Insights into The New Emerging - Covid 19 - The Novel Crown of Pandemics?

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ABSTRACT

According to the World Health Organization (WHO), viral diseases continue to emerge and represent a serious issue to public health. In the last twenty years, several viral epidemics such as the severe acute respiratory syndrome coronavirus (SARS-CoV), H1N1 influenza, the Middle East respiratory syndrome coronavirus (MERS-CoV) etc was identified.

Since first reported in Wuhan, China, in late December 2019, the outbreak of the novel coronavirus now known as SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) has spread globally. This new virus seems to be very contagious and has quickly spread globally. In a meeting on January 30, 2020, per the International Health Regulations (IHR, 2005), the outbreak was declared by the WHO a Public Health Emergency of International Concern (PHEIC) as it had spread to 18 countries with four countries reporting human-to-human transmission. An additional landmark occurred on February 26, 2020, as the first case of the disease, not imported from China, was recorded in the United States.

The data surrounding the biology, epidemiology, and clinical characteristics of the SARS-CoV-2 virus have been growing daily. The virus genome was rapidly sequenced, which allowed the development of diagnostic tests and for research into vaccine and therapeutics to start. Scientists are endeavoring to find antivirals specific to the virus. Several drugs such as chloroquine, arbidol, remdesivir, and favipiravir are currently undergoing clinical studies to test their efficacy and safety in the treatment of coronavirus disease 2019 (COVID-19) in China; some promising results have been achieved thus far. Meanwhile, the clinical spectrum of disease continues to be defined (including the potential for asymptomatic spread) and clinical trials evaluating treatments have begun. As the epidemic spreads, scientists around the world are actively exploring drugs that would be potentially effective in combating COVID-19.

KEYWORDS : novel coronavirus, pneumonia, COVID-19, 2019-nCoV, SARS-CoV-2.

Study on The Ecological Consequences of Food Wastage

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ABSTRACT

The present study focusses on evaluating the ecological impacts due to food wastage which has been either food loss or due to food wastage. Food production and consumption are resource oriented that consumes nearly 70% of available fresh water and 30% of energy, that is impacted by population growth, urbanization, growing demand, climate change and resource degradation. Globally, average water and food availability indicates sufficiency to meet demands of 7.7 billion population (UN, 2018). Still, nearly 1.2 billion people face acute water scarcity and 870 billion people go hungry every day, of which majority are from India (~194.6 million) which is much low in global hunger index. India produces about 270 million tons of food a year against the demand of 225-230 million. Paradoxically, despite adequacy, food security is not ensured and nearly 40% food is wasted at all levels from harvesting till consumption as all the produce fail to reach the consumer. Such wastage adversely affects the economy, environment, and society. Even with several attempts to reduce food waste by individuals, organizations and authorities, India trails in reducing food crisis and needs innovative technological and entrepreneurial solutions and some policy changes. In order to lay out a road map for achieving sustainable development goals (SDG) 2,6 and 12 (which stipulates "zero hunger", "clean water and sanitation" and responsible consumption and production respectively), it is important to explicate the resources utilization as well as their reparations to the environment.

The concept of footprints especially the water and the carbon footprints, that are good proxies to measure the pressure of human actions on the environment have been utilized in this study to estimate the impacts of food wastage. Available estimation of water and carbon footprints for various food products have been recorded from the literature and interpreted in terms of resource utilization as well as damages caused to the environment when wasted. Outcome of the study would be helpful in deriving strategies for sustainable resources management as well as for preparing agenda that could scale down the vulnerable impacts on environment.

Food, water and energy underpin are inextricably linked to environment sustainability contributing to a variety of ecological disasters culminating in food and resource in security.

KEYWORDS*: food security, water footprint, carbon footprint, environment, sustainability*

Assessment of Drug Utilization Pattern Among Geriatric Patients Using WHO Indicators in A Government Head Quarters Hospital

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ABSTRACT

Aim: To study the drug utilization pattern among geriatric patients in a government headquarters hospital using WHO indicators.

Materials and methods: A cross-sectional prospective observational study involving 183 geriatric patients. It was a thirteen months study conducted between October 2018 and October 2019. Relevant information for analysis was obtained through accessing patient's case sheets.

Results: Majority of the patients (45.35%) were in the age group of 60 – 65 years old. There was a male patient preponderance (62.29%) in our findings. The average number of drugs per prescription was 6.32%. Polypharmacy was prevalent in 61.20% of prescriptions. The majority of drugs were prescribed in generic names.

Conclusion: The Study of drug utilization pattern helps in assessing the quality of patient care and to promote the rational use of drugs.

KEY WORDS: Drug utilization pattern, Geriatric Patients, Prescribing indicators, Polypharmacy.

Antibacterial and Catalytic Properties of Chitosan-Iron Oxide Composite: An Eco-Friendly Approach

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ABSTRACT

The dyes used in the industries are carcinogenic, mutagenic and they are resistant to degradation through conventional treatments. In recent years, iron oxide nanoparticles are utilized for the elimination of dyes as well as other pollutants from water streams. Chitosan has been used as a nanoparticle owing to its adaptable biodegradability, biocompatibility and natural origin. A composite is a combination of two or more different materials that are mixed in an effort to merge the best features of both. Organic-inorganic composites with nanoscale dimensions are currently being used in various fields. Production of nanoparticles under non-toxic green conditions is of fundamental importance to address growing concerns on overall toxicity of nanoparticles for medical and technological applications. Chitosan has capability to form complexes with various metals because of its amine groups and hydroxyl groups. The present study focuses on green synthesis of iron oxide nanoparticles (FeO-NPs) along with its antibacterial and textile dye degradation catalytic activities. FeO-NPs were synthesized using *Pelargonium graveolens* leaf extract and synthesized nanoparticles were characterized by UV-vis spectroscopy and FTIR. From the X-ray diffraction method, it was found that the average particle size of the synthesized nanoparticle was found to be 30.42 nm. Chitosan (85% deacetylation)

was used for preparation of chitosan-iron oxide composite nanoparticles (CS-FeO). This composite was evaluated for its potential role in antibacterial activity and catalytic degradation of textile dye Congo Red. Within 3 h, 82% dye was degraded using 30 mg/l CS-FeO. In addition, this composite showed excellent antibacterial activity against *Klebsiella pneumonia.* Thus, data obtained in this investigation proves that CS-FeO composite is biocompatible, eco-friendly and low cost material which could find potential applications in medical and industries.

KEYWORDS*:* Chitosan-iron oxide composite, Pelargonium graveolens, Antibacterial activity, Catalytic property, Congo red.

Insilico Docking and Admet Prediction Study of Some Selective Flavanoids Against Crystal Structure of Acetylcholinesterase

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ABSTRACT

The present study examined the Neuroprotective activity using some selected flavanoids. The acetylcholinesterase is an enzyme plays a major role in cognitive function. Dementia is a group of symptoms associated with memory loss and it's mainly characterized by confusion, changes in personality, trouble in understanding visual images, misplacing things etc. Selective flavonoids were evaluated for their binding affinity against crystal structure of acetylcholineesterase. The *in silico* molecular docking studies of selective flavonoids were carried out using AutoDock Vina. The results show that the selected flavonoids to posses better binding affinity with crystal structure of acetylcholinesterase (6EZG).

KEYWORDS*:* Flavonoids, Swiss ADME, Molecular docking, Acetylcholinesterase, Neuroprotective activity.

New Analytical Method Development And Validation of Amoxicillin and Dicloxacillin By Rp-Hplc Using Cloxacillin as Internal Standard

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ABSTRACT

A rapid, selective, specific and precise RP-HPLC method has been established and validated for simultaneous estimation of Amoxiciliin and Dicloxacillin in drug substance. Lichrospher-100 column (25 cm x 4.6 mm id, 5um) contains octadecyl silane which was used as an adsorbent and 20mM Ammonium acetate, Methanol and Cyanomethane was considered as the eluent for the separation of the Amoxiciliin, Dicloxacillin and Cloxacillin (as internal standard) in an isocratic mode having the ratio 45:18:37 % v/v with 4.5 as pH of the buffer and 0.5 ml/min as flow rate, and injection volume was set as 20 ul and measured the absorbance at 229 nm at ambient temperature. The calibration curve was consistently performed for the accuracy for the quantification of Amoxicillin and Dicloxacillin over concentration range of Amoxicillin and Dicloxacillin, 17.5 to 32.5 μg/ml and 17.5 to 32.5 μg/ml respectively. After the development of the new method for the combination, we have studied validation of the method by performing the following parameters like accuracy, precision, robustness, ruggedness and stability as per the US-FDA. The precision, accuracy and the correlation coefficient (R^2) of Amoxicillin and Dicloxacillin are within the limits as per ICH guidelines, so this can be used for the quantification of Amoxicillin and Dicloxacillin in drug substance by using Cloxacillin as internal standard. Moreover the advantage of this method is to quantify any two drug as a combination or individually with third drug or any other can be used as an internal standard.

KEYWORDS: RP-HPLC, Amoxicillin, Dicloxacillin, Cloxacillin

QSAR Studies on Polymerase Acid Endonuclease Inhibitor as Anti-Influenza Agents

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ABSTRACT

The aim of the present study was to develop significant and validated QSAR models for polymerase acid endonuclease inhibitors to predict their anti-influenza activity.Various2D and 3D QSAR models were developed and validated by using multiple linear regression, partial least square regression and kNN-MFA methods. The significant, validated and predictive QSAR models were obtained with $q^2 = 0.762$ and $pred\_r^2 = 0.711$ for 2D QSAR, and $q^2 = 0.930$ and $pred\_r^2 = 0.644$ for 3D QSAR. Alignment independent descriptor T_O_O_3 and electro-topological state indices descriptor SsssNE-index were positively contributed to polymerase acid endonuclease inhibitory activity. The 3D QSAR study revealed that steric descriptors were negatively contributed to polymerase acid endonuclease inhibitory activity. Study results could be used as platform for design of better anti-influenza leads.

KEYWORDS*:* Quantitative Structure Activity Relationship; polymerase; endonuclease; anti-influenza.

Designed, Conventional and Microwave Assisted Synthesis of Hybridized Coumarin Bearing Thiazole Analogs as Antimicrobial Agents

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ABSTRACT

In the present investigation, a series of 10 coumarin moieties containing substituted 4-phenyl -1, 3-thiazole has been designed, docked and synthesized by conventional and microwave techniques. The titled compounds were screened for their preliminary antimicrobial activity against Gram positive and negative bacterial starins as well as fungal strains by the determination of zone of inhibition and minimum inhibitory concentration (MIC) by serial dilution method as well as against *Mycobacterium tuberculosis H37Rv* strain. Among the synthesized compounds 7b, 7c, 7g, 7i and 7j were displayed equipotent zone of inhibition (18 mm) activity against *E.coli* when compared to standard drug Ciprofloxacin at 5μg/disc. Compounds 7i and 7j were demonstrated significant activity against *K.pneumoniae* with zone of inhibition of 100% when compared to standard. Compounds 7b, 7c and 7j showed appreciable antitubercular activity against *Mycobacterium tuberculosis* with MIC of 6.25μM/mL. The docking study reveals that the high affinity of titled compounds 7b, 7c and 7j within the binding pocket of shikimate kinase strongly enhances the determined activities of these derivatives as potent antimicrobial agents.

KEYWORDS: Antimicrobial; Antimycobacterial; Shikimate kinase; Coumarin; Thiazole