Global Warming & Green Chemistry 2017

3rd Annual Congress on

Pollution and Global Warming

&

4th International Conference on

Past and Present Research Systems of Green Chemistry

October 16-18, 2017 Atlanta, USA

Special Session

Day 1

William P Sokeland, Trends in Green chem 2017, 3:3
DOI: 10.21767/2471-9889-C1-005

William P Sokeland

Retired Thermal Engineer, University of Florida, USA

Supernova explosion's space weather: Correlated mega fauna extinctions and biosphere mega-disturbances due to global warming

Introduction: Correlation of megafauna extinctions and mega-biosphere disturbances with past supernova explosions has been accomplished by considering a time correction for supernova debris traveling at 87.54% of light speed. Supernova W44 is responsible for the Piora Oscillation which appears to be the biblical event of Noah's Flood. The closest supernova explosion, Vela Jr at 652 light-years, gives the greatest historical human disaster, The Black Death. When supernova debris energy input occurs in northern or southern hemisphere it causes heating (Global Warming) in the northern or southern hemisphere, respectively. Long term cooling occurs in the northern hemisphere when the incoming debris impacts only the southern hemisphere for hundreds of years, Little Ice Age. Escape from last ice age results due to melting of numerous supernova impacts showing time of impact by changing sea level.

Statement of the Problem: The earth's atmosphere is experience changes that are causing deaths due to pollution from debris streams from exploding stars, nova and supernova. The debris streams also cause global warming.

Methodology & Theoretical Orientation: By knowing the distance to the remnant of the nova and supernova, the time the explosion occurred and the velocity of the debris stream, an approximate year of arrival at planet earth can be calculated. By searching the internet, biosphere disturbances are found at approximately the same time of the arrival of the debris streams.

Findings: Numerous biosphere disturbances have been correlated with the arrival time of nova and supernova explosions over past centuries. These include megafauna extinctions, the Piora Oscillation or Noah's Flood, the Black Death, northern and southern hemisphere global warming and the end of an ice age due to melting by numerous supernova impacts being correlated with the timing of changing sea levels.

Conclusion & Significance: The current trend for global warming specialist to blame fossil fuels and CO_2 for the increase of planetary temperatures may be incorrect and the true source of our current global warming is due to debris impact streams from nova WZ Sagittae, SN 1054 and SN 1006. The incentive to inhibit the fossil fuel industry could be changed to design a mechanism or system to stop the incoming particle stream for exploding stars to protect living organisms on our planet.

Biography

W P Sokeland has qualified for his PhD from the University of Florida and returned to participate in the Skylab project at McDonald Douglas. He enjoys internet research concerning the impact of supernova and nova debris streams on the planet earth. He is offering numerous papers for publication and since currently no one believes supernova and nova debris streams impact our planet, he is the sole source of his chosen topic. His Supernova and Nova Impact Theory, SNIT, predicts current actions of debris streams that have significant impact on the theories of heating and cooling for our planet. The question, where is the energy coming from that causes global warming? has been answered by the SNIT.

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William P Sokeland, Trends in Green chem 2017, 3:3
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William P Sokeland

Retired Thermal Engineer, University of Florida, USA

WZ Sagittae, SN 1054 and SN 1006 space weather

Statement of the Problem: The earth's atmosphere experience changes that are caused by pollution from debris streams from exploding stars, nova and supernova. The debris streams also cause global warming. Earth's sensitivity to the energy added to the biosphere is shown by the areas of major sea ice loss through recent years.

Methodology & Theoretical Orientation: By knowing the year of arrival of debris streams at planet earth the longitudinal locations of observations of changing sea ice can be correlated to specific debris stream's termini. The actual termini points are identified for WZ Sagittae, SN 1006 and SN 1054.

Findings: Global warming effects have been correlated with the arrival time of nova and supernova explosions through disappearing sea ice over the past nine years.

Conclusion & Significance: The current trend for global warming specialist to blame fossil fuels and CO_2 for the increase of planetary temperatures may be incorrect and the true source of our current global warming may be due to debris impact streams from nova WZ Sagittae, SN 1054 and SN 1006. The incentive to inhibit the fossil fuel industry could be changed to design a mechanism or system to stop the incoming particle stream from exploding stars to protect living organisms on our planet. The disappearance of sea ice areas that are correlated with the debris streams being studied is proof of the Supernova and Nova Impact Theory (SNIT).

Biography

W P Sokeland has qualified for his PhD from the University of Florida and returned to participate in the Skylab project at McDonald Douglas. He enjoys internet research concerning the impact of supernova and nova debris streams on the planet earth. He is offering numerous papers for publication and since currently no one believes supernova and nova debris streams impact our planet, he is the sole source of his chosen topic. His Supernova and Nova Impact Theory, SNIT, predicts current actions of debris streams that have significant impact on the theories of heating and cooling for our planet. The question, where is the energy coming from that causes global warming? had been answered by the SNIT.

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Scientific Tracks & Abstracts

Day 1

Cynthia E Ogukwe et al., Trends in Green chem 2017, 3:3
DOI: 10.21767/2471-9889-C1-005

Gas Chromatography-Mass Spectrophotometric (GC-MS) studies on therapeutic potentials of *Costus afer ker gawl* leaves

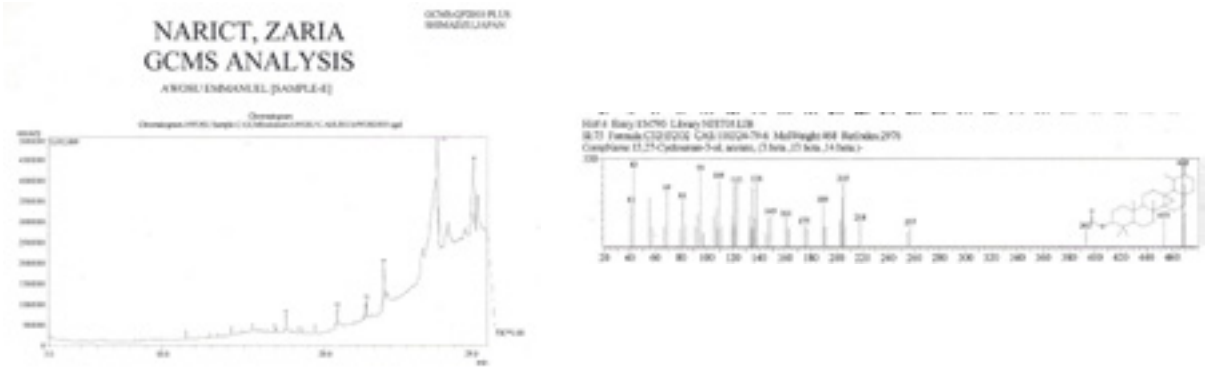
Cynthia E Ogukwe, Idika D Idika and **Emmanuel A Awosu**
Federal University of Technology, Nigeria

Statement of Problem: The search for new therapeutic agents or biochemical targets and screening of many compounds as possible to find chemical structures for drug development is on the increase. *Costus afer* leaf infusion is used traditionally throughout tropical Africa to treat disorders such as fevers, diarrhea, vomiting, cough, rheumatism, hemorrhage and tachycardia (rapid heart rate). The present study is to identify the specific components of the *Costus afer* leaf that are responsible for some of the reported therapeutic properties it exhibits.

Methodology: Dried leaves of *Costus afer ker gawl* were pulverized to powder with an electric blender. A portion of crude extract from the powdered sample was subjected to Column chromatography. Eluents from the column chromatography were further subjected to GC-MS analysis.

Findings: The obtained prevailing compounds were 13, 27-Cycloursan-3-ol, acetate (36.17%) and lupenone (39.50%) with their retention time as 26.896 min and 29.143 min respectively. Fragmentation pattern is shown in Figure: 1 and mass spectra figures 4a

Conclusion: GC-MS studies on the leaf extract of *Costus afer* showed the presence of two pentacyclic compounds identified as Cycloursan-3-ol, acetate (36.17%) and lupenone (39.50%). The two pentacyclic compounds confirmed the presence of steroids and validate the use of *C. afer* leaf as an anti-inflammatory and antidote for acute toxicity in traditional medicine.



Biography

Ogukwe, Cynthia Ekwy Associate Professor -Analytical Chemist of Natural Product and Environmental Samples One goal of the research area is the assessment of the chemical and phytoactive components of Natural product extracts and their application as probable industrial raw material to improve the human health and the environment.

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Atsushi Ohtaka, Trends in Green chem 2017, 3:3
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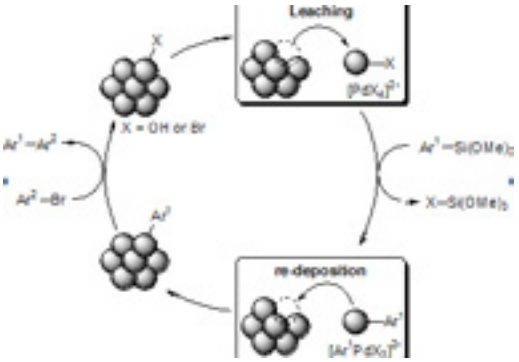
Catalytic specificity of polystyrene-stabilized PdO nanoparticles for Hiyama coupling reaction in water and the associated mechanism

Atsushi Ohtaka
Osaka Institute of Technology, Japan

Metal nanoparticles have attracted considerable interest in the context of green chemistry because they are efficient catalysts for organic reactions in water. Recently, we developed linear polystyrene-stabilized PdO nanoparticles (PS-PdONPs) which showed high catalytic activity for several carbon-carbon coupling reactions in water.[1-4] In the research of Hiyama coupling reaction catalyzed by PS-PdONPs,5 we got finding that the reaction would occur through the different mechanism from that in the case of metal complex catalyst. In general, the mechanism of the Hiyama coupling reaction involves the oxidative addition of aryl halides to $Pd^{(0)}$ to form the organopalladium halide (Ar-Pd-X). This is followed by transmetallation with organosilanes to provide the diorganopalladium species (Ar-Pd-R), which undergoes reductive elimination, leading to carbon-carbon bond formation and regeneration of $Pd^{(0)}$. When a $Pd^{(II)}$ species was used as the catalyst, it is supposed that reduction from $Pd^{(II)}$ to $Pd^{(0)}$ must first take place to generate the catalytically active species. However, we found that PS-PdONPs ($Pd^{(II)}$ species) exhibit high catalytic activity for the Hiyama coupling reaction of aryltrimethoxysilanes with a variety of bromoarenes under air in water. In contrast, no desired coupling product was obtained from the Hiyama coupling reaction using linear polystyrene-stabilized Pd nanoparticles (PS-PdNPs, $Pd^{(0)}$ species) as a catalyst. No formation of $Pd^{(0)}$ species was confirmed by XPS analysis of the recovered catalyst after the reaction. These data prompted us to examine the detailed mechanism of Hiyama coupling reaction in water using PS-PdONPs as a catalyst. The different reactivities of PdONPs and PdNPs will be also discussed.



Biography

Atsushi Ohtaka received his PhD from Osaka University in 2003 under the direction of Professor Hideo Kurosawa. He then worked for two years as a Post-Doctorate Research Fellow in National Cardiovascular Center, for a year at Institute for Molecular Science under the direction of Professor Yasuhiro Uozumi, and for six months as a Visiting Researcher in Alicante University under the direction of Professor Carmen Najera. He became an Assistant Professor (2006) and Associate Professor (2013) at Osaka Institute of Technology where he won an award for encouragement of Research in Materials Science in 2008. His current research interests include: (1) transition-metal nanoparticles catalyst; (2) catalytic reaction in water.

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Manisha Nigam et al., Trends in Green chem 2017, 3:3
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Synthesis of expensive N-phenylmaleimide derivatives and its green Diels Alder reaction

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University of Pittsburgh, USA

We propose the design and implementation of a less hazardous, environmentally friendly and energy efficient reaction within a sophomore level Organic Chemistry lab course curriculum - to synthesize efficient precursors that result in higher yields and lesser purification times for a Diels-Alder reaction. Our main objectives are to enable students to: (a) identify and understand various Green Chemistry principles associated with the Green reaction such as atom economy, use of safer chemicals, design for energy efficiency, and inherently safer chemistry for accident prevention; and (b) enable students to use ^{1}H NMR spectroscopy data to identify the synthesized Diels-Alder product. Additionally, we anticipate the following benefits from this research: (a) shorter laboratory experimental times via the use of efficient precursors; (b) synthesis of efficient precursors that are otherwise expensive to procure commercially. Substituted N-phenylmaleimides are a class of very expensive precursors that are used in certain organic chemistry reactions. We propose here that the students will synthesize a substituted N-phenylmaleimide in two steps to be used as a precursor in the Diels-Alder reaction. In the first step, the students grind the maleic anhydride and substituted amines under solventless conditions. In the second step, they will perform the cyclization of amide acid with acetic anhydride and sodium acetate. The reaction of substituted N-phenylmaleimide with 2,3-dimethyl-1,3,butadiene presents sophomore level undergraduate students with an opportunity to identify the position of the substitution (ortho, meta or para) of the alkyl (R) group in the product using ^{1}H NMR spectroscopy data. The students also explore and understand various Green Chemistry principles associated with the reaction such as: atom economy, use of safer chemicals, design for energy efficiency, and inherently safer chemistry for accident prevention.

Biography

Manisha Nigam is an Associate Professor of Organic/Green Chemistry at the University of Pittsburgh at Johnstown, PA. Her scholarship and professional development activities are primarily focused on Green Chemistry Education, where her key research goal is to develop environmentally friendly experiments for undergraduate laboratories and to introduce students about alternate methodologies for achieving chemical transformations without the use of hazardous chemicals. She primarily teaches Organic Chemistry courses as well as a course in Green Chemistry & Sustainability that she has developed. She has guided numerous research students, who have presented their work at various conferences. She is also an active advocate for efforts aimed at achieving a "green" campus.

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Oluwatobi S Oluwafemi, Trends in Green chem 2017, 3:3
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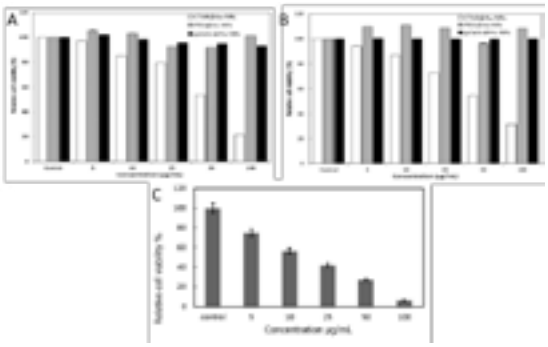
Synthesis of gelatin stabilized high aspect ratio gold nanorods with enhanced biological stability as effective photothermal agent for cancer therapy

Oluwatobi S Oluwafemi
University of Johannesburg, South Africa

A major challenge in efficient biological application of near infrared gold nanorods is the surfactant bilayer-induced cytotoxicity. Hence, there is need for the synthesis of biocompatible, non-toxic and stable functionalized gold nanorods. Though the use of gelatin as a passivating agent is a promising material for multifunctional coating, the inherent cytotoxicity, biological stability as well as the photothermal application performance of gelatin coated gold nanorods still need to be investigated before *in vivo* therapeutic application. In this study, synthesis of gelatin conjugated high aspect ratio gold nanorods (Au-NRs) with enhanced stability in biological system and its application in photothermal tumor ablation is herein reported for the first time. The gelatin shell required for the appropriate coating was optimized and investigated for their stability in culture media and relative cytotoxicity towards KM-Luc/GFP (mouse fibroblast histiocytoma cell line) and FM3A-Luc (breast carcinoma cell line) cancer cell lines. The optimized ratio of the gelatin-coated Au-NRs (0.5:1) exhibited enhanced biological media stability, improved temperature elevation and excellent photostability compared to CTAB and PEG capped gold nanorods. The cellular cytotoxicity and *in vitro* laser cytotoxicity experiments further demonstrate the effectiveness of the gelatin-coated nanorods in efficiently inhibiting deep-embedded tumor cells proliferation



Biography

Oluwatobi S Oluwafemi is a Researcher of National Research Foundation (NRF), South Africa at the Department of Applied Chemistry, University of Johannesburg. His research is in the broad area of nanotechnology and includes green synthesis of semiconductor and metal nanomaterials for different applications which include but not limited to biological (Imaging, labeling, therapeutic-PDT and PTT), optical, environmental and water treatment. He has authored and co-authored many journal publications, book chapters and books. He is a reviewer for many international journals in the field of Nanotechnology and has won many accolades both at local as well as at international level, focusing on different ways

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Patrick Pale et al., Trends in Green chem 2017, 3:3
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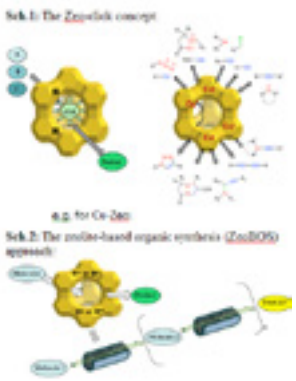
From homogeneous to heterogeneous catalysis towards greener chemistry: The zeo-click and zeolite-based organic synthesis approaches

Patrick Pale[1], **Stefan Chassaing**[2] and **Valérie Bénéteau**[1]
[1]University of Strasbourg, France
[2]University of Toulouse, France

Organic synthesis is the art of building molecules in a controlled way, up to highly complex natural and bioactive compounds. Mostly relying on metals as reagents or catalysts, organic synthesis is facing a huge and increasing problem: metal availability and sustainability. To help solving this problem, we are combining the properties of zeolites with the catalytic properties of some metal ions, trying to develop an alternative organic chemistry that we called zeo-click chemistry. For that purpose, we are developing and using new heterogeneous catalysts based on zeolites (i) easy-to-prepare, easy-to-handle, easy-to-recover and recyclable, (ii) able to efficiently, quickly and reliably generate substances by joining appropriate units together, what we called the "zeo-click" approach. (Sch. 1). To go even further towards greener synthesis, we are currently exploring an alternative to the conventional solution- and solid-phase organic syntheses, based on such zeolite catalysts, what we called ZeoBOS: each step would be performed through a zeolite, either native or modified, catalytically converting a molecule to another one (Sch. 2). In sharp contrast to homogeneous catalysis, a single heterogeneous catalyst can be applied to major types of organic transformations such as multi-component reactions, coupling reactions, cycloadditions, etc (Sch 1). Furthermore, metalated zeolites are efficient and reusable catalysts, and they can keep their activity in water, alcohol or without solvent. The 1st total synthesis of a natural bioactive product has been achieved based on these metalated zeolites as catalysts



Biography

Patrick Pale studied at the University of Champagne in France. After an industrial stay in a pharmaceutical company, he joined the group of Prof. L Ghosez as a Post-doc fellow in Belgium. Back to France, he got a CNRS position and then a Research Associate position at Harvard University in the group of G Whitesides. In 1995, he got a full Professor position at the University of Strasbourg, France. Subsequently, he was awarded Professor at the “Institut Universitaire de France” from 1996 to 2001. His scientific interests include the (asymmetric) synthesis of bioactive compounds, organometallic chemistry, carbohydrate chemistry and enzymatic chemistry, and more recently chemistry with materials such as zeolites, MOF, POM

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Safi-naz S Zaki et al., Trends in Green chem 2017, 3:3
DOI: 10.21767/2471-9889-C1-005

Influences of irrigation, fertilizers on growth and yield of two sugar beet varieties in Egypt

Safi-naz S Zaki, Mehanna H M and **Hussien M M**
National Research Centre, Egypt

Two field experiments were conducted in the Experimental farm of the National Research centre, El-Nobaria, El-Boheira Governorate, Egypt, during two seasons (2014-2015) to evaluate the growth of root and yield of sugar beet (*Beta vulgaris* L.). The experimental treatments were as following: (a) two sugar beet varieties (Samba and Farida), (b) three irrigation water regimes (2483, 1862 and 1241 m^3/fed./season) under drip irrigation system, and (c) four NPK fertilization rates (0, 0, 0) as control, (50, 75, 25), (75, 110, 35) and (100, 150, 50) as quantity of compound NPK fertilizers, respectively. The results were: Samba variety was the superior in root characters i.e. length, and diameter, and yields of roots and sugar/fed., water stress induced by irrigated sugar beet plants with the lowest water regime which depressed the root parameters as well as yield of roots and sugar/fed. Root diameter and yields of roots and sugar showed its higher values under the moderate water regime (1862 m^3/fed.). For water productivity of root yield, it was observed that the highest values were gained using the lowest quantity of water. Generally, it was obviously that Samba variety which irrigated by the moderate water regime (1862 m^3/fed./season), and fertilized by the highest amount of NPK (100, 150, 50) produced the economic root and sugar yields of sugar beet and saved 621 m^3/fed./season, which is the main concern nowadays for the arid regions

Biography

Safi-naz Sabet Zaki is a Researcher at National Research Centre, Egypt. She is currently working as a Researcher in Agriculture & Biological division

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Day 2

William P Sokeland, Trends in Green chem 2017, 3:3
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William P Sokeland

Retired Thermal Engineer, University of Florida, USA

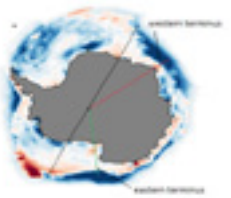
Space Weather: WZ Sagittae space weather

Statement of the Problem: The earth's atmosphere is currently experiencing changes that are caused by pollution from debris streams from exploding stars, nova and supernova. The debris streams also cause global warming. The closest nova WZ Sagittae has provided the additional energy to bring the northern hemisphere out of the Little Ice Age and form the shape of the Arctic ice cap through the past 100 years. Focused debris streams also add energy to our atmosphere at discreet locations and SN 1006 has caused the loss of life in India's high temperatures for 2015 and 2016. SN 1006 also caused the extensive sea ice melt in Antarctica in November 2016.

Methodology & Theoretical Orientation: By knowing the distance to the remnant of the nova and supernova, the time the explosion occurred and the velocity of the debris stream, an approximate year of arrival at planet earth can be calculated. By searching the internet, biosphere disturbances are found at approximately the same time of the arrival of the nova and supernova debris streams for years 1933, 1966, 1998, 2007 and 2012. An Ideal terminus or focal point is modified due to passage through the solar magnetic field to correlate the high temperatures for India.

Findings: Global warming effects have been correlated with the arrival time of nova and supernova explosions over the past 100 years.

Conclusion & Significance: The current trend for global warming specialist to blame fossil fuels and CO_2 for the increase of planetary temperatures may be incorrect and the true source of our current global warming is due to debris impact streams from nova WZ Sagittae, SN 1054 and SN 1006. An additional incentive besides inhibiting the fossil fuel industry could be added to design a mechanism or system to stop the incoming particle stream from exploding stars to protect living organisms on our planet. Since President Trump wishes to remove the responsibility of global warming from the fossil fuel industry, it would be wise to identify supernova or nova explosions as the source of the additional energy being added to the planet that causes global warming. This is possible through the Supernova and Nova Impact Theory (SNIT) being presented.



Biography

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William P Sokeland

Retired Thermal Engineer, University of Florida, USA

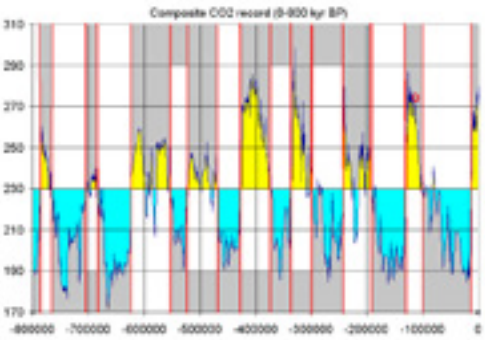
Global warming and cooling: Friend and foe to mankind

Statement of the Problem: The earth's atmosphere experience changes that are caused by pollution from debris streams from exploding stars, nova and supernova. The debris streams also cause global warming. The scars of the impacts of past debris streams from exploding stars are sand deserts, oil fields, iron deposits and red sand deposits. India is in process of receiving a new desert area.

Methodology & Theoretical Orientation: By knowing the year of arrival of debris streams at planet earth, the longitudinal locations of observations of the scar's deposits can be correlated to specific debris stream's termini. The actual termini points are identified for WZ Sagittae and Wisconsin ice age melting supernova.

Findings: Global warming effects have been correlated with the arrival time of nova and supernova explosions through particular deposits over the past 110,000 years.

Conclusion & Significance: The current trend for global warming specialist to blame fossil fuels and CO_2 for the increase of planetary temperatures may not be correct if the main source of the greenhouse gases and incoming energy is debris streams of atmospheres from exploding stars. Supernova debris streams have been leaving scars on our planet for years. The impact of the Monogem Ring supernova began the Wisconsin ice age and changed the climate so that crops to feed mankind could not exist. The beginning of another ice age is to be avoided at all cost.



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S Padmavathy et al., Trends in Green chem 2017, 3:3
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Surface methodological approach of *Pleurotus florida* biowaste towards aspirin drug

S Padmavathy[1] and **P Pungayee alias Amirtham**[2]
[1]Bishop Heber College, India
[2]Cauvery College for Women, India

Microbial bioremediation covers a wide range of recalcitrant degradation of pharmaceutical waste. The present study aims to inspect the dried, nonliving *Pleurotus florida* bio-waste efficacy for bioremediation of aspirin in an ecofriendly manner. The equilibrium uptake of aspirin was investigated using batch experiments which were carried out as a function of contact time, initial concentration, pH and biomass dose. The optimal conditions for the highest percentage removal of aspirin was achieved at 2 h contact time, 100 mg/L of aspirin concentration, at pH 5 and 4.0 g/L biomass dose. The best fit was obtained by Langmuir isotherm model with high correlation coefficient (R^2=0.989). The *Pleurotus florida* bio-waste was characterized using Fourier transform infrared spectroscopy, X-ray diffraction and thermo-gravimetric analyzer and their interaction between the aspirin was illustrated with Fourier transform infrared spectroscopy and scanning electron microscope..

Biography

S Padmavathy is an Assistant Professor in Bishop Heber College, Department of Chemistry. She has number of publications in national and international journals

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Anne Elizabeth Vivian Gorden, Trends in Green chem 2017, 3:3
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Salen-quinoxolinol ligand supported Cu(II) catalysts for oxidation in aqueous systems

Anne Elizabeth Vivian Gorden
Auburn University, USA

Streamlining synthesis improves atom economy or selectivity improves sustainability of chemical processes which makes better use of dwindling natural resources. Introducing catalytic reactions or limiting volatile organic solvents (VOS) are required for purifications or are two examples of reducing industrial impacts. Most catalytic systems feature toxic metals, high catalyst loading, and/or hazardous organic solvents. Selectivity and optimal conditions remain elusive. Previously, we have developed 2-quinoxalinol salens, Schiff base ligands with a quinoxaline incorporated into a salen backbone, nicknamed Salqu, as catalyst supports for Cu(II). The imbued electronic properties of the heterocycle improves solubility and increases catalytic efficacy as compared to analogous salen or salophen complexes in oxidation reactions. Simple olefin substrates can be oxidized using the salqu catalyst with TBHP (up to 99% yield) with short reaction times and improved selectivity. These Salqu ligands have now been modified through sulfonation to be water soluble. The aqueous soluble metal catalysts then possess some of the beneficial properties of homogeneous catalysis - selectivity and efficiency, while also being more easily recoverable and recyclable. The Sulfosalqu ligands have been used in Cu(II) complexes for the selective oxidation of propargylic, benzylic and allylic alcohols to the corresponding carbonyl compounds in water in combination with the oxidant tert-butyl hydroperoxide (TBHP). Excellent selectivity was achieved with this catalytic protocol for the oxidation of propargylic, benzylic, and allylic alcohols over aliphatic alcohols. Here, we describe the efficacy of these in C-H activation and their mechanism of reaction..

Biography

Anne Elizabeth Vivian Gorden has completed her PhD while working with Jonathan Sessler at the University of Texas at Austin in Organic Chemistry. She then moved on to do Post-doctoral research with Kenneth Raymond, first at the University of California - Berkeley and then at Lawrence Berkeley National Laboratoy Seaborg Center. In 2005, she started as an Assistant Professor at Auburn University, the land grant university for Alabama. She was tenured and promoted to Associate Professor in 2011. She is Faculty Advisor for the Auburn Association of Women in Science, and she is an Author of more than 40 peer-reviewed publications.

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Pungayee Alias Amirtham P et al., Trends in Green chem 2017, 3:3
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Pleurotus florida: Myco- community in carcinogenic metal ions uptake capacity

Pungayee Alias Amirtham P[1] and **Padmavathy S**[2]
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Chemical carcinogens trigger cancer, directly cause genetic mutation leading to rapid cell division and abnormal cell growth. Most of the heavy metals are anticipated to be human carcinogen and metal carcinogenicity ingestion in living system beyond the limited concentration causes severe health disorders. Macro fungi are promising economic, environmental sound alternative bioremediating tool for the heavy metal uptake capacity. The present study offers an insight into the deterioration of metal toxicity through the *Pleurotus* species and the experimental results highlighted the screening potential of *Pleurotus florida* for nickel and cobalt ions uptake capacity. Larger amount of cobalt ion 66.33 mg/Kg in the fungal fruiting body than nickel ions (52.83 mg/Kg) showed that cobalt ion has greater bioaccumulation factor and resulted in lower growth rate. The metal accumulated *Pleurotus florida* species were tested against pathogenic bacteria and fungal organisms and the zone of inhibitory values indicated greater antimicrobial activity than control and it confirms the bioaccumulation of metal ions in the fungal fruiting body.

Biography

Pungayee Alias Amirtham is an Assistant Professor in Cauvery College for Women, India. She has number of publications in national and international journals.

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Notes:

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Joshua R New et al., Trends in Green chem 2017, 3:3
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Potential impacts of climate change on the built environment: ASHRAE climate zones, building codes and national energy efficiency

Joshua R New, Jitendra Kumar and **Forrest M Hoffman**
Oak Ridge National Laboratory, USA

Statement of the Problem: ASHRAE releases updates to 90.1 "Energy Standard for Buildings except Low-Rise Residential Buildings" every three years resulting in a 3.7%-17.3% increase in energy efficiency for buildings with each release. This is adopted by or informs building codes in nations across the globe, is the National Standard for the US, and individual states elect which release year of the standard they will enforce. These codes are built upon Standard 169 "Climatic Data for Building Design Standards," the latest 2017 release of which defines climate zones based on 8, 118 weather stations throughout the world and data from the past 8-25 years. This data may not be indicative of the weather that new buildings built today, will see during their upcoming 30-120 year lifespan.

Methodology & Theoretical Orientation: Using more modern, high-resolution datasets from climate satellites, IPCC climate models (PCM and HadGCM), high performance computing resources (Titan) and new capabilities for clustering and optimization the authors briefly analyzed different methods for redefining climate zones. Using bottom-up analysis of multiple meteorological variables which were the subject matter, experts selected as being important to energy consumption, rather than the heating/cooling degree days currently used.

Findings: We analyzed the accuracy of redefined climate zones, compared to current climate zones and how the climate zones moved under different climate change scenarios, and quantified the accuracy of these methods on a local level, at a national scale for the US.

Conclusion & Significance: There is likely to be a significant annual, national energy and cost (billions USD) savings that could be realized by adjusting climate zones to take into account anticipated trends or scenarios in regional weather patterns.

Biography

Joshua R New is a Computer Scientist serving as Full-Time R&D Staff at Oak Ridge National Laboratory, Joint Faculty at The University of Tennessee, and Founder and CEO of Tunation, LLC. He received his PhD in Computer Science at the University of Tennessee in 2009. He serves at Oak Ridge National Laboratory's Building Technology Research Integration Center (BTRIC) as Subprogram Manager for software tools and models. He has over 95 peer-reviewed publications and has led more than 45 competitively-awarded projects in the past five years involving websites, web services, databases, simulation development, visual analytics, supercomputing using the world's fastest supercomputer and artificial intelligence for big data mining. He is a Voting Member of ASHRAE TC4.2 and SSPC-169 which define the climate data and HVAC design conditions for international building codes.

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Rohail Riaz Khoushab, Trends in Green chem 2017, 3:3
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The lack of awareness on climate change

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Climate change is an important aspect of discussion. It has overturned environmental stability and started increasing the global surface temperature by almost 5 °C in the last 27 years. This has resulted in the rising rate of melting of the ice cap, on mountains and thus the rise in oceanic levels. The definition of climate change is a change in a region's average weather and or climate. The general public confuses the difference between climate and weather. Weather is a short-term change we see in humidity, precipitation and wind. Climate is the weather of that region averaged over a long period of time. And in regards to climate change specifically, we see these long-term changes happen over thousands upon thousands of years. Some of the causes of climate change are actually natural. These natural changes result from the Earth's orbit and the amount of energy that is coming from the sun. However, most scientists believe the rapid escalation of CO_2 ppm (parts per million) started during the Industrial Revolution and has not looked back since. Starting from the industrial revolution, the burning of coal, oil and gas is how we produce the energy we are so dependent on today. The process of burning these fuels is what traps heat in our air and that result in the incremental increase of temperature on our planet. It also provides a startling way out of through the apparent holocaust the world is facing in perhaps, the next century. These natural changes result from the Earth's orbit and the amount of energy that is coming from the sun.

Biography

Rohail Riaz Khoushab is graduated from an International High School with IB Program honors and currently a sophomore student at De Anza College studying Political Science

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Notes:

Kouichi Matsumoto, Trends in Green chem 2017, 3:3
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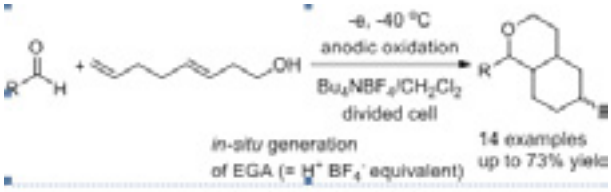
Synthesis of fluorinated bicyclic molecule via Prins cyclization using electro-generated acid

Kouichi Matsumoto
Kindai University, Japan

Prins cyclization using simple aldehydes and homoallylic alcohols in the presence of acid reagents is well known to form functionalized tetrahydropyrans, and the reactions have been extensively studied so far. Because tetrahydropyrans are important and interesting unit in bioactive molecules, a new synthetic development in this field has been still required. In the view point of integration of Prins cyclization, some interesting reactions have been reported. For example, sequential Sakurai-Prins-Ritter reactions are developed by Rovis, T. *et al*. This reaction involves Prins cyclization in the latter stage. Tandem Prins/Friedel-Crafts cyclization has recently been reported by Yadav, J. S. *et al*, in which the generated carbocation by Prins cyclization was trapped by aromatic ring to form heterotricycles. However, to the best of our knowledge, there is no report of tandem Prins/cationic cyclization using aldehyde and non-conjugated diene alcohol as integrated Prins cyclization. We have recently reported that the electrochemical oxidation of the solution of aldehydes and homoallylic alcohols in Bu_4NBF_4/CH_2Cl_2 afforded the corresponding fluorinated tetrahydrofurans via Prins cyclization. During the course of our study, we found that this type of cyclization reaction could be extended to tandem Prins/cationic cyclization (Scheme 1). The electrochemical oxidation of octanal ($R = C_7H_{15-}$) and (E)-4,7-octadiene-1-ol in Bu_4NBF_4/CH_2Cl_2 at -40 °C in divided cell gave the corresponding fluorinated bicyclic compound in 73% yield. The same reactions were also found to be promoted by Lewis acids. In the presentation, the detail of the reactions including optimization, scope and limitations, and mechanism will be discussed.



Scheme 1: Synthesis of fluorinated bicyclic molecule using electro-generated acid.

Biography

Kouichi Matsumoto graduated from Kyoto University in 2005. He received his PhD in 2010 from Kyoto University under the supervision of Professor Jun-ichi Yoshida. In 2010, he joined the group of Prof. Shigenori Kashimura at Kindai University as an Assistant Professor. He was promoted to Lecturer in 2014. His current research interests are in 1) the development of new reactions using electro-organic chemistry, 2) the kinetic analysis of electro-generated reactive species using Raman spectroscopy, and 3) the synthesis of organic materials for organic thin film solar cells. He is awarded with the Student Presentation Award in the 89th CSJ spring meeting (2009), and got Prize of the Promotion of Engineering Research in Foundation for the Promotion of Engineering Research (2012)

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Graphene: A promising nano-reinforcement for functional composite materials

Velram Balaji Mohan, Krishnan Jayaraman and **Debes Bhattacharyya**
The University of Auckland, New Zealand

Graphene is a unique carbon material and its derivatives can be used as functional reinforcements in polymers for applications, such as sensors, flexible devices and functional nanocomposites. This article focuses on the preparation and characterisation of superconducting graphene derivatives and manufacturing of complex blends of primary and secondary polymers reinforced with highly conductive graphene material. The electrical conductivity can be established in conventional non-conductive thermoplastics by melt blending process through systematic approach and the right choice of additional electrically conductive components. Conducting polymers such as polyaniline-complex (PANI-complex) and polypyrrole (PPY) can be blended with thermoplastics even at higher temperatures of 280°C. Hence, hybrids of polypropylene (PP-non-polar), polymethylmethacrylate (PMMA-polar) and polyoxymethylene (POM-highly polar) as primary polymer matrices while polypyrrole and polyaniline as secondary conducting polymer matrices reinforced with graphene (G). The maximum electrical conductivity of 0.7 S/cm has been acquired with POM/PPY/G blend with 4 wt% and 3 wt% of polypyrrole and graphene loading, respectively. Furthermore, electrically conductive wires were produced using graphene particles' different fibre yarns (including natural fibres) as wires and epoxy resin as a binding material. Three different dip-coating approaches were used and electrical conductivity and morphology of the samples were investigated. By systematically varying material composition and manufacturing techniques, and applying optimisation methods, it will identify sets of coating parameters that will allow improving electrical conductivity and mechanical properties. This will demonstrate that conducting yarns can be produced using off-the-shelf technologies, inexpensive natural fibres and easily synthesisable conducting organic materials. These points are critical if graphene and reduced graphene oxide are to be produced and used in large-scale devices or bulk commercial applications.

Biography

Velram Balaji Mohan received a BTech in Polymer Technology from Anna University, India and an ME (Hons) in Materials and Process Engineering from the University of Waikato, New Zealand. He has gained a PhD from the Centre for Advanced Composite Materials (CACM) at the University of Auckland on the development of functional graphene/polymer nanocomposites. Currently, he is working as a Research Fellow at the Centre for Advanced Composite Materials (CACM) and Plastics Centre of Excellence (PCoE) at the University of Auckland, Auckland, New Zealand

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Scientific Tracks & Abstracts

Day 3

Hammed Taiwo Babatunde, Trends in Green chem 2017, 3:3
DOI: 10.21767/2471-9889-C1-005

Energy and resource recovery from litters generated in a community for reducing greenhouse gas emission and mitigating climate change effects

Hammed Taiwo Babatunde
University of Ibadan, Nigeria

Global warming has become a matter of public concern in the last few years and quantity of the greenhouse gas produced by human activities has been predominating over that of natural origin. This study adopts a quasi-experimental design, comprising mixed method of data collection such as semi-structured questionnaire and Intergovernmental Panel on Climate Change (IPCC) model for calculating greenhouse gas generation potentials of various solid waste components and management practices of litters generated at Kube Atenda community in Ibadan, Oyo State. A systematic random sampling was used to select sixty (60) households and respondents (household heads) for the survey and training on waste to wealth and energy recovery from waste. The questionnaire was administered in order to assess respondents' levels of knowledge, attitude and practices of waste management practices through recovery, reduction, reuse and recycling (4Rs) before and after the training. Greenhouse gases (GHGs) at the study areas was measured with the use of calibrated digital meters including P-Sense Plus CO_2, CH_4 and NO_2 AZ-7755 meter. Litter management practices and GHG emission potential would be estimated using the greenhouse gas conversion and correction factors developed by U.S EPA for Waste Reduction Model (WARM) and IPCC, 2006 guidelines. The findings from this study would be of great benefit to the public and it is expected that, at the end of this study, there would be behavioral change of the community members towards litter management practices that promote climate change mitigation and adaptation through waste reduction, reuse, resource recovery, green growth, clean environment, poverty reduction, improved health and self-esteem. With the intervention, the community would have become a role model in the country and the transformation would surely arouse the interest of policy makers across the world to think locally and act globally.

Biography

Hammed Taiwo Babatunde is a Lecturer in the Department of Environmental Health Sciences, University of Ibadan, Nigeria. He has Bachelor's degree in Environmental Management and Toxicology from the University Agriculture, Abeokuta, Ogun State and Master's degree in Public Health (Environmental Health) from the University of Ibadan, Nigeria. He has worked in different capacities with NGOs that deal with environmental sanitation and management since 1998. He was also awarded Roy F. Weston Award, Widener University, USA in April 2016 in recognition of his contributions to the field of solid waste technology and management. He is currently attending a Post-Doctoral Fellowship under Climate Impacts Research Capacity Leadership Enhancement (CIRCLE) program at Institute for Climate Change and Adaptation, University of Nairobi, Kenya. His research interests span areas such as: solid waste recycling (composting, material recovery and biogas). He has published in both local and international journals

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T Anitha et al., Trends in Green chem 2017, 3:3
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Role of V V mineral in reducing global warming through green mining technology of garnet

T Anitha and **K Nithya Kalyani**
V V Mineral Environmental Laboratory, India

According to EPA, 21% of global greenhouse gas emission is from industry sector and mining sector is one of the major emitters of greenhouse gases. Scientists are certain that climate change effects are expected to increase in the coming decades and urge nations to implement mitigation measures. Implementation of green technology at industrial level reduces global warming, greenhouse effect, pollution and climate change. Present study aims to explore the importance of green mining of garnet and garnet based abrasive water jet cutting in reducing greenhouse gas emission and climate change effects. M/s V.V. Mineral implemented two common sense steps manual mining and solar drying to address the challenge of climate change in mining and beneficiation of garnet. The case study finding shows manual mining operation adopted by M/s V.V. Mineral for garnet sand mining is green and completely reduced the emission of 0.893-1.19 kg CO_2/ton sand, normally emitted through mechanized mining process practiced in the area. Implementation of solar drying in the beneficiation process results in elimination of 29.67-32.36 Kg CO_2 emission by every ton of sand dried in fossil fuel based driers. Garnet is the commonly used abrasive around the world. Garnet based abrasive water jet cutting is an environment friendly green process. Since it is a cold process, all materials can cut without fuel combustion and heat generation process. This paper highlights the advantages of replacing thermal cutting process by garnet based abrasive water jet cutting in mineral fabrication sector to reduce air pollution in the form of fumes and gases and reduces CO_2 emission and global warming.

Biography

T Anitha holds Doctorate degree in Environment Biotechnology from Manonmaniam Sundaranar University, India. She has worked for baseline data collection studies in the coastal environment of Koodankulam in association with board of research in nuclear science, Department of Atomic Energy, India. Currently she is In-Charge, Environment Lab of V V Mineral. She has her expertise in environment monitoring and management after serving for about 15 years in V V Mineral Environment Lab

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Maria Luisa Baiño-Salingay et al., Trends in Green chem 2017, 3:3
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Pesticide contaminations and public perceptions on its effect to human health: Case study of Philippines and Vietnam

Maria Luisa Baiño-Salingay[1, 2, 3], **Chris Zevenbergen**[1, 2], **Assela Pathirana**[1, 2], **Jeroen Rijke**[1, 4, 5] and **Oliva Canencia**[3]
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Agriculture expansion in developing countries, like Philippines and Vietnam, where unproductive uplands were converted to fast cash crops has affected the environment and human health. Agricultural expansion, not only adversely affected the biodiversity but increased surface run-off from the agricultural areas, bringing agricultural waste, including residual pesticides. Pesticide contamination brought by surface runoff is a major concern as precipitation is more intense and frequent due to climate change. The importance of these pesticides are well recognized and fully understood, that these are developed with strict guidelines for very reasonable purpose. But the application and management of pesticides should be done with precautionary measures to minimize the negative impacts on human and environmental health if misused or overused. The major concern of this study is that harmful effects of pesticides are not fully understood by the end users, the farmers. Because of lack of awareness and knowledge, it is also unknown to many that even small concentrations of the banned pesticide can lead to serious health impacts because it persists and biomagnifies in the food chain and human body. Since research studies on the harmful effect of pesticides on public health are limited, especially on chronic effects of long-term exposure. This research aimed to bridge the gap of knowledge in the health implications of pesticide exposure in human by first getting their own perception on pesticide contamination not only to the farmers but also to communities surrounding these agricultural areas using surface water for domestic water source. This study conducted survey on pesticide applications and management, knowledge on both the positive and negative effects and health awareness on both farmers and surrounding communities. The results will then be used to assess the extent of pesticides human exposure of these research areas using international accepted model software.

Biography

Maria Luisa Baiño-Salingay is an Associate Professor of Chemistry in University of Science and Technology of Southern Philippines (USTP), Philippines. She has obtained her BS in Chemistry from Xavier University, Ateneo de Cagayan as an Academic Scholar of the University and Pilipinas KAO (Kao Global Chemicals, Japan). She is a licensed Chemist and trained as CSSO by US Department of State. She has earned MS in Physical Sciences major in Chemistry minor in Physics at USTP and MSc in Water Management at UNESCO-IHE, Netherlands. She has completed her PhD studies in IHE-Delft and TU Delft, Netherlands

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Day 3

Jenifer J Gabla et al., Trends in Green chem 2017, 3:3
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Mesoporous zeolite BEA: Synthesis, characterization and their catalytic application in multi-component reactions

Jenifer J Gabla[1], **Sunil R Mistry**[2] and **Kalpana C Maheria**[1]
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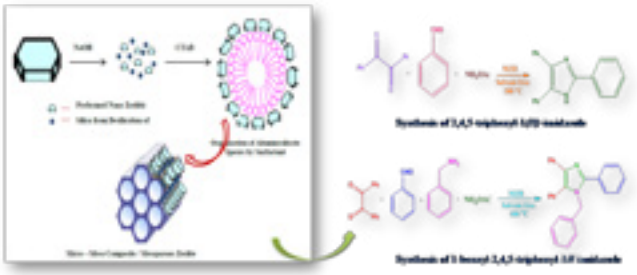
The mesoporous zeolite BEA (MZB or BEA/MCM-41 composite) material with bimodal pore structure, acidity and surface area has been synthesized by using zeolite BEA as silica-alumina source. The material was characterized by various techniques such as powder SAXS/WAXS, N_2 adsorption-desorption isotherm, NH_3-TPD, ICP-OES, TGA-DTA, FT-IR, Pyridine IR, SEM, TEM, ^{27}Al and ^{29}Si NMR. Powder SAXS/WAXS showed the existence of well-structured microphase of zeolite BEA and mesophase of MCM-41 in the composite materials. In addition, the significant improvement in the catalytic properties of MZB material was investigated for the synthesis of various biologically active compounds through multi-component reactions (MCRs). The MZB material display excellent activity towards the synthesis of 2,4,5-triphenyl-1(*H*)-imidazoles and 1-benzyl-2,4,5-triphenyl-1*H*-imidazoles through MCRs in high yield within shorter reaction time and with low catalyst loading as compared to the microporous zeolite H-BEA. Solvent-free protocol makes the process environmentally benign and economically viable. The present protocol will serve as green tool and opens a new avenue in the area of environmentally benign synthesis of biologically active drug like molecules.



Biography

Jenifer J Gabla has obtained her MSc degree in Organic Chemistry, in the year 2013 from Uka Tarsadia University, Bardoli, Gujarat. She is currently pursuing her PhD in the area of solid acid catalyzed multicomponent reactions for the synthesis of biologically active drug molecules, at Applied Chemistry Department (ACD), S V National Institute of Technology (SVNIT) under the guidance of Kalpana Maheria, Assistant Professor & Head, ACD, SVNIT, Surat, Gujarat, India. Her research focuses on development of novel zeolite based catalytic materials and exploring their utility in the green process development for the synthesis of medicinal compounds. She has presented her research in several national and international conferences.

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Eren Cifci et al., Trends in Green chem 2017, 3:3
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Reassessing economic growth, carbon emissions, and the UNFCC: A difference-in-differences approach

Eren Cifci and **Matthew E Oliver**
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The nexus between economic growth and the environment has long been a key topic in economic and policy research. It is well understood that economic growth leads to environmental degradation in the early stages of development. However, when the current presidential administration declared that the United States would rescind its participation in the Paris Agreement on climate change despite its status as one of the leading countries in the Agreement, a debate reemerged about the effectiveness of climate agreements in curbing GHG emissions at the expense of economic growth. This work responds to this revitalized debate by reassessing the empirical link between economic growth, GHG emissions, and international climate agreements. The United Nations Framework Convention on Climate Change (UNFCCC) is considered by many as the most significant international collaboration in the fight against climate change. However, few studies on the link between economic growth and the environment control for the effect of the UNFCCC on reducing GHG emissions; therefore, empirical estimates of the impact of growth on emissions may not fully reflect the effectiveness of international climate agreements. To our knowledge, our study is the first to examine this important relationship. Specifically, we utilize a difference-in-differences (DID) model to examine growth and GHG emissions in Annex-I countries and non-Annex I G20 countries before and after the Kyoto Protocol was signed, as a proxy for the effect of UNFCCC on emissions reductions. Additionally, unlike most existing growth and environment studies, which only use carbon dioxide (CO_2) emissions as a proxy for environmental degradation, we use a broader measure of emissions which includes CO_2, methane (CH_4), nitrous oxide (N_2O), other and F-gases. We control for serial correlation, heterogeneity, and other potential endogeneity problems. Preliminary results indicate that the Kyoto Protocol agreement led to a statistically significant reduction in GHG emissions.

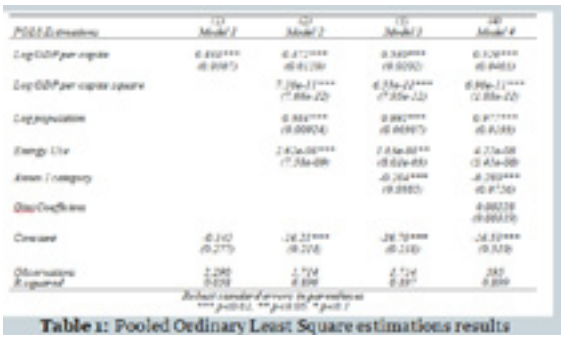

Table 1: Pooled Ordinary Least Square estimations results

Biography

Eren Cifci has completed his MA from College of Business Administration, Kent University. He wrote his MA thesis on Labor Economics. He as MS student is currently doing research in Environmental Economics at Georgia Institute of Technology School of Economics. He also would like to pursue his PhD in Economics

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Agham Delphine Tanyi, Trends in Green chem 2017, 3:3
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Environmental remediation and interventions to global warming and climate change

Agham Delphine Tanyi
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Climate change is a major environmental challenge to the world today, with significant threats to ecosystems, food security, water resources and economic stability overall. Global energy consumption is dramatically increasing due to our quest for a higher living standard and increasing world population. In Cameroon, like many developing nations, the causes of air pollution are legion: aggravated bush burning, combustion, gas flaring, improper disposal of domestic and industrial wastes; pollution through oil spillage; car exhausts, unsanitary and unsafe housing, quarrying etc. Most of our energy comes from fossil fuel and burning of these fossil fuels causes environmental problems and in particular global warming. Changing environmental conditions, including rising temperatures caused by climate change, causes high levels of ozone that can affect the respiratory system and increases morbidity and mortality, particularly in sensitive groups of the population. More than 4.6 million people die every year due to air pollution and most is attributed to indoor pollution. Indoor air pollution is one of the most overlooked threats to human health, affecting young children who spend an estimated 80% of their time indoors. Studies released in the past few years clearly demonstrates that poor indoor air quality not only increases asthma symptoms but can also be responsible for headaches, fatigue, nausea, allergic reactions, hormone imbalances and liver, kidney or central nervous system damage. Ozone concentrations are highly dependent on environmental conditions, including temperature and it is thought to be likely that long-term changes in climate will affect levels of future ozone pollution. Instead of tackling these problems of climate change separately, there are technological solutions that address both concerns at the same time: for example, switching from fossil fuels to renewable forms of energy cuts down on air pollution emissions, (eg particulate matter (PM), sulfur dioxide and nitrous oxides), whilst simultaneously reducing emissions of the greenhouse gas, carbon dioxide (CO_2).

Biography

Agham Delphine Tanyi a cameroonian citizen. Hodler of a master degree in natural resources and environmental management from the University of Buea, born on 21st january 1987. He is serving as the project coordinator in an Ngo called Association For Community Awareness. HIS Ngo is presently working on Hiv/Stigma, peace building, care of vulnerable children and orphans and environmental protection. He is so much passionate about improving on the social, educational and health status of both vulnerable children and orphans. Also his passion is improving on the water conditions within local community of poor water conditions

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Notes:

Mouako Djeumako Boris, Trends in Green chem 2017, 3:3
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Design of biofuel production units from *Jatropha curcas*

Mouako Djeumako Boris
National School of Agro-Industrial Sciences of Ngaoundere, Cameroon

The *Jatropha curcas* has been identified as an oleaginous plant with an oil content of about 45%. Different studies have shown that a transesterification of this oil makes it possible to obtain biodiesel. The project involved the design and manufacture of an oilseed press and the design of winnowing equipment and a transesterification unit to convert Jatropha into biodiesel. Seeds of *Jatropha curcas* selected from the northern regions of Cameroon as part of the ESA project were distributed to farmers in Ngaoundere to popularize this plant in Adamaoua. The main long-term objective is the establishment of a biofuel pilot unit; this unit will be duplicated across Africa to contribute to bridging the energy deficit of our continent, through this renewable energy source. In the same way, it will contribute to the reforestation of the continent, especially in the arid zones. In perspective we also plan the design and manufacture of fireplaces adapted to this fuel to offer rural women an alternative to the use of wood for cooking as is customary in Africa.

Biography

Mouako Djeumako Boris is a Technology Enthusiast, who has set himself the goal of designing and making available to African agriculture technologies adapted to the socio-technical context in order to enable farmers to increase the value chain and ensure the good health of consumers. He also conducts research in the fields of hybrid power supplies that can combine biogas with solar energy and optimize the energy efficiency of equipment and buildings thanks to smart systems.

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Video Presentation

Day 3

Gnanasangeetha D, Trends in Green chem 2017, 3:3
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Green synthesis and modeling of zinc oxide nanoparticles from *Corriandram sativum*

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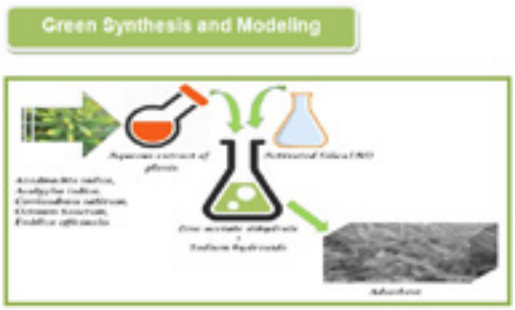
Fabrication of benevolent zinc oxide nanoparticle entrenched on activated silica (ZnO-NPs-AS-Cs) without calcination by green synthesis method using aqueous leaf extract of Corriandrum sativum. The method involved the use of zinc acetate dihydrate ($Zn(CH_3COO)_2.2H_2O$) and sodium hydroxide (NaOH) as a precursor and phytoconstituents played manifold roles as promoter, stabilizer and template for synthesis of zinc oxide nanoparticle. Adsorption behavior of benign adsorbents was applied to Freundlich, Langmuir, Tempkin, and BET isotherm which afford the surface properties of the adsorbent and its affinity for adsorbate. Data correctly fits Langmuir isotherm than Freundlich, Tempkin and BET isotherm proving monolayer and homogenous surface of adsorption with R^2=0.968. Artificial neural network supports the linearity of the kinetic plots fitting pseudo-second order model with R^2=0.732 obeying chemisorption.



Biography

Gnanasangeetha D is currently pursuing her Doctoral studies on “Green Synthesis and Water Treatment” from one of the top most universities named Bharathiar University, Coimbatore, Tamil Nadu, India. She has knowledge about applying characterization techniques like XRD, SEM, TEM, PSA FT-IR and UV. Her research interest is modeling of zinc oxide nanoparticle embedded in activated silica for water remediation of arsenic (III) ions from herbal plants. Her quest for knowledge on Chemistry made her to participate in many Faculty Development Programmes and presented relevant papers in international conferences. A profound treatise on the subject matter makes her to publish 21 papers which were Scopus and Thomson Reuters indexed with 108 citations in Google scholar, h-index 4 and i10-index 3

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