**Abiodun Adeola**

South African weather service | South Africa

## Session Introduction

**Title: Chronic arsenic exposure and adverse health outcome: understanding the molecular perspectives**

**Pritha Bhattacharjee** | University of Calcutta | India

**Title: Occupational health of workers in waste hair reprocessing: studies from west bengal, India**

**Sandip Bhattacharjee** | Siemens | India

**Title: Some discrepancies between a standard practice of cumulated health risks assessment and the based-on-experiment theory of metal nanoparticles combined toxicity**

**Ilzira Minigalieva** | The Ekaterinburg Medical Research Center | Russia

**Title: Title: Alleviation chronic cadmium stress toxicity in albino rats using some domestic plants**

**Emad Shaker** | Minia University | Egypt

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## CHRONIC ARSENIC EXPOSURE AND ADVERSE HEALTH OUTCOME: UNDERSTANDING THE MOLECULAR PERSPECTIVES

**Pritha Bhattacharjee\***

\*University of Calcutta, India

Chronic arsenic toxicity and its adverse health outcome including cancer (multiple target organs) is a well established fact; however the underlying molecular mechanism of this non-mutagenic carcinogen is not well understood so far. Population chronically exposed to arsenic, either through groundwater, food stuff or occupational sources, results in a plethora of dermatological and non-dermatological health effects including multi-organ cancer and early mortality. Epidemiological studies identified males are more affected; however risk of women and child were overlooked to some extent. Skin lesions are hallmarks of arsenic toxicity and pre-malignant lesions like palmar and planter keratosis later develop into skin cancer. To understand the adverse effect of this toxic metabolite on biological system (cellular targets) and to unravel the underlying molecular basis (at the level of transcript, proteome, or metabolite) a holistic, systems biology approach was taken; where we assessed the arsenic exposure in the patients sample (blood, urine, nail, hair), identified biomarkers (cellular, genetic as well as epigenetic) and correlated with altered functioning of system (cardiovascular, respiratory, peripheral neuropathy, etc). It has been noticed, two individuals of same family member, might have different disease outcome despite of exposure at similar extent, indicating variation in individual genomic landscape and consequent interaction with environment. We have identified alterations in gene expression profile and epigenetic dysregulations (including altered DNA methylation, histone code error and miRNA dysregulation) specifically for "arsenic signature" and "lesion signature" patterns. These patterns can be used as potential prognostic biomarkers of arsenic toxicity. Moreover, we are investigating the anti-carcinogenic and epigenetic potential of black tea on arsenic-induced cancer cell line, which could be promising as epigenetic therapeutics in the field of arsenicosis.

### Biography

Pritha Bhattacharjee is an Assistant Professor presently working in University of Calcutta, India. Her research interest includes Environmental Toxicogenomics, Molecular Biology and Human Genetics. She published many research articles in reputed scientific journals.

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**OCCUPATIONAL HEALTH OF WORKERS IN WASTE HAIR REPROCESSING: STUDIES FROM WEST BENGAL, INDIA****Sandip Bhattacharjee<sup>a</sup>** and **Pritha Bhattacharjee<sup>b</sup>**<sup>a</sup>Siemens, India<sup>b</sup>University of Calcutta, India

Waste hair reprocessing is becoming popular as a trade in recent years. Increasing demand is noticed from cosmetics to agriculture sectors. However, the workers associated with this occupation remain unnoticed from their health issue perspectives. We have performed an epidemiological study on 500 individuals (250 cases and 250 controls; age ranges from 18-60 yrs old), occupationally associated with waste hair processing from Midnapore district, West Bengal. The study indicates prevalence of pneumonitis, alveolitis, reduced lung function and tuberculosis in the population due to prolonged exposure to hair dust. Using hair dye like paraphenylenediamine (a potential carcinogen) in bare hands, might induce accelerated apoptosis and oxidative damage, subsequently increasing the risk malignant tumors including multiple myeloma and hematopoietic cancers in the work population. Risk of genetic damage has been studied from biological samples like blood, sputum, urine and hair samples. We are also investigating the role of genetic variations in target genes and individual susceptibility having similar occupational background. To the best of our knowledge, this would be the first study identifying the adverse health effects in the population, occupationally involved in waste hair re-processing, with detailed understanding at molecular level.

**Biography**

Sandip Bhattacharjee is a researcher in Occupation and Environmental Health, Siemens India. He has published many articles in reputed scientific journals.

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## SOME DISCREPANCIES BETWEEN A STANDARD PRACTICE OF CUMULATED HEALTH RISKS ASSESSMENT AND THE BASED-ON-EXPERIMENT THEORY OF METAL NANOPARTICLES COMBINED TOXICITY

Ilzira A Minigalieva<sup>o</sup> and Boris A Katsnelson<sup>o</sup><sup>o</sup>The Ekaterinburg Medical Research Center, Russia

Assessment of cumulative health risks associated with the combined effects of two or more metal oxide nanoparticles on the organism of workers widely observed in several industries (e.g. metallurgy, arc-welding, laser processing of metals) should be theoretically and experimentally based on the toxicology of mixtures. Meanwhile there is no full match between the said assessment and this scientific basis, some of the contradictions between them being fundamental. This state of things is caused not only by simplifications characteristic of the generally recognized risk assessment methodology but also by the extreme complexity and some intrinsic inconsistency of the theory of combined toxicity, the most essential issues of which are considered by us on the basis of literary and, mostly, our own data. In particular, we studied by acute intratracheal and subchronic intraperitoneal experiments on rats and by the mathematical modeling of general patterns and some specific peculiarities of (NiO+Mn<sub>3</sub>O<sub>4</sub>), (CuO+ ZnO), (CuO+ PbO), (ZnO+PbO), (CuO+ZnO+PbO), (TiO<sub>2</sub>+Al<sub>2</sub>O<sub>3</sub>), (TiO<sub>2</sub>+SiO<sub>2</sub>), (Al<sub>2</sub>O<sub>3</sub> + SiO<sub>2</sub>), and (TiO<sub>2</sub>+Al<sub>2</sub>O<sub>3</sub>+SiO<sub>2</sub>) nanoparticle combined action. Feasible approaches to solving practically important problems associated with the above-mentioned discrepancies are proposed.

### Biography

Minigalieva graduated from The Urals State Pedagogical University (Department of Biology) in 2003. Since then she has been working as a researcher in the Ekaterinburg Medical Research Center for Prophylaxis and Health Protection in Industrial Workers. Her present position is Head of the department at Industrial Toxicology Lab. She authored or co-authored about 70 scientific papers, included 25 in peer-reviewed international journals, and presented her work to many scientific meetings, both national and international.

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**ALLEVIATION CHRONIC CADMIUM STRESS TOXICITY IN ALBINO RATS USING SOME DOMESTIC PLANTS****Emad Shaker<sup>a</sup>** and **Saed Mnaa<sup>b</sup>**<sup>a</sup>Minia University, Egypt<sup>b</sup>Monofia University, Egypt

Cadmium (Cd) is an environmental contaminant in air, soil, water and can induce damage to various tissues in very low concentration. Biological experiment has been occurred to focus on Cd oxidative stress. In drinking water rat received daily 100 mg/kg body weight cadmium ( $\text{CdCl}_2 \cdot 2\frac{1}{2}\text{H}_2\text{O}$ ). Female rats fed standard chow diet mixed with 100 mg/kg body weight N-acetyl cysteine (NAC) as standard protective agent. Rats in other tested groups fed chow diet mixed with 200 mg/kg body weight dried husk tomato, nabk and sycamore in separated groups as natural edible powder plants. The toxicity of cadmium in biomedical and histopathological analysis was investigated without and with protective powder plants compare to NAC. Four weeks experiment showed the toxic contaminated cadmium in serum alkaline phosphatase, creatinine, malondialdehyde and catalase activity beside the histological patterns for liver, kidney, ovary and brain sections. Results showed that husk tomato poses high protective effect closed to that for NAC in most values. Moreover, the proven potential for NAC and husk was clearly found in body weight, food efficiency ratio, and liver and kidney disorders. The health values of lipid peroxidation and catalase activity as oxidative stress markers were observed in NAC and husk as well. Liver tissue, the most related organ to Cd toxicity was improved in histology patterns through NAC and husk administration.

**Biography**

Emad Shaker has done his PhD work in UCD, and He has done his post doctoral research in Food Science Technology at Cork, Ireland. He Identified chemical structure of compounds and his aim is to measure the antioxidant potential effect in oxidative stress. He did his research in analyzing the biological role of extracted natural antioxidants *in vivo*. He is presently working as a Professor of Biochemistry at Minia University, Egypt.

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**Notes:**