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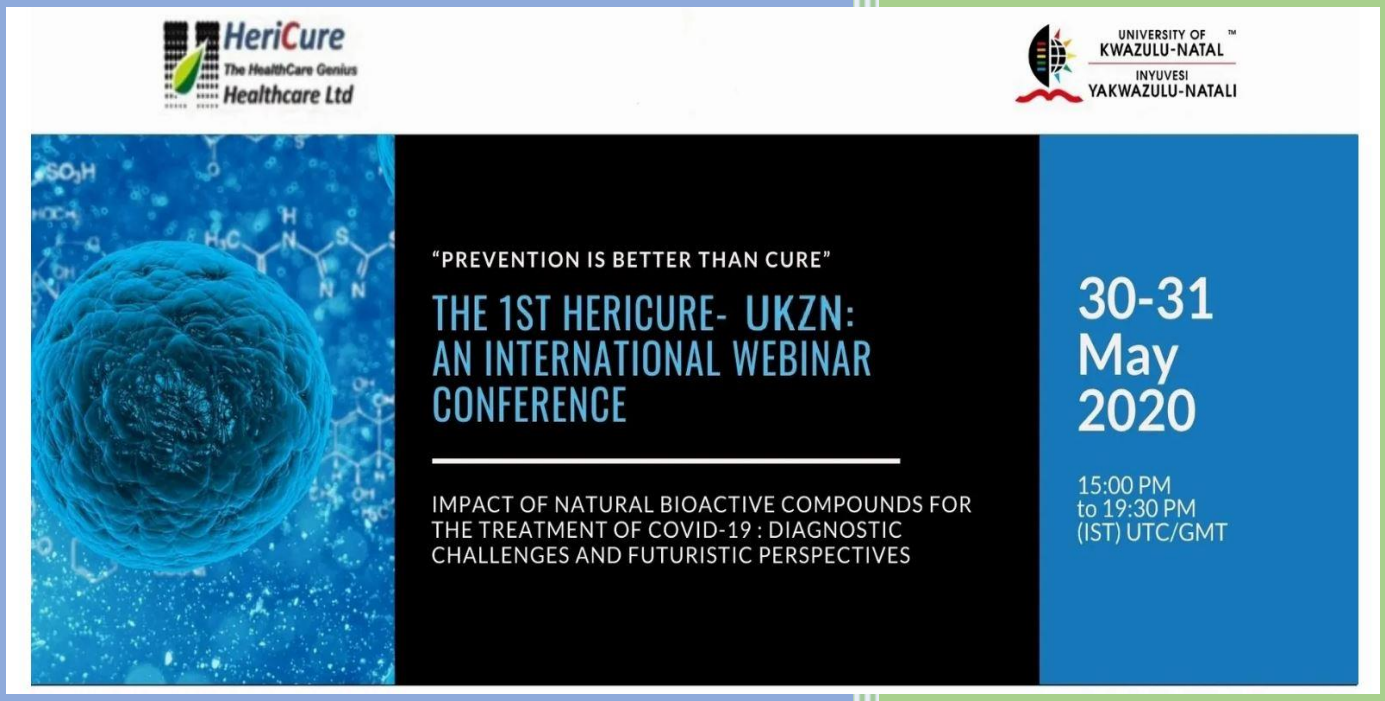

"Prevention is better than cure"

The 1st HeriCure-V-Ukzn: An International Webinar Conference

On

Impact of Natural Bioactive compounds for the treatment of COVID-19: Diagnostic Challenges and Futuristic Perspectives

Organised by

*H*ericure HealthCare Ltd. Pune, India

Collaboration with Valyn Healthcare & University of KwaZulu-Natal, Durban, South Africa

Date: 30th to 31st May, 2020

Time: 14:30 to 19:30 (IST) UTC/GMT

e- mail: **hvggconference2020@gmail.com**

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Message

"Believe to get an Achievement comes with trustworthy Attempts" and "The 1st HeriCure-V-UKZN: An International Webinar Conference on Impact of Natural Bioactive compounds for the treatment of Covid-19: Diagnostic Challenges and Futuristic Perspectives" have held during the pandemic and included accomplished speakers, academicians, researchers, industrialists and postgraduate students from across the world.

This forum discussed the latest trends to deal with the pandemic. This pandemic taught mankind several lessons, viz., to be together, support each other and compassion. Many ideas were shared on improving our immunity and how to care for our environment. Globally, natural products have been acknowledged since ancient times via Ayurveda as a vital source of active ingredients in the treatment of diseases. Many of these extracts have been used both as prophylactic and therapeutic agents.

This conference is dedicated to natural products drug discovery that plays an important role to develop the scientific evidence of these natural resources. We believe that this conference will help all of us to come to draw a scientific conclusion which can be sustained on the paradigm of time. The philosophy behind organizing this conference is to redefine the Ayurveda, natural and environmental products so that it can be fruitful to all beings.

"I wish all the best to all presenters and participants, let's make World great again"

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ABSTRACTS

IL-1:

Role of the Academia in Drug Discovery

Fernando Albericio,[1,2] Beatriz G. de la Torre[3]

[1]Peptide Science Laboratory, School of Chemistry and Physics, University of KwaZulu-Natal, Durban 4001, South Africa; [2]CIBER-BBN, Networking Centre on Bioengineering, Biomaterials and Nanomedicine, Department of Organic Chemistry, University of Barcelona, 08028 Barcelona, Spain; [3]KwaZulu-Natal Research Innovation and Sequencing Platform (KRISP), School of Laboratory Medicine and Medical Sciences, College of Health Sciences, University of KwaZulu-Natal, Durban 4041, South Africa

albericio@ukzn.ac.za

The pharmaceutical industry is perhaps one of the most intriguing sectors of industry. First and foremost, it is devoted to the most vital need of mankind; namely, health. Furthermore, it ranks first for total R&D investment, it is one of the few sectors still growing in the current economic climate and five pharmaceutical companies occupy prominent positions in the world's top ten companies in terms of total R&D investment. However, this sector is launching fewer products into the market every year. During the last ten years, the Food and Drug Administration (FDA) is approving an average of less than 40 new drugs (chemical entities and biologics) yearly. Only one of 10.000 compounds that are studied in preclinical phases uses to reach the market. The journey from preclinical to market takes an average of 15 years and has a cost of approximately of a billion of $ USA.

For many years, the society has been just a spectator of this process, but, after the COVID-19, this will not be any more possible. Society is demanding a cure now and will not understand years and years of research and just words.

In this context, does the Academy have something to say? Can the Academy play a relevant role in it? Natural products and/or indigenous medicine are tools for which the Academy can participate in increasing and maintaining the wellbeing of all of us? Should be the drug business controlled by the Western countries and Japan?

Keywords: COVID-19, drug market, traditional and ancestral medicine

IL-2:

Peptide-based Subunit Vaccine, an alternative against Covid-19?

Beatriz G. de la Torre[1], Fernando Albericio[2]

[1]KwaZulu-Natal Research Innovation and Sequencing Platform (KRISP), School of Laboratory Medicine and Medical Sciences, College of Health Sciences, University of KwaZulu-Natal

[2]School of Chemistry &Physics College Agricultural, Engineering &Sciences, University of KwaZulu-Natal

Corresponding Author mail ID: garciadelatorreb@ukzn.ac.za

The COVID-19 pandemic caused by the SARS-CoV-2 virus is affecting wide world. It is devastating in number of infections and deaths but also in the aftermath that they leave on those affected. It is self-evident to say that a vaccine is urgently needed but, will be the earlier vaccine the best we can have? The first vaccine will be a short-term solution, one that probably will not confer the highest degree of immunity, it will be like putting a patch on a flat tire. The rational thing would be to work in the search for an effective vaccine, with a high degree of protection and mainly, easy to obtain in large quantities to meet demand and at a reasonable price. Peptide-based vaccines can be an encouraging solution, they lack the risk of attenuated virus-based vaccines and the unwanted effects of complete protein-based vaccines. The challenge is to screen the virus proteins for short sequences (epitopes) that are capable of developing the best immune response. In this presentation, we will discuss alternatives for efficiently synthesizing peptide-based vaccines.

Keywords: (immune response, peptide-vaccines, viral disease)

IL-3:

Repositioning of active phytochemicals against COVID-19: An in silico approach

Vaishali Chandel[1], Sibi Raj[1], Brijesh Rathi[2], **Dhruv Kumar[1,*]**

[1]Amity Institute of Molecular Medicine & Stem Cell Research (AIMMSCR), Amity University Uttar Pradesh, Sec-125, Noida-201313, India.
[2]Laboratory for Translational Chemistry and Drug Discovery, Department of Chemistry, Hansraj College University of Delhi, Delhi-110007 India
***Presenting Author/Corresponding Author:** Amity Institute of Molecular Medicine & Stem Cell Research (AIMMSCR), Amity University Uttar Pradesh, Sec-125, Noida-201313, India.

Email: dhruvbhu@gmail.com, dkumar13@amity.edu

The recent outbreak of novel coronavirus disease, COVID-19 has created a threat to human population across the world. The unavailability of specific therapeutics and vaccines, demands the sincere efforts in this direction. Main Proteases of this novel Coronavirus (SARS-CoV-2) play critical role during the disease propagation, and hence represents a crucial target for the drug discovery. Herein, we have applied a bioinformatics approach for drug repurposing to identify the possible potent active phytochemicals against SARS-CoV2 Main Proteases. A library of active phytochemicals were screened using PyRx virtual screening tool using Autodock-Vina platform. Docking results were further validated with Molecular Dynamics (MD) study of protein ligand complex. Several active phytochemicals including Rhein (-8.1 kcal/mol), Withanolide D (-7.8 kcal/mol), Withaferin A (-7.7 kcal/mol), Enoxacin (-7.4 kcal/mol), and Aloe-emodin (-7.4 kcal/mol) showed good binding affinity at the active site of SARS-CoV-2 Main Protease with favorable ADME properties. Our findings suggest that these active phytochemicals can be used as potential inhibitors against COVID-19 Main Protease. However, further investigation and validation of these inhibitors against SARS-CoV-2 are needed to claim their candidacy for clinical trials.

Key words: Novel Coronavirus, COVID-19, Protease, Molecular Docking, Drug Repurposing

IL-4:

Life with the COVID-19 Pandemic: Health perspective

Prittesh Patel

C.G. Bhakta Institute of Biotechnology, Uka Tarsadia University, Bardoli-394 350, Gujarat, India

Email: pritesh.patel@utu.ac.in

Lockdown and stringent restrictions will be more dangerous than Covid 19. Removal of restrictions is need of nation wealth and human life but transition from lockdown to again working environment should be gradual to restrict the fast spread of Covid19. By taking into account cuurent situation we expect that effective vaccine for Covid 19 will not come into the market before 2021. Indeed we have to rely on our own health till vaccine become available. It's a challenge for government and scientific community to make avail effective treatment to save human life but till that time we have to save our as well as others life. So the only way to live with Covid 19 is keep boosting our immunity and maintain good mental and physical health.

Key Words: Corona, Covid 19, Disease, Health. Pandemic, Vaccine

IL-5:

In-Silico Studies Informs Nature is a Choice of Source for Drug Discovery to Covid-19

Dr. Satyanarayana Battula

Department of Chemistry, Uka Tarsadia University, Bardoli, Surat, Gujarat-394350.

satyamssd@gmail.com, +91-9640785380

A novel acute respiratory infection (SARS-CoV-2/ Covid-19) changed the global perspective of healthcare in December 2019. Since the outbreak of the disease caused by the SARS-CoV-2 virus, this disease has been spread rapidly around the world. To control this potential threat of a pandemic, scientists worldwide started racing to reveal this new virus genomic structure and the pathophysiology of this disease to discover effective and prophylactic therapeutic agents and vaccines. A well-known fact is that, natural products play a decisive roles in the drug development, since time immemorial, traditional system of healing throughout the globe has been mainly based on natural products and obviously, it provides a simple solution for any intricate problem created in it. Few of the recent molecular docking/ *in-silico* studies emphasized that, garlic essential oils, withanolides from Ashwagandha, caffeic acid phenethyl ester form propolis, the compounds procured from fruits/ leaves of Anthocephalus Cadamba plant and few of the essential oils [(E,E)-α-farnesene, (E)-β-farnesene, and (E,E)-farnesol inhibit the functional activities of SARS-CoV-2 protease (an essential protein for virus survival), RNA-dependent RNA polymerase, endoribonucleoase, spike protein (SARS-CoV-2 rS), and *h*ACE2. essential oil components may act synergistically, essential oils may potentiate other antiviral agents, or they may provide some relief of COVID-19 symptoms. These *in-silico* studies generally save time and cost required for designing/development, and obviously give direction to the further development.

IL-6:

Prevention and Management of COVID-19 through Yoga and Natural therapies

Dr. Ragavendrasamy Balakrishnan BNYS., PhD
Assistant Medical Officer,
Yoga and Naturopathy Lifestyle Clinic, Government Hospital, Udumalpet, India
ragavendrasamy.b@outlook.com

It is already evident that the novel corona virus pandemic has created immense detrimental effects to human life and poses a huge challenge in prevention, management of the disease and life after recovery. While the healthcare delivery systems are overwhelmed, a social intervention that empowers an individual is the need of the hour. Preventive measures like minimizing the exposure, maintaining social distancing and curbs on travel have all reduced the extent of spread.

Treatments that target early steps of the COVID19 infection are meant to essentially aid the host immune response to fight the virus and prevent the immune system to move to a state of hyperactivity. Such early intervention is expected to mitigate the cytokine storm, which is responsible for the end-organ damage.

Considering the patho-physiology of the COVID19, defense mechanisms in the body can be boosted through right lifestyle, yoga and nutrition. Yoga, an ancient Indian science and way of life has demonstrated beneficial effects in regulating immunity, cardio-pulmonary functions, and mental health, alleviate inflammation and may safely be administered to the high risk population with pre-existing comorbidities like hypertension, diabetes and immune compromised patients. Yoga practices may safely be integrated in the prevention and management of the COVID19.

Lifestyle changes for prevention include proper hydration, appropriate physical activity, right nutrition accompanied with fasting once a week, mindfulness for better resilience, and quality sleep. Symptom specific treatments like salt water gargling, decoction of common Indian spices & herbs, sunlight exposure and steam inhalation may be integrated into conventional medical management.

IL-7:

Understanding the Transcriptome of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)

R Chandramouli Reddy[1], Manish Kumar[1], Shrikant S Gadad[2], Ramesh Choudhari[2*]

Email address: rams.choudhari@gmail.com

1. Shri B. M. Patil Medical College, Hospital and Research Centre, BLDE (Deemed to be University), Vijayapura, 586103, Karnataka, India
2. Center of Emphasis in Cancer, Paul L. Foster School of Medicine, Department of Molecular and Translation Medicine, Texas Tech University Health Sciences Center, El Paso, TX 79905, United States

SARS-CoV-2, a beta coronavirus is a causative agent for the COVID-19 pandemic. As of today, SARS-Cov-2 infected 5.4 million and killed over 340,000 people around the world. Currently, no country has developed a standard treatment for respiratory disease caused by COVID-19. Collective studies haven't yet established clinical efficacy of antiviral drug nor the vaccination for its prevention. So far, the therapeutic strategy to deal with the disease are only supportive, and prevention amid at reducing transmission in the community. Early trials using interleukin-6 (IL-6) receptor inhibitor to reduce lung inflammation, convalescent plasma and hyperimmune globulin pooled for antibody rich blood product from the recovered COVID-19 patients hasn't shown any significant progress in controlling the disease. Interestingly, recent study on SARS-CoV-2 transcriptome and epi-transcriptome showed highly complex discontinuous transcription events that encode unknown ORFs with deletion, fusion or frameshift. Further, investigating RNA modifications, its regulation and the functional significance of unknown transcripts will give a new dimension in understanding the pathogenicity of SARS-CoV-2.

IL-8:

Cannabinoids – a potential silver arrow in the treatment of COVID-19?

Sooraj Bajnath

Catalysis and Peptide Research Unit, Discipline of Pharmaceutical Sciences,
College of Health Sciences, University of KwaZulu-Natal, Durban,(South Africa)
e-mail: baijnath.sooraj@gmail.com

The *Cannabaceae* family, is made up of 11 genera consisting of approximately 170 individual species including *Cannabis* (hemp and marijuana) and *Humulus* (hops), amongst others. Throughout history, dating back to ancient Indian and Chinese times these plants have this family have played an essential in human life having both practical and medicinal uses. The two main members of the *Cannabis* species are *Cannabis sativa and Cannabis indica,* phytochemicals isolated from these plants are upwardsof 400 compounds, of that at least 60 are cannabinoids which mediate its wide range of claimed medicinal effects.In the midst of the global COVID-19 pandemic it is becoming increasingly important to find innovative and effective treatments for this threat to human life. Recent in vitro reports have shown the potential efficacy of cannabinoids in the treatment of COVID-19. This talk will focus on these recent findings providing future perspectives into the use of cannabinoids in the treatment of this virus and other health-related conditions.

IL-9:

Impacts of Corona on South African Economy

Prof. Dev Tewari

Department of Economics, University of Zululand

email: tewarid@unizulu.ac.za

The declaration of lockdown on 27 March 2020 brought halt to many economic activities in the country, specially to tourists and hospitality industry. The full economic impact is wide and cannot be fully estimated at this stage. Unlike many other countries, the informal sector in the country did not play cushioning role and shrank by a large magnitude. As a result large scale unemployment and hunger intensified in the low income population. The gross domestic product took a nosedive, declining by more than 6 percent as estimated by various national and international agencies. Other estimates suggest a contraction of 8 percent. The damage is going to be lot more than what is currently being assessed. Lockdown resulted in many business failures and many losing their jobs. The decline in maritime activity is estimated to be in the range of 5 to 25 percent. The serious reduction in the global trade has hit the country very badly. Unemployment figures climbed steeply, rising from 30 to 50mpercent and some 3 million people lost jobs during the 4 month period. In brief, it will take long time to come out of this covid-19 induced economic depression.

IL-10:

Anti Viral Properties of Bioactive Compounds From Medicinal Plants

Vishal Raina,

Sher-e-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu & Kashmir) India. vishalrainajammu@gmail.com

Plants once a primary source of the medicines in the world, still continue to provide mankind with new remedies. The folk medicines of almost all the countries of the world abound in medicinal plants. India has a rich history of medicinal plants and there usage. Indias geographical diversity is natural habitat for different types of vegetation.Ayurvedas'SUSHRUTA SAMHITA' :600 B.C.ancient Sanskrit text on medicine and surgery in India mentions use of 395 medicinal plants.

Plants having antiviral properties –

Ocimum sanctum, Local name:Tulsi Active constituents: Phenolic compounds (antioxidants) cirsilineol, circimaritin, isothymusin, apigenin and rosameric acid, and eugeno. The leaves have 0.7% volatile oil comprising about 71% eugenol and 20% methyl eugenol. The oil also contains carvacrol and sesquiterpine hydrocarbon caryophyllene. Flavonoids orientin and andviceninMedicinalUses: Used for treatment of bronchitis, bronchial asthma, malaria, diarrhea, dysentery, skin diseases, .

CinnamomumverumLocal name:Dalchini Active constituents: Cinnamon bark oil includes cinnamaldehyde (75%), cinnamyl acetate (5%), caryophyllene (3.3%), linalool (2.4%), and eugenol (2.2%). MedicinalUses: Used for indigestion (dyspepsia), diarrhea, diabetes, obesity, and other conditions.

Piper nigrumLocal name : Kali Mirch Active constituents: Phenolics, flavonoids, alkaloids, amides and steroids, lignans, neolignans, terpenes, chalcones, etc. MedicinalUses: Aid in digestion, improve appetite, treat coughs, colds, breathing and heart problems.

ZingiberofficinaleLocal name: Shunthi (Dry Ginger) Active constituents: Phenolic and terpene compounds The phenolic compounds in ginger are mainly gingerols, shogaols, and paradols. In fresh ginger, gingerols are the major polyphenols, such as 6-gingerol, 8-gingerol, and 10-gingerol. MedicinalUses: Antiarthritis, anti-inflammatory, antidiabetic, antibacterial, antifungal, anticancer, etc

VitisvineferaLocal name :Afganikishmish Active constituents: Phenolic compounds, flavonoids and stilbenes. Medicinal Uses: skin protection, antioxidant, antibacterial, anticancer, antiinflammatory and antidiabetic activities, as well as hepatoprotective, cardioprotective and neuroprotective effects.

Usage of these wonder herbs in present times: Take Tulsi leaves (Ocimum sanctum):10 leaves, Dalchini (Cinnamomumverum): 1 gm, Kali Mirch (Piper nigrum): 3 in no., Shunthi (Dry Ginger): ¼ th inch piece, Munakka (Vitisvinefera): 3 in no.Boil these ingredients in 250 ml of water till it tremains half and take this decoction in luke warm twice daily after straining. The decoction is to be taken for 14 days.These plants are used for promotion of health, by improving tissues; by supporting better immune resistance and are having anti viral properties.

IL-11:

Computational Analysis of medicinal fungi as an Inhibitor of Structural and Non-Structural Protein of Coronavirus (2019–nCoV)

Kamlesh Choure*, Arpit Srivastava, Shreyansh Parsai, Saurabh Singh Gour, Vivek Agnihotri

Department of Biotechnology, AKS University, Satna (M.P.) 485001, India

Corresponding author E-mail: kamleshchoure@aksuniversity.com

Novel Coronavirus as epidemic reflected in Wuhan city of China earlier known by 2019 – nCoV and according to W.H.O now named as (COVID-19). In China this virus is resemble as catastrophic for entire human civilization because it distinguished as the reason for a flare-up of respiratory illness. In this study, a fast track Computational Predicational Model (CPM) was generated in which structural and Non-Structural protein's tertiary structures were predicted. The sequence taken for computational analysis are AXP07352.1, AXP07351.1, AXP07350.1, AYM48035.1 and QHD43418.1. Predicted 3D structure of protein were validated by Ramachandran Plot. Molecular Docking was performed on the molecular shape representation, surface patch making and atom contact energy calculation. With this, on the basis of Drug Likeness score Remdesivir was identified not as stable drug as compared to adenosine analog from a medicinal mushroom for active anti-viral against Coronavirus. The objective stands to understand that either adenosine analog had potential to be act as inhibitor against viral proteins of COVID-19, and on the basis of virtual screening and thus predictive bioactive properties of adenosine analog had made it an inhibitor and may restrict the viral infusion in human as host.

IL-12:

Research Progress in the matter of drug/ vaccine development for COVID-19

Anil Kumar

School of Biotechnology, Devi Ahilya University, Khandwa Rd., Indore-452001, India
E. mail: ak_sbt@yahoo.com

There was SARS (Severe acute respiratory syndrome) epidemic in 2003-04. For this, corona virus was responsible. Corona virus is a retro-virus (RNA virus; having RNA as its genetic material surrounded by viral protein coat).

In January, 2020, researchers from China published the first genomic sequence of this virus. The sequence is available in GenBank (https://www.ncbi.nlm.nih.gov/genbank/2019-ncov-seqs/) . By Feb. 05, 2020, various researchers sequenced mRNA of 2019-nCoV; and 44 GenBank sequences and 1 RefSeq sequence was available. It has been shown that this sequence is little different from 2003 SARS virus sequence (around 96% sequence is similar). Scientists have also designed primers and probes which can be used for detecting it.

For detecting corona virus, mRNA is isolated from the nasal fluid and fluid in the throat (since this virus infects lungs through throat. When person inhales air through nose, it reaches up to lungs). mRNA is converted into cDNA with the help of reverse transcriptase enzyme and then cDNA is amplified to get more copies of the molecule using Taq polymerase enzyme and unique primers designed specifically for this 2019-nCov, a technique called as PCR (polymerase chain reaction, a very powerful molecular biology technique) and presence of amplicon is detected using electrophoresis). Simultaneously, one house keeping gene of the host (human) is also amplified to confirm that sample has been collected properly).

Now it has been determined that this corona virus infects human cells through human angiotensin converting enzyme-2 (ACE-2) which is a cellular receptor. There is a spike glycoprotein in the viral protein coat which is responsible for attacking human cells and invading in those cells. Now with the help of Cryo-electron microscopy, it has been shown that this glycoprotein has three receptor binding domains (RBDs) and binding of this Covid-2 has differences compared to binding of SARS virus.

Moderna Company in collaboration of National Institute of Allergy and Infectious Diseases (NIAID) has developed mRNA vaccine for this virus. The vaccine is being tested by NIH as per rules. If found okay, then company will apply for approval from FDA before its commercialization.

Gilead Company has claimed that a drug ‘Remdesivir’ is effective for this virus. This is being tested in China as well as USA. Jinyintan Hospital, Wuhan, China is doing Phase III trial of Remdesivir. They are using a combination of Remdesivir and Chloroquine. Other researches will also be discussed during the talk.

Keywords: COVID-19, Spike glycoprotein, RTPCR, mRNA vaccine, Remdesivir

IL-13:

Pandemic and Sanitization: Rethink On The Link Between Transmission And Prevention

Dr. Humeera Mulla,

Aditya Birla Memorial Hospital, Pune, (India)

e-mail: humeeramulla@gmail.com

In the wake of the Coronavirus disease, COVID-19, we are working to protect each other and our communities. Key to keeping healthy is having access to basic sanitation and hygiene. Yet globally, 2 billion people live without access to basic sanitation, 3 billion lack basic handwashing facilities at home (WHO).

People in least developed countries, people most left behind and least able respond, are impacted most by unsafe sanitation or absence of facilities. In this context we consider the links between transmission of diseases like COVID-19 and sanitation and hygiene services at work and home.

It is essential for water and sanitation practitioners and providers, and health-care providers to know more about water, sanitation and hygiene (WASH) risks and practice for the prevention of the pandemic.

Thus this presentation provides important information concerning guidance on prevention and techniques for sanitaization for safety during and after the pandemic.

IL-14:

Covid-19, Immunity & Polyphenols- Historical View

[1]Dr. Hema Kulkarni, [2]**Dr. Utkarsh Ghate*,**

[1]Govt. College, Jamgao-R, Durg, Chhattisgarh, India
[2]Gram Mooligai (Village herbs) Co. ltd., Durg, Chhattisgarh, India
e-mail: ughaate@gmail.com

Medicinal plants have protected human health for millennia and continue to be important even today as shown by the meteoric rise of Patanjali Ayurveda co. in india, outshining major pharma companies, including multinational ones.

Vaccines have changed the epidemic history of the world in 20th century and enabled rapid population growth by controlling once dreaded diseases such as cholera, typhoid, hepatitis A & B etc. that decimated human population greatly recurrently in the history before.

However, vaccines still elude some fearsome diseases even today after decades of huge investment and research such as Malaria and AIDS. Some other ailments such as Arthritis, an auto-immune disease have no effective or full cure even today and we depend only on non steroidal anti inflammatory drugs (NSAID) that mainly reduce pain but not eradicate the ailment.

Malaria is another disease with no vaccine and quinine from Cinchona tree was its only drug for decades until recently when it lost its efficacy due to the rising resistance by the virus *Plasmodium*. However, even current medicine recently invented is also from another plant- *Artemissia annua*, a Chinese herb won Nobel prize in medicine, 2015 to invent its ingredient "Artemissin" based drug.

However, it is well know that Malaria is prevalent in the forested, hilly, poor tracts with hungry, malnourished, tribal communities. Lack of fruits, vegetables, dairy and consequently vitamin A, C & D and minerals like Zinc, Selenium leads to poor immunity. Hence, infection and fatality is high. However, Malaria affects much less in states like Kerala due to the wealth and consequent high development index, ample nutrition and sound health.

Thus, proper diet and nutrition, micro-nutrients may help improve the immunity and reduce the COVID-19 impact. Alcohol, tobacco, meat, refined carbs and palm oil prevalent globally is known to reduce immunity and cause inflammation, helping the heavy COVID-19 impact in Europe and U. S. A. With about 5,000 patients per million population Compared to other nations especially India, known to have balanced traditional diet with below 100 cases per million people i.e. 2% of the former.

Some bioactives abundantly found in the routine, traditional Indian diet that may be potential cure for COVID-19 when developed further into drug vide research mostly abroad as follows, like China is surging ahead in developing drug from Theoflavin- a flavanoid (polyphenol subtype) from Tea.

- Quercetin- from Onion, Coriander etc., found useful to contain cancer.
- Curcumin- from Turmeric, also very effective in cancer cure.
- Catechin- flavanoid from *Acacia catechue* tree, drunk frequently as bark decoction in Kerala.

Baicalein- from roots of Trumpet tree (*Oroxylum indicum*), in the Dashmula (ten roots) group

D1:

A Short Review: Phytochemical and Pharmacological Studies of *Viola Odorata* Herb and a Future for the Treatment of COVID-19 Infection

Saurabh Singh, **Aman Jain*,** Giriraj Tailor and Deepshikha Verma

M. L.V. Government College, Bhilwara-311001, Rajasthan, India

Viola odorata Linn.(Family-Violaceae) is a perennial herb (10 cm), mainly distributed in western Himalayan, Kashmir, Punjab region in India. Its local name is Sweet Violet (deep violet flowers) and well known in the Ayurvedic and Unani medicinal fields. Sweet violet has longe history of folk use, especially in the treatments of whooping cough, asthma, colds, pneumonia, dry mouth and bronchitis. Viola Odorata deep blue flowers and its seeds give essential oil and it is used in aromatherapy in the treatments of bronchial complaints, exhaustion and skin complaints. Nowadays, whole world are suffering from a RNA virus, which name is COVID-19 was reported in Wuhan, China in December, 2019.WHO gives its name 2019-nCOV, later renamed Sever Acute Respiratory Syndrome-Cov-2(SARS-Cov-2) by the International Committee on Taxonomy of Viruses. Its major symptoms are Fever, Sore throat, pneumonia and bronchitis. After the deep studies of Viola Odorata as pharmacologically, we are hopeful that it must have advantage for us for the treatment of COVID-19.

Keywords: Viola odarata, Ayurvedic view, phytochemical view, anti-bronchitis

D2:

COVID 19: Therapeutics and Current status and future perspectives

Dr. Anindita De
College of Pharmacy, JSSATE, Noida
Email: aninditade001@gmail.com

Coronavirus disease 2019 is one of pandemic infectious disorder by the symptom of severe acute respiratory syndrome due to coronavirus 2 (SARS- CoV-2). 80% of the infections are mild and can recover in the self-isolation treatment at home. 13.8 % are severed, developing a severe condition of pneumonia and shortness of the breath. The 4.7 % comes under the critical and can include respiratory failure, septic shock and multi-organ failure. The most unique feature of this virus is the proteins called spikes protruding from their surface. The spike on the surface of the virion is similar to the solar corona and the virus gets its name from coronavirus. These spike fusion proteins are responsible for the attachment to the host receptor. The spreading of the infection via the respiratory droplets produced during coughing and sneezing. The onset of the symptoms is generally in between 2-14 days with an average of 5 days. The diagnosis of the SARS-COVs-2 is based on the two approaches. The first one is the whole genome sequencing and the second one is the real-time reverse transcription polymerization chain reaction (rRT-PCR). Till date no anti-viral therapeutics, that specifically target human coronaviruses, so treatments are only supportive. The repositioning of the drugs is in the prime for the management of the COVs in the current scenario. Few molecules are in the trail for this deadly disease. Several clinical and the preclinical trials are on the way to fight against the virus with the supervision of WHO.

Keyword: SARS-COVs-2, Proteins, clinical and preclinical trials, rRT-PCR, drug repositioning

D3:

A review of the immunomodulatory potential of natural compounds against COVID19 coronavirus

Radha MJ[a], Vandana BD[b]

[a]Ramaiah College of Arts, Science and Commerce, MSRIT Post, Mathikere, Bengaluru-560054

[b]Kempegowda Institute of Medical Sciences and Research Centre, Banashankari 2nd Stage, Bengaluru-560070

Corresponding author email ID: radha_varvan@yahoo.co.in

Viral infections have posed a great threat to mankind since the global outbreak of influenza disease which occurred a century ago. Due to the ability of the Coronavirus to breach the natural barriers of the respiratory tract and spread from one person to another, it has caused the recent worldwide pandemic. It is critical to strengthen one's immunity and build defence against the virus at this juncture. This review emphasizes the natural compounds which are required to act as immunoregulators and immunomodulators to fight against COVID-19. The SARS-CoV-2 gain entry through angiotensin-converting enzyme-2 receptors in mice, the gene expression of these receptors can be altered using cucurmin while quercitin modulates the nucleotide-binding domain-like receptor protein-3 inflammasome to release proinflammatory cytokines. During respiratory syncytial viral infection, red ginseng extract (RGE) induce T-helper1 and T-helper2 immune responses thereby protecting the host from severe pulmonary inflammation and decrease viral replication. RGE also increases the interferon-γ(IFN-γ) production in bronchoalveolar lavage cells observed in mice. The citrus flavanone in hesperidin increases the production of interferon-γ and alters lymphocyte. The polysaccharide extracted from Angelica sinensis roots elevated the proliferation of spleen cells, macrophages and production of IL-2, IFN-γ and T cells. The probiotic bacterium, Lactobacillus gasseri (SBT2055) induces IgA synthesis and their population in Peyer's patches and in lamina propria of the small intestine(mice) which has a key role in host defence against mucosally transmitted pathogens. Further, the immunomodulatory role of melatonin in innate immune response generates cytokines, monocytes, macrophages, granulocytes, mast cells and lymphocytes. It is of paramount concern to design therapeutic strategies for COVID-19 infection with a synergistic combination of natural products and conventional therapies.

Keywords: Coronavirus, Cytokines, Interferon, Immunity, Immunomodulatory effect, Lymphocytes, Phytoextract, Probiotic

D4:

Natural flora and fauna - to strengthen immune response to encounter infectious disease

Prashanthi Rajaram and Rashmi Nagesh

M S Ramaiah College of Arts Science and Commerce, Karnataka, Bangalore -54, India

Email id: prashanthibt10@gmail.com, rashmi.nagesh1689@gmail.com

Presently, the world is experiencing a global annoyance of Covid 19 which is extremely contagious and pathogenic viral infection caused by severe acute respiratory syndrome coronavirus 2. As of 25th March 2020, 5,502,590 confirmed corona cases have been reported with a death rate of 346,761 worldwide. The spread of Covid-19 is drastic and currently there are no anti-viral drugs or treatment strategy for the cure of this pandemic disease. Recently, remdesivir in combination with chloroquine or interferon β blocked the viral replication. However, at this phase world needs the aid of organic medicinal compounds for drug development to combat emergent mutants of corona virus by inhibiting viral replication or by interacting with key viral proteins associated with virulence. In addition, chief constituents of some common dietary supplements with anti-corona virus activity which can be exploited to improve immunity. Earlier studies have reported medicinal plants like Curcuma longa and Allium sativum mediates antiviral activity through diverse mechanism either by direct interference of viral replication machinery or suppression of essential cellular signaling pathways. Or by interacting with thiol groups of various critical enzymes for microorganism surveillance. Likewise, cobra venom renders absolute loss of virulence. Herbal extracts could be referred to as 'functional foods' or 'nutraceuticals': a term rises from both nutrional and pharmaceutical point of view. The strength of natural compounds in par conventional allopathic medicine is their side effects which hinder the effectiveness of drugs. Thereby, it is a current challenge for researchers to design new therapeutic modalities by utilizing natural and highly efficient resource and are cost effective.

Keywords: COVID-19, Anti-viral, Immunity, Natural compounds, Viral replication

D5:

The use of Nicotinamide for COVID-19 lung injury

Dr P Yuvaraj, Scientist, CSIR-NEIST

North-East Institute of Science &Thechnology(NEIST) (Council of Scientific and Industrial Research)

Imphal, Manipur-795004, India; Fax: 0385-2414481; Email:yuvaraj.orgchem@gmail.com: pyuvraj@neist.res.in

Governments around the world are desperately trying to contain and combat the Covid-19 by finding cure for this pandemic. Despite all those efforts, the world is hoping for the cure which is far from realistic. The diagnostic tests and treatments are advancing. However, Covid-19 is known to affect primarily the respiratory system that are often required to be put on ventilator when the patient is critically ill at end of the lung fibrosis and subsequently death occurs. As the pandemic wreaks havoc across the globe, infecting more than nearly one million people across the world and around 1300 people in India. Due to unavailability of these ventilators in our country, we are looking for an alternative solution as the demand is surging. In this context, I would like to suggest a solution for this crisis with a simple and available drug in the market.

Background: In a healthy lung, oxygen within these air sacs enters through to small blood vessels. These tiny vessels deliver the oxygen to our red blood cells. When the virus is getting multiplied after entering our lung cells, thus it damages both the wall and lining cells of the alveolus and the capillaries. The damage to capillaries also causes them to leak plasma proteins that add to the wall's thickness. As the well is becoming thicker, it is very hard to transport the oxygen, the more the patient feels of short of breath. Thus, the patient starts moving towards severe illness and inevitably leads to death.

Possible Solution: Amid this pandemic, we found some solutions in the literature. Since nicotinamide is a compound of vitamin B complex and this directly inhibits downstream pathways activated by Nicotinamide phosphoribosyl transferase and is protective in other models of acute lung injury. Thus, the protective effects of nicotinamide on the ischaemia/reperfusion lung injury may be a potential therapeutic or preventive regimen for clinical application in lung transplantation or other conditions of lung ischaemia and reperfusion. Particularly, Bleomycin-induced pulmonary fibrosis is a widely used animal model for lung injury and fibrosis. After single dose instillation of intratracheal bleomycin, the fibrotic responses were studied by biochemical measurement of collagen deposition and analysis of pathological lung changes in different treatment groups. The results of this study showed that administrated agents in different doses, had satisfactorily healing effects on fibrosis process, ranging from good to moderate, through significant decreasing in lung collagen content ($p<0.05$). Hence, we can conclude that nicotinamide exerted a protective effect on the acute lung injury caused by ischaemia/reperfusion.

In this context, we are suggesting nicotinamide (NAM) can be used for lung fibrosis due to the cause of COVID-19 in the wake of unavailability of ventilators in our country. We hope that with use of nicotinamide, it is believed to heal or form protective layer from the lung injury and thereby we can bring down the mortality rate even in people with underlying heart and lung conditions, diabetes and the elderly.

D6:

Improvising Immunity by Functional Foods: A Review

Arpit Srivastava

AKS University, Department of Biotechnology, Faculty of Life Science and Technology, Satna (M.P.), 485001 – India

Corresponding Author mail: arpit.tech003@gmail.com

Severe Acute Respiratory Syndrome Novel Coronavirus (SARS - nCoV) a global pandemic effecting life of human. The biological mechanism majorly the respiratory tract of human body was severely affected by the virus particle's mechanism because it suppresses the human immunological response by neutralizing the antibodies. Thus, improvising immunity by functional foods becomes a bench mark to understand the mechanism of human body. As several studies suggested that, functional foods play a key role in boosting the immunity because functional foods were known to modulate the immune system. Phagocytic and Natural Killer cells activity enhanced by probiotics and vitamins thus, supporting innate immunity. Another study suggested that in cancer treatment also, functional foods play an important role as Lycopene, a bioactive compound extracted from tomatoes were able to lowering the apoptosis associated proteins in gastric cancer. Edible mushrooms, carbohydrates from cereals and other bioactive compounds like carotene (α and β), β-cryptoxanthin, Fucoxanthin, Lutein, Allicin and various food products like citrus fruits, garlic, ginger were helpful in boosting immunity. The objective of utilizing functional foods means to intake its bioactive compounds in a balanced way so to fulfil the nutritional requirements of body. Concentration of micro macro nutrients in human body defines the actual immunological state of host. So, this content is concluded with remarks that host's immune response with improvisation will work much efficiently with proper uptake of nutrients from functional foods.

Keywords: Coronavirus, Food, Immunity, Nutrients, Probiotics.

D7:

COVID 19 management with future perspectives and strategies

Dr Priyam Singh*

*Deptt of Botany, Govt. College Pipalrawan, Distt. Dewas (MP), India

Virus is the most deadly among all the microorganisms with a dual nature as a nonliving substance and as a living creature with controlling power of host machinery. COVID 19 is announced as a pandemic by WHO. Since the first clinical case of the disease is reported all the nations have driven themselves in finding diagnostic and all the possible treatment protocols. All the natural compounds and its active principles with no side effects are available to activate the immune system, antiviral drugs and pharmaceuticals active components to target virus replication are understudy. Virus with a lipid envelop gave the time in prevention and snatching time for our Scientists and doctors for treatment protocol development and our government in preparing pandemic management but we should develop strategies for COVID 19 and many more deadly diseases to deal with future pandemics. Especially for corona study of lead compounds should be there and for treatment the very ancient method ie. Plasma therapy should be elaborated further by using monoclonal antibodies preparation because source only within 3 weeks Antibodies can be obtained from recovered patient. Besides this lead compounds must be searched from the already obtained active principles from various researches. For the fastest research open data source is a need of the hour as already many of the nations are following. This must also be the future strategies for researches especially on deadly and pandemic diseases like cancer, AIDS, malaria, dengue COVID 19 etc. Awareness campaign is to be driven across the nations to live with and fight against corona as always prevention is better than cure.

Keywords: COVID 19, pandemic, awareness, open data

D8:

Are the Natural Compounds are Effective in Establishing Good Immunity System: A Descriptive Study

Shrutika Nikhade

The natural compounds are the almost compounds which are include in over daily routine. The immunity is the self defending property of our body. The immune system involves many different cells, tissues, & organ, working together to protect the body from foreign bodies, infections & other disease. The immunity cannot be build in a day but we can build a first line of defence against the deadly COVID-19 The chemical constituents and Ayurvedic properties of the immunity boosting drug will be studied by Ayurvedic Text book, literature available on internet, journals. The herbs & spices are well known for their medicinal properties, with over 80 grown in different past of world. A balance diet with the immunity boosting compound help in establishing a good health. This study will

help us to know about the chemical constituents, properties and functioning and role in boosting the immunity.

Keywords: Tissue, Infection, Ayurveda, constituent

D9:

Natural Antiviral Drugs and Compounds

Geetika Pant[1], Ramya Kumari B S[2]

[1]Department of Biotechnology and Genetics, Ramaiah college of arts, science and commerce, Bengaluru, Karnataka-54, [2]Department of chemistry and Biochemistry, Ramaiah college of arts, science and commerce, Bengaluru, Karnataka-54

For correspondence Email: way2geetika@gmail.com; ramyarr24@yahoo.co.in

Nature provides an enormous assortment of compounds to discover and develop drugs for the treatment of various diseases. Recently, COVID-19, a pandemic raised the issue of developing effective antiviral drugs at the earliest to prevent further loss of mankind. The use of therapeutic approaches comes with its own downsides and restrictions. And, hence the production of antiviral drugs under the plant platform against novel coronavirus can be a good solution. Medicinal plant species have known to be an exceptional source of accumulating secondary metabolites, lectins, and many other natural products. Based on a lot of research done in the past, it can be postulated that most plant antiviral agents might apply protective behaviour against the entrance and propagation of viral agents into the host cells. Research has revealed that some specific secondary metabolites like Glycyrrhizin, major component from *Glycyrrhiza glabra* plant root which is composed of Flavonoids, Glycyrrhetinic acid, β-sitosterol and hydroxyl coumarins proved to have anti-SARS Cov activity. Similarly, Baicalin from *Scutellaria* genus contains Flavone glucuronide; Quercetin from *Allium* genus which is rich in organosulfur compounds have shown low toxicity to the cells *in-vitro* and can be best targeted for the treatment. Furthermore, herbal extracts of *Lycoris radiate* containing a natural Lycorine; selective terpenoids and lignoids extracted from plants such as *Juniperus formosana*, *Cryptomeria japonica* and *Chamaecyparis obtuse* showed a significant inhibitory effect on SARS-Cov 3CL protease activity. Some of the natural compounds like lycorine, homoharringtonie, silvestrol, ouabain, tylophorine, 7-methoxycryptopleurine are strong inidicators for further drug development on their own or as a prototype for drug design. Basis on the promising results of the research findings, these natural compounds can be considered as an important and a complementary medicine in the fight against COVID -19 and might as well be a potential for combating emergent mutants of coronavirus.

Keywords: COVID-19, medicinal plants, secondary metabolites, natural compounds

D10:

COVID-19: An overview of lifecycle of coronavirus, diagnosis and control

Sagar Singh Lodhi

Hindustan College of Science and Technology, Mathura

Corona virus disease 2019 (COVID-19) is an ongoing pandemic which is caused by the virus SARS-CoV-2. It is an enveloped positive sense ssRNA virus that is diversely found in bats and humans along with several intermediate hosts. These virus infect respiratory, neurological and hepatic system. This virus enters the body by binding to human ACE2 receptor with the help of spike proteins to infect host cells.

From past two decade the world has seen several epidemic and endemic outbreaks in the forms of Middle East Respiratory Syndrome (MERS) endemic caused by MERS-CoV virus in 2012, Severe Acute Respiratory Syndrome (SARS) epidemic caused by SARS-CoV in 2002, Flu (Swine Flu) caused by H1N1 virus in 2009, and again we see the emergence of another outbreak due to the new virus called SARS-CoV-2. WHO declared COVID-19 as a pandemic on March 11, 2020.

The first few cases were presented as pneumonia of unknown aetiology in the patients in Wuhan, China. These patients were the workers at wholesale animal and seafood market in the city of Wuhan. The number of cases rising continuously at a rapid rate it shows that these viruses pose a potential threat to human health. This review article will give a general information about the coronavirus and its entry followed by the life cycle of the virus inside host cell, symptoms and severity of the disease are also shown. It will also tell about the possible approaches that can be or are being used for the treatment of the disease including the aspect of bioactive compounds from natural as well as synthetic sources.

This abstract will also provide the awareness and knowledge to general people as well as primary and secondary health workers to protect themselves. Furthermore, this focuses on the latest and most up to date information for the effective management, prevention and treatment of the disease worldwide.

Keywords: SARS-CoV-2, SARS-COV, MERS-CoV, Positive sense RNA virus, ACE2, H1N1 Virus.

D11:

Impact of Physiotherapy, Yoga and Nutraceutical good is a resource for the protection and prevention against viral infections including coronavirus

Durgesh Singh[1], Dileep Tiwari[1,2]

[1]Hericure Healthcare Limited, Pune-41057 (India)
[2]Catalysis and Peptide Research Unit, School of Health Sciences, University of KwaZulu-Natal, Westville Campus, Durban-4000, South Africa
dtiwari@hericure.com; tiwarid@ukzn.ac.za

Abstract

High flow nasal oxygen ,Non-invasive ventilation (NIV), Oxygen therapy, Nebulisation, Intubation and mechanical ventilation, deep breathing exercise, spirometry (flowmetry /volumetric), forceful expiratory technique, huffing cuffing ,positioning (prone, sidelyings right and left and upright supine), anulomvilom, kapalbhati etc. Exercises have been proven that effective against covid -19.ventilator induced patients evaluate efficacy of hyperinflation with positioning to clear the secretion and proper oxygenation to the lungs in ventilated patients with positioning. The application of positioning for ventilation of lungs with positioning improve secretion clearance and increased the respiratory mechanics and hyperinflation of lungs. There are some studies on the effect of Physio/ yoga therapy in communicable diseases as well but very limited for acute conditions and almost none for the rapidly spreading infections consequential in pandemics. Basis on the available scientific indications on Physiotherapy yoga in improving respiratory and boosting immune, we performed for prevention of the disease by children, adults, and the elderly. Composed nutrition which can support in maintaining immunity is important for prevention and controlling of viral infections which While data regarding nutrition in coronavirus infection (COVID-19) are not available, To evaluate evidence from previous clinical trials that studied nutrition-based interventions for viral infections. Researchers must have to take the privillage to explore the potential of herbs to reduce such epidemics of environmental threats. **Vitamin C-**The vitamin C is a vital contestant in the defence forces of immunity. Guavas & broccoli Vitamin C rich foods. It helps prevent the common cold. **Vitamin D-**Vitamin D supplements have protective effect against respiratory tract infections and to boost immune response. Mushrooms are good plant source of vitamin D. **Zinc-**Zinc is a vital component to WBC (white blood corpuscles) which fights infections. Zinc deficiency often makes one more susceptible to flu, cold and other viral infections, avocado is an incredibly nutritious & source of zinc. **Elderberry-**Elderberries have antibacterial and antiviral qualities which help fight cold, influenza, H1N1 infection. **Turmeric-**The bright yellow spice, Turmeric, contains a compound called curcumin, which boosts the immune function. **Garlic-**Garlic has powerful anti-inflammatory and antiviral properties which enhances body immunity. It can be used as infallible weapon against Covid 19.

Key words: Nutraceutical, NIV, Vitamins, H1N1, Zinc, Physiotherapy, yoga

D12:

COVID-19 Evolution and Alternative Medicine

Shubhangi Goel[1] & Anjana Goel[2]

[1] King George's Medical University, Lucknow, U.P. INDIA

[2] GLA University, Mathura, U.P. INDIA

The current global health emergency, COVID-19, is not the first time that coronaviruses have posed a threat to human world shrinking our numbers by thousands. Before this SARS-CoV in 2003 and MERS-CoV in 2013 have caused epidemics. Four months in existence, and it has already affected 1,995,983 people and taken over 131,037 lives worldwide, yet we do not have any specific treatment available with us and the management is purely empirical. Looking at the similarities between SARS-CoV and SARS-CoV-2 in origin, genomics, pathogenesis and epidemiology, we can bring the researches done for SARS-CoV in use which can be our guide in finding an effective management strategy against SARS-CoV-2. There are various researches and studies reporting the use and effect of various phytochemical compounds in SARS-CoV treatment.

Already, the thought has been put into action and in-silico screening for various natural plant compounds have been done to find a potential candidate compound. One such example is of curcumin, a secondary metabolite of turmeric, which is found to be effective against COVID-19 protease by molecular docking analysis.

D13:

Diagnostic Challenge of COID -19 and it's Management

Rachna Chaturvedi[1,3], **Dileep Tiwari[1,2]**

[1]Hericure Healthcare Ltd., Pune, 411057 (India)

[2]CPRU, School of Health Science, University of KwaZulu-Natal, Durban (South Africa)

[3]Goverment Motilala Vigyan Mahavidyalaya college, Bhopal (India)

dtiwari@hericure.com; tiwarid@ukzn.ac.za

Corona viruses are a group of associated RNA virus that purpose sickness in mammals and birds. Severe Acute Respiratory Syndrome corona virus 2 (SARS-CoV-2) novel corona virus from the same family as SARS-CoV and Middle East Respiratory Syndrome corona virus, has spread worldwide leading the World Health Organization to declare it as a pandemic in human, these viruses purpose respiratory tract infection that can range from slight to lethal. The disorder induced by SARS-CoV-2, corona virus ailment 2019 (COVID-19), gives flu-like symptoms which can come to be severe in high-danger individuals. Mild ailment encompass some cases of the commonplace cold (which is caused also by positive other virus, predominantly rhinoviruses), even as more lethal varieties can motive SARS, MERS, and COVID-19. Symptoms in different species vary: in chickens, they motive a top respiration tract sickness, even as in cows and pigs they reason diarrhea. There is no antiviral drug or no vaccine advanced to treat human infection. Its scientific characteristics were very much like those of viral pneumonia. After evaluation of breathing samples, the expert on the PRC Centers for Disease Control declared that the pneumonia, later called novel corona virus pneumonia (NCP), become brought about by a novel corona virus. In this article a view of recognized scientific signs, diagnostic undertaking has been presented by the use of literature search by the use of online database with the keywords- covid-19 diagnosis, SARS-CoV-2, COVID-19 treatment. Various publication have been blanketed which become specially centered on signs of COVID-19 and treatment it has been determined that COVID-19 is transmitted from human to human and through touch with infected environmental surfaces. The essential healing procedures that are being used to deal with the COVID-19 disease are antiviral drugs, Remedisveir which was made to treat Ebola viruses and chloroquine/hydroxycholorquine for malaria and respiratory remedy had been used. Although many treatment plans had been proposed, quarantine is the handiest intervention that looks to be powerful in lowering the contagion rate. The essential symptoms of COVID-19 are fever, cough, fatigue, slight dyspnoea, sore throat, headache, conjunctivitis and gastrointestinal problems Hand hygiene is fundamental to save you contamination. Wearing non-public protective equipment (PPE) is suggested in unique environments. Right now RT-PCR (Real time polymerase reaction) is used as a diagnostic tool. CT (Computer tomography) is used being used for locating are important for diagnosis.

Keywords: Remedisveir, RT-PCR, SARS-CoV-2, NCP, MERS

D14:

Impact of Natural Bioactive Compounds for the Treatment of COVID-19

Ankita Rajput

DR. B.R. Ambedkar Center for Biomedical Research, University of Delhi

Email address: ankitarajput1998@gmail.com

Coronavirus disease 2019 (COVID 19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). For COVID-19, no vaccines clinical trials are completed, only symptoms can be improved with the help of repurposing drugs and plasma therapy.

Role of Bioactive compounds:

The cellular targets of this virus in is ACE-II, TMPRSS 2 and furin. Bioactive compounds are valuable for drug development and adjuvant therapy of such infection. Naringin (a flavanone-7-O-glycoside with potential inhibition of COVID-19 binding to ACE-II receptors).Glycyrrhizin (saponin) and Emodin are most considerable natural ACE-II inhibitors.

Glycyrrhizin can inhibit COVID-19 S-protein binding ACE-II receptors. Emodin, a bioactive antiviral agent may prevent S-protein binding ACE-II receptors thus stave off the COVID-19 infection via competing with S-protein in binding to ACE–II.

A natural compound Withanone (Wi-N) derived from Ashwagandha and Caffeic Acid Phenethyl Ester (CAPE) ,an active ingridient of New Zealand Propolis has the potential to interact and block the activity of Mpro. Mpro plays a key role in mediating viral replication and is the main protease, When the molecular docking of these compounds with SARS-COV-2 protease was done to calculate the binding affinity as well as to screen the binding at S-protein site during ligand-protein interactions then Oleanic acid has been appeared to be as the potential inhibitor for COVID-19 followed by Ursolic Acid.

These bioactive compounds are cost effective, and have less or no side effect due to their natural occurrence. But the solubility and solvent-effect related to the phytochemicals may be the point of concern.

D15:

ROLE OF MEDICINAL PLANTS IN COVID-19

Sweta Prakash

Department of Botany, Govt. K. R.G., autonomous P.G. degree college, Gwalior (M.P.)

drshrivastava12@gmail.com

The aim of this study was to document the medicinal plant species used by herbalists to boost the immune system of people cause with Covid -19 (Coronavirus disease 2019). There are several medicinal plants with potential therapeutic applications because of their high efficacy, low cost and low toxicity are used by several tribal communities. Holistic approach of AYUSH systems of medicine gives focus on prevention through lifestyle modification, dietary management, prophylactic interventions for improving the immunity and simple remedies based on presentation of the symptoms (AYUSH, 2020). A number of Indian medicinal plants have been claimed to possess immunomodulatory activity. Some of these plants are, Allium sativum, Morus alba, Acacia catechu, Tinospora cordifolia, Indigofera tinctoria, Vitex trifolia, Gymnema sylvestre, Abutilon indicum, Leucas aspera, Cassia alata, Clitoria ternatea, Clerodendrum inerme Glycyrrhiza glabra, Evolvulus alsinoides and Mangifera indica. A lot more are still to be explored and offer scope for further investigation.

Key words: Medicinal plants, Covid-19, AYUSH.

D16:

COVID – 19: OUR RESPONSIBILITIES

Surbhi Khare*

B.A.M.S. (Final year), Mansarovar Ayurvedic Medical College, Bhopal (M.P.)

Email- drdimpy3@gmail.com

By early march 2020, the Novel Corona virus now named, SARS –CoV- 2- had infected more than 90,000 people worldwide and killed at least 3100. The world health organisation declared the illness resulting from the new virus COVID – 19, a public health emergency of international concern. In late 2019, the first reports of an unknown respiratory infection – in some cases fatal emerged from wuhan, China. The source of that infection was quickly identified as a Novel Corona virus.

Keywords: COVID- 19, Health emergency etc.

D17:

Treatment of Covid-19: Our Solutions are in Nature

Dr. Gaurav Singh

Technical Expert, Madhya Pradesh State Biodiversity Board, Bhopal M.P.

singhgauravbiotech@gmail.com

The pandemic of Covid-19 is an absolute indicator of our maladjusted relationship with nature. Various investigations and researches have shown that loss of wildlife and deforestation result in increased number of infectious diseases. The proposal of novel drugs and approaches for effective treatment of the novel coronavirus is a necessity after the quick outbreak of the disease. The contribution of biodiversity in modern medicine and advancements in human health studies and remedies has been incredible. Medicinal plant species can provide a solution as a source of natural antiviral compounds by the accumulation of secondary metabolites and lectins as well as acting as a platform to express the viral immunogenic proteins. The solutions for treatment of Covid-19 and to prevent such disease in future are in nature, around us, in our environment and its start with education, awareness, application of natural compounds for treatment of such diseases and practice of conservation of biodiversity.

Keywords: Biodiversity, Conservation, Covid-19, Treatment

D18:

Corona as a Pandemic, Prevention and Control Measures

[1]Laxmi Kant Ray, [2]Madhup Shrivastava

[1] Department of Zoology, Govt. P.G. College, Sheopur (MP), [2] Department of Botany, Govt. College Vijaypur, Sheopur (MP).email :laxmikant.ray1974@gmail.com

Today, the whole world is fighting for the corona. Because the “COVID-19” (Corona virus disease 2019) has created a global health crisis that had a deep impact on the way we perceive our world and our everyday lives. COVID-19, represent a major group of viruses mostly affecting human beings through the zoonotic transmission. In the reports of the Oxford COVID-19 Government Response Tracker (OCGRT), the report based on data from 73 countries, reports that the Indian Government has responded more stringently than other countries in tackling the pandemic. Wuhan the city of China has emerged as a public health emergency of international concern. This COVID-19 began as an outbreak in December 2019. The global response to manage the pandemic, major emphasis was placed on generating research and contain to the virus, which was named severe acute respiratory syndrome corona virus-2 (SARS-CoV-2). Michael Ryan, the chief executive director of WHO's Health Emergency Situation Program, said India has tremendous potential to prevent with spreading of corona virus and India is the second most populous country of the world, which have the effective ability to deal with a huge impact.

This abstract summarizes the emerging evidence which can help detect the human health response, particularly in India. The Indian Key areas have been identified in which needs research, prevention and control efforts.

Keywords: Communication, COVID-19, Severe Acute Respiratory Syndrome Coronavirus-2(SARS-CoV-2), Transmission.

D19:

Traditional remedies to diagnose the infectious/pathogenic diseases in Uttrakhand

Dr B. P. Purohit
Political Science Dept.
Government P.G. College Gopeshwar (Chamoli) Uttrakhand, Pin 246401
drbhagwatipurohit@gmail.com

Origin of infectious disorder is directly associated with the evolution of humans. Plenty of documentation can be found in the various ancient literatures including Vedas Purans and other ayurved literature (relevant textbooks). In Ancient scriptures, pathogens' are considered to be the evil spirits .Their existence subjected to harm humans and other living creatures (animals) basically.

Due to the very phenomenon of metem psychosis which also originate from are ancient knowledge, the evil spirit transmigrate from one form of existence to another and only causing misery to other living creature. Our scriptures broadcast the preaching's directing the recitation of name (mantra) devoted to the prime factor responsible for the existence mentioned as below.

Achyuta nand govindam namoshcharan bhesjaat! Nashyanti sakala rogaah ! Satyam satya vadamyaham!!

This very verse protects an individual from the evil properties of the spirits, this causes the depletion of this pathogenic particle (i.e. evil spirits as there is substantial that water has memory, the stage ambrosia (charnamrit) is full of anti-microbial properties. This clearly depict that are ancient civilization was very sentient towards pathogenesis and the infectious diseases /disorder in living beings specially (humans).plenty of measures were implemented to stay safe from any kind of diseases, disorder and other infection but if somehow the modesty gets disturb, the other parts of diagnosis. In ancient time were the herbal medications. The manifestation was carried out in two phases. Initially by growing the specific herbal plants or trees.

Secondly Pueblo ranges boundaries of farms, etc were known for the occurrence/cultivation of meditational herbs or they outgrew naturally. Normally these weren't consumed by the cattle's some of these showed poisonous properties. There extracts had anti-insecticidal and anti microbial properties. A vast majority of county side was known for the self-occurrence of these medicinal herbs. Cognition of which has depleted due course of time this acted as the primary physical barrier against any kind of infection to the village. In the times if this barrier ever felt useless against the transition, still villagers had an secondary immunity towards it. Reason was the energy emission as a result of holy sacrifices (yagya –yaag) rituals (worshipping and offering prayer to god in front of fire) which were totally faced upon the principle of disinfection/sterilization of surroundings (i.e. Via fire sound and chemicals)

De facto the diurnal use of *agaru, tagar, guggal, lobaan, jatamasi, sarvoshadhi, jayfal, laung, elaichi, javitri, dalcheene, gudoochi, bach etc,* were taken in use either for cooking or in rituals(yagya,insence

etc).fumes which rose during the holy sacrifices had a strong anti-microbial effect in the surrounding, due to this anti-microbial as well as immunogenic responses were increased. Not only this, even the grain fumes emitted from the sacrifices helped to boost ones immunity. Likewise recitation of holy verses and holy sacrifices had a very promising results against the pathogens, even after this if anyone get infected the tertiary method included plenty of other organic medications/ drugs available that were prescribed accordingly by the experienced ayurvedic physicians (vaidhs) like either to give *gau mutra or citrus, neem* and likewise. Various kinds of elixirs(asava) were formulated in accordance with the deficiencies' or ailments.

No side effects were recorded by any of these medications instead made the body against various other kinds of pathogens. Taking example of *Bach* on one hand where it has anti-insecticidal and anti-microbial properties on the other hand it had immunogenic as well as brain enhancing capabilities, either you burn them for fumes or use as medication(extract) both way it was twitterally beneficial. But even if the transition of pathogens became incurable untouchability was the forefront in which the patient were kept in the cattle farms (cows specially) because cow urine and dung inhibited anti pathogenic properties hence saving the patient from any further infection. Apart from this to gain immunity against on infections villager used migrate to remote hilly areas to decrease fundamentals of pathogenesis i.e. Transition/transmission.

When there will be no physical contact how would the transmission occur? If any way they had to go on periodical journey of their respective deities, then measures for the contraception were taken in use i.e. including self covering of all physical senses and organs exposed to air just like the PPE(Personal Protection Equipments) and masks being used in now a days to break and prevent self from the chain infection. A better looking and conventional outfit was used to perform such rituals which even today serve the religious modesty and prestige of solemnization.

Altogether this robust traditional Management against infection demands resurrection and to be used as an infallible weapon against Covid 19.

D20:

Effect of silver, gold and zinc oxide nanoparticles size on toxicity (enzymatic biomarkers) to *Moina macrocopa*

Hemant Borase[1]*, Satish Patil [2], Rekha Singhal[3].

[1] C. G. Bhakta Institute of Biotechnology, Uka Tarsadia University, Bardoli, 394350, Gujarat, India.

[2]School of Life Sciences, North Maharashtra University, Jalgaon, 425001, Maharashtra, India.

[3]Food Engineering and Technology Department, Institute of Chemical Technology, Mumbai, 400019, Maharashtra, India

*email-hemant.borase@utu.ac.in

Despite of numerous applications of nanotechnologies, meager information is available on the acute and chronic toxicity effects of nanoparticles on non-target aquatic organisms. In the present investigation, silver, gold and zinc oxide nanoparticles of different nano size were synthesized and characterized. The 48 h lethal values were calculated on less studies crustacean species, *Moina macrocopa*. It was found that metal nanoparticles exhibits size dependent inhibition and activation of several biochemical biomarkers depending upon type of nanoparticles and its size. Generally, acetyl cholinesterase and digestive enzymes activity (trypsin, amylase, b-galactosidase) of *M. macrocopa* were inhibited. Activity of antioxidant enzymes (catalase, superoxide dismutase, glutathione-S-transferase) and alkaline phosphatase were enhanced as compared to control group. Organism try to relieve oxidative stress caused by nanoparticles by enhancing antioxidant enzyme activity. Increased body burden of nanoparticles in *M. macrocopa* was observed due to gut accumulation. Different aspects of nanomaterials such as size, uptake, accumulation, aggregation, and excretion in the organism and environment determine its toxicity. Present study also put forward *M. macrocopa* as an alternative non-target aquatic organism (as much of the earlier work were focused on *Daphnia magna* and fish species) for assessment of nanoecotoxicity at both organism and biochemical level.

Key Words: Nano-ecotoxicology, *Moina macrocopa*, Nanoaccumulation, Enzymatic biomarkers.

D21:

COVID-19: Impairing cytokine storming with Nutraceuticals

Chandra Prakash Prasad*

Department of Medical Oncology (Lab), All India Institute of Medical Sciences, New Delhi-110029, India

Presently, the outbreak of the novel SARS-CoV-2 accountable for corona virus disease 2019 (COVID-19) has developed into global pandemic. In-depth clinical investigations revealed that patients suffering with COVID-19 demonstrate elevated levels of cytokine productions associated with SARS-CoV-2 pneumonia. Thus, treatment of this hyperinflammation state stands an unmet need with the purpose to reduce mortality associated with COVID-19. However, till now there are no specific therapeutic interventions to prevent such cytokine storm or halt it once it's begun. Researcher's throughout the world have demonstrated the strength of nutraceuticals in elevating anti-inflammatory cytokine productions, thereby helping natural immune response to fight against viruses, infections etc. Studies have found the protective role of Elderberry (Sambucus), Echinacea and Curcumin that actually could obstruct the cytokine release and cytokine storm [1-3]. Similar to these findings, Allicin (Garlic), Vitamin C, Green Tea, St Johns Wort (Hypericum), Scuttellaria (Skullcap) etc are some other nutraceuticals that has been shown (in evidence-based studies) to neutralize inflammatory cytokines like TNF-α and IL-6. Though still in its infancy, nutraceuticals work as immune modulation drugs. Though it shows its promise *in vitro*, but future clinical research is required to validate their anti-cytokine storm effect in COVID-19 patients.

D22:

Organic originated Proteolytic enzyme produce encounters protein wall of emerging viral disease

Shilpa Tripathi, Girish Kumar Kariya , Vineet Singh and Virendra Kumar Pandey

AKS University, Satna, Madhya Pradesh 485001

Corresponding Author: pandeyvirendra193@gmail.com

Bacillus subtilis can tolerate temperature up to 55^0C and in the pH range of 6.0 – 8.5 which produces protease enzyme from animal waste like meat parts left around. Meat produces By-products such as blood, liver, lung, kidney, brains, spleen and tripe has good nutritive value. The virus has protein at their outer shell and genetic cause of emerging viral disease like Influenzavirus A, HPAI H5N1 virus, Human influenza, Adenovirus 14, Human Polyomavirus, Severe acute respiratory syndrome (SARS), Chikungunya virus (CHIKV), West Nile virus (WNV; Flaviviridae) and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). These diseases can be inhibited in primary stage or in lower virulence levels. Proteases are classified according to their pH optima into acid, neutral and alkaline types. Acid proteases are produced mostly by fungi, and neutral and alkaline proteases are produced by both fungi and bacteria. Neutral bacterial proteases, which also have significant amylase and alkaline protease activity, is used to hydrolyze plant and animal proteins and to improve the flavour of crackers and the handling of pizza doughs. Acid fungal proteases which have significant power to encounter the disease will be sustainably-grown from organic animal waste.

Keywords: Alkaline, Disease, Organic waste, Protein, Protease, Virus.

D23:

COVID-19: Evaluation, Phylogenetics and Emergence of World Epidemic Disease

Rakesh Kumar Saket

Research Scholar, Department of Biotechnology Barkatullah University, Bhopal (M.P.) India,

corresponding author: rakeshbt2011@gmail.com

Coronaviruses are a family of viruses that can cause illnesses such as the common cold, severe acute respiratory syndrome (SARS). The discovery of the coronavirus disease 2019 (COVID-19) during a pneumonia outbreak in Wuhan city in China has raised a global public health concern. Respiratory symptoms such as cough and shortness of breath (or tachypnea in children) are present without signs of severe pneumonia. The risk factors for severe presentations are concentrated in patients with chronic kidney disease, Human immune responses to a novel pathogen with both innate and adaptive arms. CoVs are positive-stranded RNA viruses with a crown-like appearance. The COVID-19 outbreak is an unprecedented global public health challenge. In March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a pandemic. CoVs are single-stranded positive-sense RNA viruses with a crown-like appearance under an electron microscope (*coronam* is the Latin term for crown) due to the presence of spike glycoprotein on the envelope. CoVs belong to the subfamily Coronavirinae in the family of Coronaviridae of the order Nidovirales, and this subfamily includes four genera: Alphacoronavirus, Betacoronavirus, Gammacoronavirus, and Deltacoronavirus. In genetic terms, Chan *et al.*

Keywords: Coronavirus, SARS, RNA, COVID-19, immune responses

D24:

Impacting factor of environment from COVID-19 and how to defence of COVID-19

Dr. Ranjana varma , Dr. Alka verma and vandana Sharma

Sarojini naidu pg. (autonomous) govt girls college, shivaji nagar ,Bhopal

Corresponding author:- vsharma.bhopal@gmail.com

Covid-19 is an endemic; is the disease caused by the new corona virus that emerged in china in December-2019. Covid-19 symptoms include cough, fever, shortness of breath, muscle aches, sore throat, unexplained loss of taste or smell, diarrhea and headache. Covid-19 can be serve and some cases have caused death. The new corona virus can be spread from person to person. It is diagnosed with a laboratory test.

There is no corona virus vaccine yet, prevention involves frequent hand washing, coughing into the bend of your elbow, staying home when you are sick and wearing a cloth face covering if you can't practice social distancing. Social distancing is deliberately increasing the physical space between people to avoid spreading illness.

- Staying at least six feet away from other people lessens your chances of catching covid-19.Wear a cloth face covering where social distancing can't be practiced. Especially in areas of significant community-based transmission.
- Self - quarantine people who have been exposed to the new corona virus and who are at risk for coming down with covid-19 might practice self-quarantine heath experts recommend that self-quarantine lasts 14days.
- The corona virus pandemic has caused a global reduction in economic activity and although this is major cause for concern, the ramping down of human activity appears to have had a positive impact on the environment. Industrial and transport emissions and effluents have reduced, and measurable data supports the clearing of pollutants in the atmosphere, soil and water.
- This effect is also in contrast to carbon emissions, which shot up by 5 percent after the global financial crash over a decade ago, as a result of stimulus spending on fossil fuel use to kick start the global economy. China and Northern Italy have also recorded significant reductions in their nitrogen dioxide levels.

D25:

Indian blackberry (*Syzygium cumini*): The Indian medicinal fruit for increasing immune power

Souvik Tewari

Food Science & Technology, WCDT, SHUATS, Allahabad, U.P., India

Email: souviktewari@gmail.com

Nowadays all people are trying to increase immune power by maintain their daily diet. Good immune system helps to protect human body against many communicable and non-communicable diseases. Antioxidant rich foods help to increase the immune system. Antioxidant compounds that can stabilize highly reactive, potentially harmful molecules called free radicals. Free radicals are generated during normal cellular metabolism. Antioxidant supplementation can significantly improve certain immune responses. Specifically, supplementation with vitamins C, E, and A or beta-carotene increase the activation of cells involved in tumor immunity in the elderly. Supplementation with the antioxidant vitamins also protect immune responses in individuals exposed to certain environmental sources of free radicals. In India many types of fruits contain antioxidant, among them Indian blackberry (*Syzygium cumini*) is good source of antioxidant which helps to increase the immune power. The fruit is also known as jamun, java plum, black plum etc. It is one of the best summer fruit in India. It is an excellent source of vitamin C, provides 18 milligrams (mg) of vitamin C per hundred grams (100gm). On other hand this berry is a rich source of folate, Vitamin B, carotene, magnesium, potassium, fibre and antioxidants. So people can add this fruit in their diet in adequate amount to increase immune power specially in summer season. It might be used as against Covid 19 infection.

Keywords: antioxidant, free radical molecules, human health, Indian blackberry, summer season

D26:

Curcumin Incorporated Chitosan/Poly (vinyl alcohol) Nanofibers: A Potential Antiviral Based Biodegradable Filter for Facemask

Govind K. Patil[a], Sagar Pardeshi[a,] Sachin Chaudhri[b]

University Institute of Chemical Technology, KBCNMU, Jalgaon [a,b]

Gexcon India Pvt. Ltd, Pune.[a]

Email address: govind656@gmail.com

The present study aims to use bioactive compound (Curcumin) as a potential COVID-19 protease (Mpro) inhibitor in combination with biodegradable antibacterial polymers to developed nanofibre based filters for the facemask using electrospining technique. The previously reported molecular docking data of curcumin against viral protein (Mpro) demonstrates that curcumin directly binds with receptor binding domain (RBD) site of S-protein during 40-100ns. That nanofiber mask material was characterized by SEM, and air permeability test showed same porosity as that of regular gauze mask but with extremely reduced local interfiber space. Thus used as a potential intervention in nanofilter to have better protection. Thus, the use of bioactive in combination with water soluble antibacterial biodegradable polymer based approach could be the cost effective potential intervention to prevent or minimize the COVID-19 transmission with easier disposal of the used mask.

D27:

Recent Trend in Herbal Formulation on: Novel Drug Delivery System

*Vinay Dewangan[*], [1]Kushagra Nagori

Rungta College of Pharmaceutical Sciences and Research, Bhilai (C.G)

Plants are nature remedies and have been used by human beings on earth since at the time for food and medicine. Today there are global movements towards finding of herbal medicaments in plants to bring them in market via a suitable drug delivery system. The basic thought behind it is treatment of each disease is hidden in nature. However, delivery of herbal drug also requires modification with the purpose to achieve sustain release, to increase patient compliance etc. Drug delivery can have significant effect on its efficacy. Some drug have optimum concentration range with in which maximum benefits is derived and concentration above (or) below the range can be toxic or produce no therapeutic effect. Previously herbal drug could not attract scientists towards the modification of novel drug delivery system due to processing, standardizing, extracting and identification difficulties. But now day with the advance in the technology. Novel drug delivery system (NDDS) open the door towards the development of herbal novel drug delivery system with use of advance technique protection from toxicity, enhancement in stability, improve bioavailability of herbal formulation, protection from physical and chemical degradation can be achieve. To use coronavirus drug development.

D28:

Natural compounds in response to immune system

Dr. Vinutha M.

Assistant Professor, Department of Biotechnology and Genetics, Ramaiah College of Arts, Science and Commerce, Bengaluru, Karnataka, INDIA

Email: vinutham6@gmail.com

Natural compounds exhibit great potential in immunomodulatory therapeutics which can be used to treat AIDS, cancer and Covid-19. Plants and microorganisms are the good source of natural compounds which are used since ancient times to treat numerous ailments including viral infections. Natural compounds such as lycorine, homoharringtonine, silvestrol, ouabain, tylophorine and 7-methoxycryptopleurine at nanomolar concentration are found to interact with key viral proteins and inhibit viral replication. Nutraceuticals, probiotics and dietary supplements have also shown immune enhancing effects especially for influenza-like illnesses. Currently the novel corona virus - 2019 has created havoc throughout the world taking life of thousands of people. These are spherical to pleomorphic, ss (+) RNA viruses with envelope which bears glycoprotein spikes on its surface. The virus specifically require angiotensin-converting enzyme 2 (ACE2) as a key receptor on host cells for binding. Entry of coronavirus depends on human airway trypsin-like protease (HAT), cathepsins and transmembrane protease serine 2 (TMPRSS2). Researchers are targeting these proteins and currently they are aiming at spike protein for vaccine production. Recently researchers have developed two human monoclonal antibodies which prevent the binding of virus to the receptor. Plasma therapy is been employed as a treatment to covid-19 patients in few countries. Since prevention and treatment is mainly dependent on immune cells, enhancing the immune system using natural compounds will be a great way to fight against Covid-19.

Keywords: Immunomodulation, Silvestrol, Angiotensin-converting enzyme 2, Cathepsins, Monoclonal antibody.

D29:

Impact of Natural Compounds to Treatment of Covid 19 Infection

Dileep Tiwari*[α], Sele Priya[β] , Ankit Chauhan[π], Shivani Yaduvansi[μ]

[α]Hericure Healthcare Ltd. Pune, (India); [β]Valyn Pharma Ltd., Bhopal (India).

*CPRU, School of Health Sciences, University of KwaZulu-Natal, Durban, (South Africa).

[μ]Government Motilala Vigyan Mahavidyalaya College, Bhopal,

[π]L. N. Ayurveda college and hospital Bhopal MP , LNCT University Bhopal

Correspondence Author email: **dileep10ster@gmail.com; tiwarid@ukzn.ac.za**

Abstract

The Classical natural product chemistry methodologies enabled a vast array of bioactive secondary metabolites from terrestrial and marine sources to be discovered. Natural products have been acknowledged for numerous years as a vital source of active ingredients in therapeutic agents. In particular, the use of active ingredients derived from plants for use in microbial natural products have long been used before the dawn of modern medicine. The efficacy of natural products has been associated with the chemistry, biochemistry and synthetic activities of natural products.

Thus, with scientific advancement in modern molecular and cellular biology, analytical chemistry and pharmacology, the unique properties of these natural products. New molecules of interest in drug design units focus on the rearrangement of chemical entities or structural isomers of naturally occurring products in order to generate new molecules; these may be formulated into clinically useful therapies. Plants are a major source of complex and highly structurally diverse chemical compounds (phytochemicals), this structural diversity attributed in part to the natural selection of organisms producing potent compounds to deter herbivory. The bioactive compounds derived from natural resources, its phytochemical analysis, characterization and pharmacological investigation.

Natural products drug discovery plays an important role to develop the scientific evidence of these natural resources which may be potential effective treatment for Covid 19 by using modern technology.

Keywords: Pharmacology, Bioactive compound, Therapeutics

D30:

Preventive management of SARS-CoV-2 infection among the health care workers

Juhi Sharma[1], **Divakar Sharma[2]***

[1]Department of Botany and Microbiology, St. Aloysius College, Sadar Cantt, Jabalpur, 482002, India

[2]CRF, Mass Spectrometry Laboratory, Kusuma School of Biological Sciences (KSBS), Indian Institute of Technology, Delhi, 110016, India

*Corresponding author email address: **divakarsharma88@gmail.com**

COVID-19 is currently threatening the globe. SARS-CoV-2 is the causative agent of COVID-19, which spreads via droplets/airborne and direct contact. Health care workers (HCWs) are the frontline warriors, which directly involved in the take caring of COVID-19 patients. HCWs are under a higher risk of infection during the caring of COVID-19 patients. Here we have highlighted the higher risk for COVID-19 infection among the health care professionals during close contact with patients and their timely preventive management in the situation of COVID-19 pandemic.

Keywords: COVID-19, Health Care Workers (HCWs), Personal Protective Equipments (PPEs), Violence on HCWs

D31:

Corona as a pandemic

Deepanshu Garg

Amity University, Mumbai

e-mail: deepgarg13599@gmail.com

Corona pandemic or coronavirus pandemic is an ongoing events we are seeing as severe acute respiratory syndrome (SARs). The first outbreak was seen in Wuhan, China. In the current situation this pandemic is spread over more than 180 countries with over 40 lacks cases with more than 2 lack deaths across the world. There is no vaccine available till date for the virus. The major spread of the virus occur due to close contact. The whole world is on lockdown from the past 3 months to pass this disaster. Many pharma companies across the world are working on cure to fight with this virus. The major precaution we can take against this pandemic is social distancing between the people. There is a lot of damage occurring in his infrastructure of many nations. Considering the future aspects we can see that people need to be educated about these types of conditions. Now people need to take of themselves on their own because government can do the least parts in protecting but further we need to make their steps to success.

D32:

Quarantine and Immunity are the key players for COVID 19 -A Strategic Approach

Ravindra Verma
School of Studies in Biotechnology Jiwaji University, Gwalior, Madhya Pradesh
India
Email- vermaravindra917@gmail.com

The coronavirus is affecting 212 countries and territories around the world. The World Health Organization announces the official name of this disease on 12 Feb 2020 COVID-19. The well-known slogan in medical history that prevention is always better than cure. The World Health Organization has suggested some preventive measures like staying at home, avoiding crowded places, practicing good respiratory hygiene are the curative prevention of infection.

A detailed study carried out by analyzing national and international scientific databases (PubMed, SciFinder, ScienceDirect, Scopus, and Web of Science, Mendeley), thesis, and recognized books. The terms used for searching the literature are Indian herbs, functional food, immunity, viral infection, and COVID-19 considered. Indian herbs with high resistant power were analyzed. It has observed that there are more than 100 herbs and functional foods that can effectively use for immunity enhancers. In our study, Gokhru (Tribulus terrestris), Shatavari (Asparagus racemosus), Ashwagandha (Withania somnifera), Safed Musli (Chlorophytum borivilianum), Amla (Phyllanthus emblica), Velvet beans (Mucuna pruriens), Giloy (Tinospora cordifolia), Long pepper (Piper longum), Dalchini (Cinnamon), Vidarikand (Pueraria tuberosa), Talmakhana (Asteracantha longifolia), and Turmeric (Curcuma longa), Cardamom (Elettaria Cardamomum), has been identified as immunity enhancer for COVID19. Despite the shreds of evidence for the efficacy of these herbs in treating coronavirus induced infections; the proper dose with ideal timing for such interventions needs to verify in clinical trials. Researchers must have to take the privilege to explore the potential of herbs to reduce such epidemics of environmental threats.

Keywords- Herbs, Immunity, coronavirus, COVID19,

D33:

Exploration and evaluation of bioactive antiviral phytocompounds against novel coronavirus target by in scilico approach

K.R.Dasegowda[1*], Prabhavathi.H[2]

[1]Department of Biotechnology, Ramaiah College of Arts, Science and Commerce, Bangalore Karnataka, India- 560054

[2]Department of Studies & Research in Biotechnology, Tumkur University, Tumakuru, Karnataka, India-572103

*Corresponding Author Email address: dasegowda@gmail.com

The main cause of disaster in the 21st century is novel coronavirus-2019 (nCoV). nCoV has created a threat to human population across the world. The lack of specific drugs to prevent/treat an outbreak is a major need at this current point of time. Exploration of human nCoV inhibitors plays a vital role in the drug discovery process. *In silico* studies can be performed which involves a computational approach for the identification of active antiviral phytocompounds from the diverse set of medicinal plant products against the nCoV receptor. Herbal extracts have been in use for medicinal purposes since ancient times and are known for their antiviral properties. Thus, natural plants based pharmacotherapy may be a proper alternative for treating viral diseases.

In a review it was identified seven major targets spike protein, envelop protein, membrane protein, protease, nucleocapsid protein, hemagglutinin esterase, and helicase for which drug design can be considered. There are other 16 nonstructural proteins (NSPs), which can also be considered from the drug design perspective. The major structural proteins and NSPs may serve an important role from drug design perspectives (Prajapat et al., 2020). Liu et al. (2020) have successfully crystallised the main protease (MPro) of COVID-19, PDB-ID: 6LU7, which is now accessible to the globe. 6LU7 represents a potential target for the inhibition of SARS-CoV2 replication.

In a recent review it was found different medicinal plants have been used as drug and they are found to have strong therapeutic effect. Viral disease have been treated by various medicinal plant constituents. Rutin is effective against avian influenza virus, Aglycone of rutin, Quercetin reduce the replication of many viruses and inhibits various steps of the rhinoviruses pathogenesis. Quercetin was shown to have a more specific mode of action, reducing the replication of dengue virus type-2, but not the processes of viral attachment and entry. Quercetin, myricetin, and quercetagetin were also shown to inhibit different DNA polymerase enzymes. As per the review six phytochemicals, apigenin, baicalein, biochanin A, kaempferol, luteolin, naringenin were active against the avian influenza H5N1 virus in human lung epithelial (A549) cells through inhibiting nucleoprotein production. Baicalin (the

glucuronide of baicalein) was also active against a wide range of viruses, including enterovirus, dengue virus, respiratory syncytial virus, Newcastle disease virus, human immunodeficiency virus, and hepatitis B virus. The triterpenoids oleanolic acid and ursolic acid are abundant in the plant kingdom, may be effective against HCV and can also inhibit enterovirus replication. Sambucus nigra L. is an active ingredient in a standardized elderberry extract, effectively used in the treatment of fever, colds, and influenza A and B (Ben-Shabat et al., 2019),

The bioinformatics approach could be a very useful tool to identify potent inhibitors against the Novel Coronavirus. Kumar et al., 2020 findings suggest that they have identified 19 potent inhibitors from the library of thousands of compounds and found Nelfinavir, Withanolide D and Withaferin A can be used as potential inhibitors against COVID- 19 Main Proteases. The Lipinski's rule of five can be applied to find out drug property and their bioavailability. The ADMET profile of the ligands can also establish their potential as a drug candidate. Docking study may provide useful insights on potential target-lead interactions. A ligand based pharmacophore model can be built to explore the scaffolds for nCoV inhibitory activity. A substantial effort can be made to screen an inhibitor against nCoV target by combining the use of pharmacokinetic and pharmacodynamics by *in silico* approach.

Reference

Ben-Shabat, S., Yarmolinsky, L., Porat, D., & Dahan, A. (2019). Antiviral effect of phytochemicals from medicinal plants: Applications and drug delivery strategies. *Drug Delivery and Translational Research*, 1-14.

Jin, Z., Du, X., Xu, Y., Deng, Y., Liu, M., Zhao, Y., ...& Peng, C. (2020). Structure of Mpro from COVID-19 virus and discovery of its inhibitors. bioRxiv.

Kumar, D., Chandel, V., Raj, S., & Rathi, B. (2020). In silico identification of potent FDA approved drugs against Coronavirus COVID-19 main protease: A drug repurposing approach. *Chemical Biology Letters*, *7*(3), 166-175.

Prajapat, M., Sarma, P., Shekhar, N., Avti, P., Sinha, S., Kaur, H., ...& Medhi, B. (2020). Drug targets for corona virus: A systematic review. *Indian journal of pharmacology*, *52*(1), 56.

D34:

Corona virus Disease 2019

Ruckshana Begam A

Vivekanandha Arts and Science College for Women, Mangarangampalayam, Tamil Nadu (India)

e-mail: rucks7777@gmail.com

A few days later, the genome of a novel coronavirus was released (http://virological.org/t/novel-2019-coronavirus-genome/319; Wuhan-Hu-1, GenBank accession No. MN908947) and made publicly available to the scientific community. This novel coronavirus was provisionally named 2019-nCoV, now SARS-CoV-2 according to the Coronavirus Study Group of the International Committee on Taxonomy of Viruses. SARS-CoV-2 belongs to the *Coronaviridae* family, *Betacoronavirus* genus, subgenus *Sarbecovirus*. Since its discovery, the virus has spread globally, causing thousands of deaths and having an enormous impact on our health systems and economies. In this review, we summarize the current knowledge about the epidemiology, phylogenesis, homology modeling, and molecular diagnostics of SARS-CoV-2.

Key Messages:

Phylogenetic analysis is essential to understand viral evolution, whereas homology modeling is important for vaccine strategies and therapies. Highly sensitive and specific diagnostic assays are key to case identification, contact tracing, identification of the animal source, and implementation of control measures.

D35:

Consequences of Economically challenges in medical research due to covid 19 pandemic

Shivani Yaduvanshi [3,1], Ankit Chauhan[4], Rachna Chaturvedi[3], **Dileep Tiwari [1,2*],**

[1]Hericure Healthcare Pvt Limited, Pune-411075, MH, India; [2]Catalysis and Peptide Research Unit, School of Health Sciences, University of KwaZulu-Natal, Durban-4000, South Africa ;[3]Govt . Motilala Vigyan Mahavidyalaya college, Bhopal ; [4]L.N. Ayurveda college and hospital Bhopal MP , LNCT University Bhopal, India

Correspondence Author email: **dileep10ster@gmail.com; tiwarid@ukzn.ac.za**

Health economic studies provide information to decision makers for efficient use of available resources for maximizing health benefits. Economic evaluation is one part of health economics, and it is a tool for comparing costs and consequences of different interventions. Health technology assessment is a technique for economic evaluation that is well adapted by developed countries. The traditional classification of economic evaluation includes cost-minimization, cost-effectiveness analysis, cost-utility analysis, and cost-benefit analysis. There has been uncertainty in the conduct of

such economic evaluations in India, due to some hesitancy with respect to the adoption of their guidelines. The biggest challenge in this evolutionary method is lack of understanding of methods in current use by all those involved in the provision and purchasing of health care. In some countries, different methods of economic evaluation have been adopted for decision making, most commonly to address the question of public subsidies for the purchase of medicines. There is limited evidence on the impact of health insurance on the health and economic well-being of beneficiaries in developing countries. Various country pursuing several strategies to improve health services for its population, including investing in government-provided services as well as purchasing services from public and private providers through various schemes. Prospects for future growth and development and increasing technology diffusion will require greater economic efficiency into health care systems.

The globally also facing risks of the economic drop down by losing more than 5% of its gross domestic , internationally product, due to containment measures and reduction in goods import-exports. The low public health expenditure jointly with a lack of Infrastructure and low fiscal response implies several challenges to scale up the COVID-19 response and administration.

Keywords- COVID-19, Economic, Health technology assessment, Social challenges, Healthcare services

D36:

Epidemiological Characteristics of SARS-CoV-2

Shreyansh Parsai*, Vivek Kumar Agnihotri, Sourabh Singh Gour
AKS University, Department of Biotechnology, Faculty of Life Science and Technology
Corresponding Author Mail: parsais55@gmail.com

Bats tend to be SARS-CoV-2 reservoir in one analysis, the sequence similarity of betacoronavirus isolated from pangolins to the currently infected human strain is up to 99 percent. Another research shows that in Malaysia, SARS-CoV-2 and the pangolin coronavirus are highly similar in genetics. In terms of E, M, N, and S genes, the gene similarity between these two viruses is 100, 98.6, 97.8, and 90.7 percent, respectively, indicating the ability to be the intermediate host for pangolins. Dogs, chickens, ducks, and pigs are not permissive to infection among those animals in close contact with humans. In cats and ferrets, SARS-CoV-2 replicates effectively. The golden hamster can also transmit SARS-CoV-2. During near, unprotected touch between the infected and uninfected, SARS-CoV-2 is transmitted by fomites and oral droplets. The primary cause of infection is in symptomatic and asymptomatic patients via indirect contact transmission, the virus can also spread. People then touch the mucous membranes of the mouth, nose, and eyes, causing infection. Virus-containing droplets contaminate the hands. SARS-CoV-2 transmission is not restricted to the respiratory tract only as the aerosol transmission of SARS-CoV-2 has been demonstrated by some studies. One research studied

the aerodynamic existence of SARS-CoV-2 in Wuhan during the COVID-19 outbreak by calculating viral RNA in aerosols, suggesting that SARS-CoV-2 has the ability to spread through aerosols. In health care facilities, there may be a risk of airborne transmission due to aerosols created by medical procedures. Of note, airborne transmission is the dominant route in the propagation of COVID-19. The urine of a COVID-19 patient also contains contagious SARS-CoV-2 and thus the severity of SARS-CoV-2 with reference to its epidemiological characteristics makes it a broader concept that require deeper analysis.

Keywords: Airborne, Epidemiological, Host, Symptomatic, Transmission.

“Prevention is better than cure”

The 1st HeriCure-V-Ukzn: An International Webinar Conference

On

Impact of Natural Bioactive compounds for the treatment of CoVid-19 : Diagnostic Challenges and Futuristic Perspectives

Date: 30th to 31st May, 2020

Time: 14:30 to 19:30 (IST) UTC/GMT

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