



## **CONFERENCE PROCEEDINGS**

OF

INTERNATIONAL VIRTUAL CONFERENCE ON

*"COVID-19 PANDEMIC: ROLE, RESPONSIBILITIES, AND  
CHALLENGES FOR PHARMACEUTICAL RESEARCH,  
INDUSTRY, AND ACADEMIA"*

**ORGANIZED BY**

**DEPARTMENT OF PHARMACEUTICAL SCIENCES,  
MOHANLAL SUKHADIA UNIVERSITY, UDAIPUR, RAJASTHAN, INDIA**

**Published by  
International Journal of Pharmacy and  
Life Sciences  
(ISSN:0976-7126)  
Indexed in:**



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## ***The organizing Committee***



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Hon'ble Vice Chancellor, MLSU Udaipur*



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MLSU, Udaipur*



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## ***About The University***



*Mohanlal Sukhadia University, Udaipur, is NAAC Accredited 'A' grade State University in Rajasthan. It consists of four constituent colleges including the University College of Science and 156 affiliated colleges from the districts of Udaipur, Chittorgarh, Rajsamand and Sirohi with more than 2.25 Lakh Students. Started in 1964 as University of Udaipur, it was renamed in 1984 as Mohanlal Sukhadia University in memory of former chief minister Shri Mohanlal Sukhadia. The University has ensured overall socio-economic growth of all the sections of society by encouraging greater access and inclusive approach making it the most preferred institution for higher education, learning and research. Ever since its inception university has been striving to maintain excellence in teaching, research and community service. Great emphasis has been laid in creating scientific temper, maintaining high ethical values and in keeping pace with emerging areas of higher learning. University has ensured overall socio-economic growth of all the sections of society by encouraging greater access and inclusive approach making it most preferred institution for higher education, learning and research.*

## About The Department



*The Department of Pharmaceutical Sciences, Mohanlal Sukhadia University, Udaipur, was established in the year 1994 with a mission to satisfy the quest of budding Pharmacists and inculcate the moral values along with competence in the students of Pharmacy, as well as to spread awareness regarding safe use of medicines thereby promoting health in the society. Initially, it was started with a diploma course in Pharmacy which was then upgraded to degree course in 1998. This is the only University Department in the State of Rajasthan imparting Pharmacy Education and comes under the Rank band of 76-100 in the NIRF Rankings 2020 by MHRD, GOI. The Department is approved by Pharmacy Council of India as well as All India Council for Technical Education and is currently running B. Pharm. and Ph. D. courses. The Department at present is having eleven well-qualified permanent teachers in all the specializations of Pharmaceutical Sciences. The Department has published more than 200 papers in various national and international journals of repute. About 20 students have graduated with Doctoral degree till date. Currently the department is having Research and Innovation projects worth INR 2 crore funded by RUSA- MHRD, New Delhi and has completed UGC funded research project worth INR 40 lakhs and worth INR 35 lakh project funded by SERB-DST. The Department has signed an MOU with Department of Biomedical Engineering, Chung Yuan Christian University, Taiwan, and with MONASH UNIVERSITY, Malaysia for the academic and research exchange. In the year of 2020, the Department has completed 23 years of its existence as a premier institution in the field of Pharmacy Education and Research in India.*

## **About The Conference**

*As we all know that the outbreak of Covid-19 has severely affected the Society, Industry and Education system as well. During the worldwide lockdown due to the pandemic, a lot of important activities have come to a halt. However, when we look at the brighter side, all of us have more time for adding to our knowledge and insights. With this aim, to keep contributing to learning and motivation, Department of Pharmaceutical Sciences, Mohanlal Sukhadia University, Udaipur is organizing an international virtual conference on **"Covid-19 Pandemic: Role, Responsibilities, and Challenges for Pharmaceutical Research, Industry, and academia."** We hope, this virtual conference during the pandemic will be an appreciable step in promoting the research activities and new information between researchers, developers, students, academicians and pharmacists working in and around the world. This conference's aim is to present the current researches being carried out in the field of Pharmaceutical and Basic Sciences around the globe and to discuss about the Role, Responsibilities, and Challenges for Pharmaceutical Research, Industry, and academia. Prospective authors from academia, as well as industry, were invited to submit their abstracts that illustrate original/unpublished works and industrial applications describing advances and significant innovations in the field. About 300 participants have registered themselves for the conference, out of whom 40 have sent their abstracts for oral/Poster presentations. The selected ones will be presented during the technical sessions. I am delighted to welcome both the eminent speakers, Dr. Mahadev Rao from Malaysia and Dr. Tushar Nahata, from Zydus Cadila, Ahmedabad, India who have accepted my invitation on personal request, and joined us to share their knowledge and vast experience with the student and scientist community. We look forward to their talks. I sincerely hope that emerging issues regarding the topic selected shall be thoroughly discussed in the Conference with special insight into various ways to combat covid 19 pandemic crisis, the strategies of formulation development, the research needs of the industry and the current research being carried out at academic and research Institutions. The Conference will certainly provide a global platform for the Students, Academicians and scientists, to have an active interaction in various fields of Pharmaceutical and Basic Sciences.*



**Prof. Amarika Singh**  
Vice-Chancellor

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**मोहनलाल सुखाड़िया विश्वविद्यालय**  
विश्वविद्यालय परिसर, उदयपुर-313 001 ( राजस्थान )



No. PSVC/MLSU/2021/897  
Date : 08-07-2021

### MESSAGE

It is a matter of great pleasure that the Department of Pharmaceutical Sciences, Mohanlal Sukhadia University, Udaipur is organizing an international virtual conference on "**Covid-19 Pandemic: Role, Responsibilities, and Challenges for Pharmaceutical Research, Industry, and academia**" on 10th July 2021.

I believe that the emerging issues regarding the topic selected will be thoroughly discussed in the Conference in the light of research needs of the industry and expectations from the academic and research Institutions. Such deliberation certainly helps scientists working in different fields to exchange their ideas, views, and findings. The brainstorming during the conference might build broad consensus regarding the future line of action.

The Conference is sure to provide our scientists in the fields of Pharmaceuticals, Medicine, and Basic Sciences to interact with experienced professionals working at the International Level.

I congratulate the organizers for selecting a topic of immense current importance and attempting to address the issue at the global level.

I convey my best wishes for the success of the Conference.

(Prof. Amarika Singh)  
Vice Chancellor



# UNIVERSITY COLLEGE OF SCIENCE

विश्वविद्यालय विज्ञान महाविद्यालय

महाराणा भूपाल केम्पस



MOHANLAL SUKHADIA UNIVERSITY, UDAIPUR - 313 001

मोहनलाल सुखाडिया विश्वविद्यालय, उदयपुर - 313 001

Prof. G.S. Rathore  
Dean, University College of Science

Tel Fax.: + 91-294-2423191  
Mobile: + 91- 9414352604

## MESSAGE

It gives me immense pleasure to know that the Department of Pharmaceutical Sciences, Mohanlal Sukhadia University, Udaipur, Rajasthan is organizing all international virtual conference on "**Covid-19 Pandemic: Role, Responsibilities, and Challenges for Pharmaceutical Research, Industry, and academia.**" on July 10<sup>th</sup>, 2021.

Search of mechanisms for bridging the gap between academic research and the research needs of industry is the need of the hour especially during this tough time of COVID-19 Pandemic. I congratulate the organizers for their foresight vision in selecting such a relevant topic for the Conference.

I would like to wish this Conference a grand success and hope that participants would find it professionally rewarding.

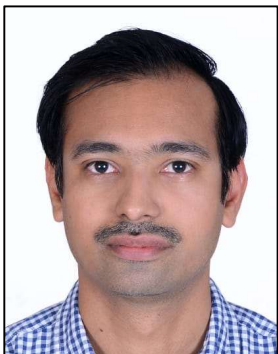
(Prof. G. S. Rathore)  
**Prof. G.S. Rathore**  
Dean  
University College of Science  
M.L. Sukhadia University  
UDAIPUR

## ***Invited Speaker***



**Dr. U.S. Mahadeva Rao** is a Professor of Biochemistry in Faculty of Medicine, University Sultan Zainal Abidin, and Malaysia. He is a Doctorate in Clinical Biochemistry. Dr. Rao has also completed his Post Graduate Diploma in Medical Laboratory Technology (PGDMLT). He has worked in APCOS & SRM University in India from 1990 to 2009; in Ethiopia from 2009 to 2011 and in Malaysia from 2011 to till date. His special interest is on herbal medicine. He was associated with International Research projects / Teaching in African continent (Ethiopia) from 2009-2011. He had many projects including FRGS, RACE, UniSZA Research Grant Projects in Malaysia. He is a Life Time Fellow of Indian Chemical Society (FICS). To his credential he has published 116+ research papers and conceptual review articles in peer reviewed International Journals. Dr. Rao has published 7 text books viz. Clinical biochemistry, General Biochemistry, Basics of Molecular Phylogeny and Research methodology, Monographs on Antidiabetic potential of Avocado and Noni and Solanum species versus cancer. Dr. Rao has been invited as a speaker for International Conferences, Seminars and Workshops related to biomedical sciences. He is currently a member in human (UHREC) and animal (UPAREC) research ethical committee in UniSZA. Added to his tribute, presently he is Editor in 7 International Journals including SCOPUS index and nevertheless reviewer in many high impact journals. Apart from that he has a rich experience of teaching of more than 30+ years. And mentored more than 30 students in their master's degree.

## ***Invited Speaker***



**Dr. Tushar Nahata** works as General Manager, Formulation Development (Parenteral) department at Pharmaceutical Technology Center (PTC) Zydus Cadila, Ahmedabad. He is having more than 18 years of research experience. He obtained his Master's and PhD degree from Shri GS Institute of Technology and Science, Indore (MP). He has been actively involved in the development of Novel formulation for Injectable products for regulated market. He has filed more than 60 ANDA for US market. He is having couple of international publication and patents in his credit. His expertise includes novel drug delivery system, QbD based formulation development, good understanding of characterization studies for different type of formulations and regulatory requirements.

## **Conference Schedule**

Time (IST)	Event
10.15 A.M.- 10.30 A.M.	Joining of Participants
10.30 A.M. – 10.35 A.M.	Welcome Address by the convener Prof. C.P. Jain
10.35 A.M.- 10.40 A.M.	About the conference, by Organizing Secretary Dr. Joohee Pradhan
10:40 A.M.-10:45 A.M.	Address by Prof. G. S. Rathore, Dean, UCoS, MLSU
10:45 A.M.-10:55 A.M.	Presidential Address by Prof. Amarika Singh, Honourable Vice Chancellor, MLSU
11:00 A.M.-11:45 A.M.	<p style="text-align: center;"><b><u>Invited Talk 1</u></b></p> <p style="text-align: center;"><b>Prof. U. S. Mahadeva Rao</b> Faculty of Medicine, University Sultan Zainal Abidin Terengganu, Malaysia</p> <p style="text-align: center;"><b><u>Chair Person</u></b></p> <p style="text-align: center;"><b>Dr. Neetesh K Jain</b> Professor &amp; Principal Faculty of Pharmacy Director, Drug &amp; Disease Information Center(DDIC) Oriental University, Indore</p>
11:55 A.M.-12:40 P.M.	<p style="text-align: center;"><b><u>Invited Talk 2</u></b></p> <p style="text-align: center;"><b>Dr. Tushar Nahata</b> General Manager, Formulation Development (Parenteral), Zydus Cadila, Ahmedabad</p> <p style="text-align: center;"><b><u>Chair Person</u></b></p> <p style="text-align: center;"><b>Dr. Sumeet Dwivedi</b> Professor and Principal University Institute of Pharmacy, Oriental University Indore</p>
12:40 P.M.- 1:30 P.M.	Lunch Break
1:30 P.M.-2:30 P.M.	Oral Presentations
2:30 P.M.-3:00 P.M.	Poster Presentations
3:00 P.M.-3:30 P.M.	Valedictory and announcement of Results



# ABSTRACTS

**List of Selected Abstracts for Oral/ Poster Presentation**

<b>Oral Presentations</b>		
<b>Code</b>	<b>Title</b>	<b>Presenting Author</b>
OP-01	Cocktail of Spike Protein mRNA for Development of Vaccine Against SARS COV-2 Variants: A Hypothesis	Naveen Dhingra
OP-02	Phyto-Constituents as Potential Leads for The Development of Novel Antiepileptic Drugs	Purnima Paliwal
OP-03	Alzheimer's Prevention with Dietary Phytochemicals	Jaya Arora
OP-04	The Collaborative Research Model Between Academia and Industry: A Solution of Heavy and Instant Demand of Medical Ads	Poonam Kanwar
OP-05	Molecular Docking Analysis and ADME Study of Hydroxychloroquine and Other Quinolone Agents Against Spike Protein of Sars-Cov-2	Saurabh Patidar
OP-06	Molecular Docking, In-Silico ADMET Prediction and MD Simulation Studies of Small Covalent Compounds for The Treatment Of COVID-19	Vikram Choudhary
OP-07	Computational Approach Towards the Development of Novel Imidazopyridine Derivatives as Potential Antidiabetic GSK3 $\beta$ Inhibitors	Joohee Pradhan
OP-08	A Critical Review on <i>Delbergia sissoo</i> and <i>Curcuma Longa</i> as Possible Promising Combination for The Treatment of Various Ailments	Vishnu Das
OP-09	Potential Role of Nanotechnology in Diagnosis, Treatment and Management of Covid-19	Girima Nagda
OP-10	Formulation of Herbal Facial Scrub with Rejuvenating Effects	Devshree Gayakwad

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 Published online in International Journal of Pharmacy & Life Sciences, (ISSN: 0976-7126); Website: [www.ijplsjournal.com](http://www.ijplsjournal.com)

OP-11	Nano Drug delivery system for Treatment of Cancer	Deepak Choudhary
OP-12	Herbal Drugs as Immune Boosters Against Covid-19	Sunita Panchawat
OP-13	Plant Doctors Take a Technological Leap In This Difficult And Challenging Covid Times	Rohini Trivedi
OP-14	Nano-Strategies for Oral Delivery of Anticancer Drugs for the Treatment of Cancer	Garima Joshi
OP-15	Catalytic diphenyl-di-selenide mediated fast and facile synthesis of Isatoic anhydride from Isatin using 30% aqueous solution H <sub>2</sub> O <sub>2</sub>	Mangilal Chouhan
OP-16	Recent Advancements in Nano-Formulation and Composites of Curcumin and its Biological Significance	Ayushi Sethiya, Nusrat Sahiba & Shikha Agarwal*
<b>Poster Presentations</b>		
PP-01	In Silico Molecular Docking & ADMET Study of Phytoconstituents for the Treatment of COVID-19	Amisha Gupta
PP-02	Herbal Antiviral Drugs	Pooja Negi
PP-03	Current Strategies for The Development of The New Drugs for The Treatment For COVID-19	Pooja Mathur Das
PP-04	Novel Corona Virus SARS-CoV: A Threat to Human Era	Vijayshri V. Rokde
PP-05	Covid-19 Pandemic Reactions	Mahesh Singh
PP-06	Antiviral Medicinal Plants and Their Metabolites Suitable Against Covid-19 Pandemic	Munish Sharma
PP-07	Prophylaxis Of Covid-19 Through the Use of Selected Domestic Herbs	Ayushi Bhatnagar
PP-08	Molecular Docking Studies on USFDA Approved Drugs Against SARS-COV-2: A Drug Repurposing Study	Kapish Kapoor
PP-09	Listing of Medicinal Plants of Ajmer Division and Their Significance with Special Focus on Ashwagandha and Its Role in Management of Covid-	Surekha Choudhary

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	19	
PP-10	Pharmacological Activities of <i>Macrotyloma Uniflorum</i> : Un Update	Amit Chirania
PP-11	Nanostructured Lipid Carriers (Ncls) As Oral Delivery System for The Treatment of Cancer	Sheikh Shahnawaz Quadir
PP-12	Impact of Covid-19 In the Teaching-Learning Outcome: A Pedagogical Challenge	Pankaj Singh Patel
PP-13	An Inventory of The Medicinal Flora of Aravalli Ranges of Kishangarh Subdivision, Ajmer (Rajasthan)	Vibha Khanna
PP-14	Historically Deadliest Pandemic Covid-19: Challenges	Sanket Kumar
PP-15	A Comparative Analysis of Phenotypic and Genotypic Method for Detection Of AMR	Twinkle Soni
PP-16	Review on the Clinical Trials Studies Performed in India for the Effective Treatment of COVID-19	Kajol Rustage
PP-17	Current Advancements On Multi-Target-Directed-Scaffolds As Anti-Alzheimer Agents	Pankaj Teli
PP-18	"Antiulcer Activity of Aqueous and Ethanolic Leaves Extract of <i>Tinospora Cordifolia</i> Against Aspirin Induced Peptic Ulcer in Albino Wistar Rat"	Suresh Ahir
PP-19	Medicinal Plants in The Indian Arid Zone	Rajshree Dahiya
PP-20	Herbal Medicines as Potential Anti-Anaemic Agents: A Detailed Review with Special Emphasis on Semi-Arid Zone	Supriya Singh



**Cocktail of Spike Protein mRNA for Development of Vaccine Against Sars-Cov-2**

**Variants: A Hypothesis**

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**Abstract:**

Novel coronavirus causes severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) which has led to significant number of morbidity and mortality worldwide. Researches all over the world are doing lots of efforts to develop therapies and prophylactic vaccines against SARS-CoV-2. Recently, four internationally confirmed variants of concerns (VOCs) have been identified – B.1.1.7, B.1.351, P.1 and B.1.427 with diverse pathogenicity and characteristics. As of present, vaccine is the only one instrumental tools in the control of COVID 19, but their effect won't be immediate. In the present work a hypothesis is proposed that if the cocktail of mRNA encoding of spike protein of each variant be used in therapeutic doses to counter all variants of concerns (VOCs).

**Keywords:** Novel corona virus, variants of concerns, variants of concerns, spike protein

**Phyto-constituents as Potential Leads for the Development of Novel Antiepileptic Drugs**Joohee Pradhan<sup>1</sup> & Purnima Paliwal<sup>2\*</sup><sup>1</sup>Department of Pharmaceutical Sciences, Mohanlal Sukhadia University, Udaipur, Rajasthan, India;<sup>2</sup>School of Pharmacy, Devi Ahilya Vishwavidyalaya, Indore, Madhya Pradesh, India**Email:** [paliwalpurnima25@gmail.com](mailto:paliwalpurnima25@gmail.com)**Abstract:**

Epilepsy is the major cause of morbidity and mortality despite the availability of varied drugs. The present Anti-epileptic drugs (AEDs) however solve numerous problems but still many adverse reactions observed in patients for instance; enzyme induction; impact of these drugs on growth and bone metabolism; effect on visual performance etc. Serum NGF levels may be associated with intrauterine antiepileptic exposure-related developmental problems. Along with this, the drug resistance epilepsy still remains a problem. Most of the antiepileptic therapies focus on combined administration of two or more AEDs, but this is still not the solution to existing complications. These facts dictate a clear-cut need of a novel, third generation safe, and effective AED. The safety and efficacy of herbal drugs in treatment of various ailments including epilepsy has been supported by a vast literature published time to time. The phyto-constituents present in these herbal sources e.g., *Bacopa monnieri*, *Acanthus montanus*, *Alchornea Laxiflora*, *Berberine* and many others, were found to act on potential AED targets, including various voltage-gated Ca<sup>2+</sup> channel subunits and auxiliary proteins, A- or M-type voltage-gated K<sup>+</sup> channels, voltage-gated sodium channel, GABA<sub>A</sub> receptors, Nicotinic cholinergic receptors, Glycine receptor, NMDA receptor, AMPA receptor and ionotropic glutamate receptors. Thus, we have a large library of phyto-constituents which are effective against various types of epilepsies; and through a systematic approach involving Structure activity relationship study, Computational approach such as molecular docking and Pharmacophore modelling etc., new and safer AED can be developed. The present literature emphasizes on the antiepileptic activity of various herbal drugs, the phyto-constituents from which can be used as potential leads for the development of novel antiepileptic drugs.

**Keywords:** Epilepsy, Anti-epileptic drugs, Herbal sources, Phyto-constituents, Computer Aided Drug Design

**Alzheimer's Prevention with Dietary Phytochemicals**

Jaya Arora\*, Farhana Khan, Abhishek Joshi, Bhanupriya Kanthaliya & Supriya Meena

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**Abstract:**

Alzheimer's disease (AD) is an incurable irreversible progressive neurodegenerative disorder and the most common cause of Dementia that is characterised by memory loss, impaired communication, disorientation, poor judgement then ultimately behavioural changes in which walking, speaking and swallowing difficulties occurs. It is due to pathological hallmark senile plaques (A $\beta$ ) and tangled tau proteins in brain. According to World Alzheimer's report 2018, 50 million people worldwide living with Dementia having 70-80% patients with Alzheimer's and this number will more than triple to 152 million in 2050. Existing medication for Alzheimer's disease produces only moderate amelioration of symptoms hence no treatment is available. Several phyto-constituents from dietary sources like flavonoids, phenolics, carotenoids, organosulphur compounds and different vitamins - B6, C, E play a pivotal role in Alzheimer's prevention. These natural antioxidants and substance from edible plants have been reported to interfere with molecular signalling cascades in neuronal destruction and prevent brain hippocampal cells from cognitive impairment in Alzheimer's disease.

Both *in vitro* and *in vivo* preclinical research shows beneficial effects of these phytochemicals on the brain aging in the special context of reduction in cellular stress signalling, inhibiting the accumulation of senile plaques (A $\beta$ ), reduce oxidative stress and improve behavioural measures of mobility and cognition. This review discusses the relationship between dietary phytochemicals and molecular cascades which beneficially attenuate the progression of AD, it also explored the novel strategies to prevent disease onset and how this knowledge of experimental and clinical studies facilitates the development of more targeted prevention strategies.

**Keywords:** Alzheimer's disease (AD), Phytochemicals, cognitive impairment, flavonoids

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**The Collaborative Research Model Between Academia and Industry: A Solution of Heavy and Instant Demand of Medical Ads**

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**Abstract:**

Around the world, the Pharmaceutical Industry is continuously putting in its efforts, either by providing medicines, vaccines or by providing types of equipment for fighting against Novel corona Virus 19. Although the mutation in virus and danger of appearances of new types of disease in future shown a gap in requirement and supply of medical ads from the pharmaceutical Industry. This gap can be full filled by quality research at a mass level in collaboration with the Pharmaceutical Industry and academia with the inclusion of prospective Pharma students. The Pharmaceutical research in India done in collaboration with academia and pharma industries brings revolutionary changes in the approach of the academicians and industrialists, which not only overcome the gap of the requirement and supply of the medical ads but also enhance the credibility of the Indian pharma industry as well as Academia at the global level. All pharmaceutical industrialists should come together and create such a mechanism that supports researchers directly from the academic world.

The Present study deals with the creation of such a modal that supports a collaborative research environment in the country within the legal framework of the country. This paper focused on creating such a model. This model works as a bridge between Industry and academia. This paper also deals with issues related to the functionality of this model.

**Keywords:** Collaborative Research, Pharma Industry, Academia, medicines, vaccines.

**Molecular Docking Analysis and ADME Study of Hydroxychloroquine and Other Quinolone Agents Against Spike Protein of Sars-Cov-2**

Saurabh Patidar\*, Rajesh Sharma & E. Manivannan

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**E-mail:** [saurabh771patidar@gmail.com](mailto:saurabh771patidar@gmail.com)

**Abstract:**

**Aim:** In the absence of a known efficient therapy and because of the situation of a public-health emergency, it made sense to investigate the possible effect of chloroquine/hydroxychloroquine against SARS-CoV-2 since this molecule was previously described as a potent inhibitor of most coronaviruses, including SARS-CoV-1.

**Objectives:** Since the exact mechanism of action of hydroxychloroquine and chloroquine as anti-CoV-2 is still unknown. Molecular docking of hydroxychloroquine and chloroquine on Spike protein of Cov-2 as their target is carried out to understand the binding site and interactions. Further more than 25000 quinoline analogues were identified and filtered with drug likeness properties and docking is performed on spike protein.

**Methods & Materials:** All the quinoline agents were downloaded from the PubChem database, and protein 6W41 from RCSB PDB database. ADME study and docking was performed with Schrodinger Maestro 12.5.

**Results:** Top 10 compounds with highest glide score are selected for the final analysis. Compound with high score and most common interactions similar to reference drug chloroquine and hydroxychloroquine is finally reported.

**Conclusion:** The results from the study suggest that the top compound identified, on further studies, optimization and development may be a potent inhibitor of Covid-19 spike protein.

**Keywords:** Molecular Docking, ADME, Covid-19, Quinolines, Chloroquine.

**Molecular Docking, In-Silico ADMET Prediction and MD Simulation Studies of Small Covalent Compounds for the Treatment of COVID-19**

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**Abstract:**

The Corona virus disease 2019 of COVID 19, also called 2019 novel coronavirus (2019-nCoV), is a dangerous respiratory disease caused by a novel coronavirus primarily detected in Wuhan, China in 2019. The COVID-19 pandemic resulted in remarkable levels of morbidity and mortality all over the world. Initially China, followed by the USA, Italy, France, Iran, Spain, Russia, Turkey, and the UK became hotspots for COVID19. Seven types of human coronavirus have been reported, including HCoV-OC43, HCoV-229E, HCoVHKU1, HCoV-NL63, severe acute respiratory syndrome (SARS)-CoV, Middle East respiratory syndrome (MERS-CoV), and 2019- novel coronavirus nCoV. Corona species SARS-CoV-2 have trimeric spike(S) protein.

**Objectives:** Identify the potent inhibitor of spike glycoprotein of SARS-CoV-2 *In-silico* studies using molecular docking and ADMET methodology.

**Methods & Material:** The all selected small covalent compounds were downloaded from Pubchem, Zinc, coconut database etc. Further, the compounds Protein spike glycoprotein. Maestro 4.6 Software is used by inhibitors (6VXX) and MD simulations studies are performed on Sybyl 2.1.1 Software.

**Results & Discussion:** For the future anti COVID-19 agent, binding data for interaction derived from these molecules are useful. From the Docking Study, it was observed that ligands bind to the electrostatic, hydrophobic clamp formed by the residues A GLY 339, A SER 371, A ARG 509, A PHE 342 and A ASN 343 which play an essential role for spike glycoprotein Inhibition.

**Conclusion:** The results that could then be obtained suggest that the above compounds may be a reasonable way of adjusting and improving for treatment of COVID-19 further.

**Keywords:** Maestro, Chemdraw, Spike Protein, SARS-CoV-2, COVID-19, Glide G Score, Molecular Docking, 6VXX.

**Computational Approach Towards the Development of Novel Imidazopyridine Derivatives as Potential Antidiabetic GSK3 $\beta$  Inhibitors**

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**Abstract:**

A dataset of 29 novel imidazopyridine derivatives with potential antidiabetic GSK 3 $\beta$  inhibitory activity was subjected to 2D and 3D Quantitative Structure-Activity Relationship (QSAR) analysis with the help of VLife Molecular Design Suite (VLife MDS) ver 4.2.1. Out of the three methods used for 2D QSAR analysis viz. Partial Least Square (PLS), multiple linear regression (MLR), and principal component regression (PCR), the MLR method led to the statistically most significant model with  $r^2 > 0.75$ ,  $F \gg$  tabulated value, chance correlation  $< 0.001$  and  $q^2 > 0.6$ . The 3D QSAR analysis on the data set by k-Nearest Neighbor Molecular Field Analysis (kNN-MFA) method was performed by Step Wise (SW) forward-backward, Genetic Algorithm (GA) and Simulated Annealing (SA) methods of which the model obtained through SW was statistically most significant having  $q^2 > 0.7$ . Results suggested that for better pharmacological activity, a 2-methoxyethyl substitution or propan-2-one substitution on at 4- position of pyridine ring and any methyl substitution on the ring would be detrimental for the activity while an aromatic ring at R<sub>1</sub> and hydroxyl group separated by 4 carbon distance on pyridine ring would be beneficial for the activity. Thus, by favorable modification of the lead structure, more selective and potent antidiabetic GSK 3  $\beta$  inhibitors can be synthesized.

**Keywords:** 2D QSAR, 3D QSAR, VLife MDS, kNN-MFA, Imidazopyridine, antidiabetic, GSK3 $\beta$  inhibitors

**A Critical Review on *Delbergia Sissoo* and *Curcuma Longa* as Possible Promising Combination for the Treatment of Various Ailments**

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**Abstract:**

Turmeric, a spice that is recognized for its medicinal properties, has received interest from both the medical/scientific world and it is the major source of the polyphenol curcumin. Curcumin has excellent antioxidant and anti-inflammatory properties and is used for the prevention and treatment of various diseases. It aids in the management of oxidative and inflammatory conditions, metabolic syndrome, arthritis, anxiety, and hyperlipidemia. It may also help in the management of exercise-induced inflammation and muscle soreness, thus enhancing recovery and performance in active people. In addition, a relatively low dose of the complex can provide health benefits for people that do not have diagnosed health conditions. The plant *Dalbergia sissoo* has been used in different systems of traditional medication for the treatment of diseases and ailments of human beings. It contains various compounds like dalbergenone, dalbergin, methyl dalbergin, 4-phenyl chromene, and dalbergichromene, and also contains dalbergichromene, nordalbergin and isodalbergin as minor constituents. The plant has been reported to possess Antidiabetic, Antioxidant, Analgesic and Antipyretic, Anti-termite, Anti-spermatogenic, Anti-inflammatory, Anthelmintic, Antidiarrhoeal, Molluscicidal, Antinociceptive, Neuroprotective, Antioxidant and Osteogenic activities. Commonly, the above two plants possess anti-inflammatory, antioxidant and osteogenic activities. The combination of their extracts and formulating a novel drug delivery system can be used in the treatment of various ailments.

**Keywords-**Dalbergia sissoo, Curcuma longa, anti-inflammatory, antioxidant, novel drug delivery system



**Potential Role of Nanotechnology in Diagnosis, Treatment and Management of Covid-19**

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**Abstract**

The outbreak of the novel corona virus disease (COVID-19) has raised serious concerns for human health. The high infectious and spreading rate of COVID-19 along with no targeted treatment therapies available has pushed the scientific world to look into novel strategies for the rapid diagnosis, treatment and management of the same. Currently, diagnosis of COVID-19 includes real-time RT-PCR (Reverse Transcriptase-Polymerase Chain Reaction) technique to detect the virus in specimens and chest X-ray and CT scan are recommended to detect the patches and opacity in the lungs. Nanomaterials based biosensors/analytical devices can increase the sensitivity, accuracy and specificity of COVID-19 detection systems. The present treatment strategy is mainly based on symptomatic relief and includes the conventional antivirals, antipyretics, antibiotics etc. along with few vaccines. The emergence of new viral strains and frequent viral mutations imposes a need to develop effective, targeted and safe drugs and vaccines for treatment. Nanomedicine/nano-based vaccines can prove to be beneficial in COVID-19 treatment because of their effectiveness, targeted delivery, controlled release and decreased toxicity. Recently, therapies with methotrexate (MTX)-loaded nanoparticles have been approved for phase I and II clinical trials in Brazil. Self-disinfecting surfaces that are coated with nanomaterials with virucidal and antimicrobial properties can be promising methods of disinfection and such nanomaterials can be used in the development of more efficient filtration face masks, air filter materials, protective equipment (PPEs) etc. Thus, nanotechnological interventions can revolutionize the fight against COVID-19 by enhancing the sensitivity and reliability of diagnosis and providing better and efficient treatment and management strategies.

**Keywords:** COVID-19, RT-PCR, Nanomedicine, methotrexate loaded nanoparticles

Proceedings of the international virtual conference on "**Covid-19 Pandemic: Role, Responsibilities, and Challenges for Pharmaceutical Research, Industry, and academia**" Organized by Department of Pharmaceutical Sciences, Mohanlal Sukhadia University, Udaipur (RAJ) – India

Published online in International Journal of Pharmacy & Life Sciences, (ISSN: 0976-7126); Website: [www.ijplsjournal.com](http://www.ijplsjournal.com)

**Formulation of Herbal Facial Scrub with Rejuvenating Effects**

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**Abstract**

In order to get healthy looking skin, skin must be clean regularly to remove all the dirt, sebum, dead cells, etc. This will protect our skin primarily and help to make it beautiful. For this cleaning, several marketed products are already available that will clean the skin but also having some adverse effects due to its chemical usage. The addition of herbal extracts to these products will give us beautiful nourishment of our skin and overcome the adverse effects caused by the chemicals and overcome the environmental contamination to our skin. Our study tried to overcome this problem by the addition of natural ingredients into the facial scrub. The method incorporated into this study was simple mixing of the natural ingredients like neem, tulsi, lemon, orange, aloe vera, almond oil, mixed with the gelling agent carbopol of grade 934. Further additions of preservatives, flavouring agents are incorporated to form a homogeneous mixture. This cream was then formulated and further evaluated as per the investigations like organoleptic properties and other characterizations like spreadability, irritability, extrudability, etc. All these parameters are found satisfactory and tend to reformulate the facial scrub at the boosting level on our skin as compared to the other marketed chemical products.

**Key words:** Herbal, Facial Scrub, Rejuvenating, Natural ingredients

**Nano Drug delivery system for Treatment of Cancer**

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**Abstract:**

Cancer is a crucial public health load in both developed and developing countries and remains one of the world's most devastating diseases. Cancer cells usually invade and destroy normal cells due to imbalance in the body. Chemotherapy is a major line of the treatment for localized and metastasized cancers. Recently, nano-particulate drug delivery systems containing anti-cancer agents have gained much attention due to their unique accumulation behaviour at the tumour site large surface-to-volume ratios. Nanotechnology can be defined as the science and engineering of creating and assembling objects on a scale of size in range of 1-100nm. Nanoparticle-based drug delivery systems have gained enormous acceptance due to their ability to overcome biological barriers, successfully deliver hydrophobic therapies, and specially target the tumor site. Further, Targeted drug delivery systems can improve efficacy and reduced toxicity for anticancer agents. Currently, many formulations of nanocarriers are utilized including lipid-based, polymeric and branched polymeric, metal-based, magnetic, and mesoporous silica. This review summarizes recent advancement and challenges in nanoparticle-based drug delivery systems for treatment of cancer.

**Key Words:** Nano drug delivery system, Cancer, Targeted drug delivery systems, Nanocarriers

## **Herbal Drugs as Immune Boosters Against Covid-19**

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### **Abstract:**

Corona virus Disease 2019 is caused by coronavirus, SARS-CoV-2, which was identified in Wuhan, China on December 2019 and up till now World is still in the state of shock. There is a need to search for effective herbal remedies against covid-19 from the rich and extensive flora of the World. Our immune system consists of a complex collection of cells, processes, and chemicals that constantly defends our body against invading pathogens, including viruses, toxins, and bacteria. Herbal drugs can support the physiological system of the body and their functions; thereby the immune system will be able to fight against the microorganism.

The ancient medical science had stated long ago that plant extracts could do a lot to strengthen the body. According to Ayurveda, our body can withstand infections only when all the seven layers of our body's tissues (Rasa, Mamsa, Rakta, Medha, Majja, Asthi and Shukra) are strong. When the seven layers are working together, our immunity will be boosted. The present review discusses the vital concepts related to covid-19, in terms of its origin, transmission, clinical aspects and diagnosis.

**Key Words-** Herbal plants, Immune system, SARS-CoV-2, Physiological system etc.

**Plant Doctors Take a Technological Leap in This Difficult and Challenging Covid Times**

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**Abstract:**

Plant clinics were started way back for diagnosis and remedy of plant diseases in a country where agriculture is the major occupation and backbone. COVID-19 PANDEMIC has challenged the concept which was giving fruitful results for small stake holders, poor and remote area farmers. The lockdown, restricted physical activity, movement and social distancing have forced farmers to accept the newer technologies. As every single farmer irrespective of age and economic strata have smart phone they have accepted and adapted to the digital revolution. They click a clear and concise picture of the affected plant and plant part and send it to a plant doctor. The plant doctor after zooming and questioning the farmer prescribes tele-medicines or treatment, the follow up taken after decides the course of future action. If the problem persists, a different and, as far as possible safe, eco-friendly, sustainable treatment is prescribed.

Online plant clinic sessions or webinars are organized with experts and farmers from adjoining localities as participants. A little push and they get into interactive mode, through voice or chat box, sharing photos and videos along with description. This helps them to connect to experts hundreds of kilometers away. Sharing their problems and knowing what problems and coping strategies fellow farmers from adjoining areas are taking is a great help. The emotional support from the same fraternity in these difficult COVID times is a blessing.

**Keywords:** Plant clinic, Economic strata, sustainable treatment, Pandemic, Plant diseases.

## **Nano-Strategies for Oral Delivery of Anticancer Drugs for the Treatment of Cancer**

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### **Abstract:**

Nanotechnology is one of the emerging fields in the drug delivery to target the drug to the site. In the last few decades, nanotechnology has gained importance for the development of drug delivery systems. They offer advantages over conventional delivery systems in the treatment of cancer. In spite of numerous advantages, oral therapy faces the hurdles in delivering the macromolecules and small molecules which is quite challengeable. In clinical practices, most of the macromolecular drug was treated parenterally, though it offers high treatment cost, improper patient compliance and systemic toxicity. The scientists are exploring various strategies for oral delivery of anticancer drugs which aim to develop “Chemotherapy at Home”. The nanoformulations like polymeric nanoparticles, liposomes, dendrimers, emulsions, Nanostructured Lipid Carriers etc are being explored for oral delivery. The nanoformulations are absorbed and directly delivered to blood by M cells at GALT. Oral nanoformulations for treatment of cancer are being widely explored. Surface engineering of polymeric nanoparticles is widely utilized to effectively target the cells in various diseases such as cancer. Surface modification of nanoparticles can be done by various materials like antibodies, aptamers, ligands, peptides and silica shells etc. Oral nanoformulation can provide targeted delivery of drugs into specific cells by virtue of its nanosize, especially when targets are intracellular localized. This approach would be more advantageous for the delivery of various anticancer drugs for more effective therapy.

**Catalytic diphenyl-di-selenide mediated fast and facile synthesis of Isatoic anhydride from Isatin using 30% aqueous solution H<sub>2</sub>O<sub>2</sub>**

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**Abstract:**

The uses of Isatoic anhydride has gain a much attention in last decades. In literature various methods have been reported and used for the synthesis of several quinazoline and quinazolinone derivatives. These compounds find use as medicinal and pharmacological substances. The synthesis of isatoic anhydride can be started using isatin, anthranillic acid, 2-carbamoylbenzoic acid, and pthalamide etc.

The present method of synthesis utilize 30% aqueous solution in Acetonitrile:Water DMF (4:2:1) using 5 mol% diphenyldiselenide, afforded the much higher yield in less than 10 minutes. The developed protocol was further utilized on 5- substituted isatin derivatives which afforded 5-substituted-isatoic anhydride with 85-90% yield. The advantages of the method included fast, facile and less time consuming with good yield.

**Keywords:** Isatin, Isatoic anhydride, Diphenyl-diselenide, Hydrogen peroxide, quinazolinone

**Recent Advancements in Nano-Formulation and Composites of Curcumin and its  
Biological Significance**

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**Abstract:**

Curcumin is a poly phenolic compound extracted from *Curcuma longa* commonly known as turmeric. In the last decades, it has gained enormous interest amid the researchers due to its extensive biological applications like anti-microbial, anti-cancer, anti-leishmanial, cardiovascular activity, anti-alzheimer's, anti-diabetic, anti-oxidant, anti-inflammatory, etc. It exhibits extremely poor bioavailability, absorption, rapid metabolism, and low permeability that creates its pharmacology profile exciting and also hinders and plummets its medical use. A vast surge of research has been done to conquer these limiting causes. The scientists all across the globe are working to design several drug delivery systems viz. liposomes, micelles, hydrogels, and magnetic nano carriers, etc. for curcumin and its composites which not only perk up its physiochemical characteristics but also improve its therapeutic applications. This study delivers an idea of the current study piloted to overwhelm the complications with the bioavailability of curcumin in the past five years, which have displayed a better biological activity than curcumin. This study helps researchers in order to foster commercial translations of improved nano-sized curcumin combination for the treatment of diverse diseases.

**Keywords:** Curcumin composites, Anti-microbial, Anti-cancer, Drug delivery system, Liposomes, micelles, hydrogel, Nano formulations, Combination therapy.



**In Silico Molecular Docking & ADMET Study of Phytoconstituents for the Treatment of COVID-19**

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**Abstract:**

The Coronavirus disease 2019 of COVID 19, also called 2019 novel coronavirus (2019-nCoV), is a dangerous respiratory disease caused by a novel coronavirus primarily detected in Wuhan, China in 2019. The COVID-19 pandemic resulted in remarkable levels of morbidity and mortality all over the world. Initially China, followed by the USA, Italy, France, Iran, Spain, Russia, Turkey, and the UK became hotspots for COVID19. Seven types of human coronaviruses have been reported, including HCoV-OC43, HCoV-229E, HCoVHKU1, HCoV-NL63, severe acute respiratory syndrome (SARS)- CoV, Middle East respiratory syndrome (MERS-CoV), and 2019- novel coronavirus nCoV. Corona species SARS-CoV-2 have RNA dependent RNA polymerase protein involved in replication and transcription of virus. *In-silico* studies done using molecular docking and ADMET methodology. The all-selected plant constituents were downloaded from Pubchem, Zinc, coconut database etc. Further, the compounds were screened using Maestro 4.6 Software on PDB 7BV2. For the future anti COVID-19 agent, binding data for interaction derived from these molecules will be useful. From the Docking Study, it was observed that ligands bind to the H bond, metal coordination and salt bridge with A POP 1003, A MG 1004, A MG 1005 formed by the residues which play an essential role for RNA dependent RNA polymerase inhibition. The binding affinity, grid calculation and RMSD percentage lower and upper parameters were calculated. The results that could then be obtained suggest that the above compounds may be a reasonable way of adjusting and improving for treatment of COVID-19 further.

**Keywords:** RNA dependent RNA polymerase Protein, SARS-CoV-2, COVID-19, Glide G Score, Molecular Docking, 7BV2.

**Herbal Antiviral Drugs**

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**Abstract:**

Phytochemicals are important source of various medicinal products. Viral infections play a vital role in human diseases, Herbal medicines and purified natural products provide a rich source for novel antiviral drug development. In this brief report, we summarize the antiviral activities from several natural products and herbal medicines against some notable viral including Corona virus, Dengue virus, Hepatitis B virus, Hepatitis C virus, Human immunodeficiency virus, Influenza virus, Measels virus etc. The wide prescription of herbal drugs is mainly due to their high effectiveness, less side effects and relatively low cost.

**Key words:** Herbal drugs, novel antiviral agents.

**Current Strategies for the Development of the New Drugs for the Treatment for  
COVID-19**

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**Abstract:**

Over decades dependency of humans on the medicine has become indispensable and irreplaceable. Thus, every year many new medicine area units accredited. All the same, medicine endure rigorous testing and analysis to be offered globally in economic worth for the quality of patients with totally different age and physiological conditions. The testing of drugs include clinical trial victimisation little cluster of 20–100 healthy volunteers for safety, Materia medica and efficacy; run phase II clinical trial victimisation 100–500 volunteer patients to optimize effective dose, dose interval, safety analysis and mode of delivery like oral or intravenous phase III clinical trial victimisation 1000–5000 in an exceedingly larger population of patients globally at totally different international places to gather sufficient safety and effectualness information for patenting and licencing. Moreover, thousands of medicines fail to attain these objectives. The aim of this study was to develop AN acceptable anti-viral drug against the SARS-CoV-2 virus. AN instantly qualifying strategy would be to use existing powerful medication from varied virus treatments. The strategy in virtual screening of antiviral databases for potential therapeutic result would be to spot promising drug molecules, as there's presently no immunizing agent or treatment approved against COVID-19. A trial has been created to recommend AN in-silico procedure relationship between US-FDA approved medication, plant-derived natural medication, and Coronavirus main proteinase (6LU7) supermolecule. This study and mini-review intend to critically examine and assimilate the clinical applications of designated advanced repurposed little drug molecules that area unit in several section of trials for treating virus infection together with complications thanks to COVID-19: (a) Remdesivir, (b) Galidesivir, (c) Favipiravir, (d) Baricitinib, and (e) Baloxavir.

**Keywords-** Covid 19, docking, Remdesivir.

Proceedings of the international virtual conference on "**Covid-19 Pandemic: Role, Responsibilities, and Challenges for Pharmaceutical Research, Industry, and academia**" Organized by Department of Pharmaceutical Sciences, Mohanlal Sukhadia University, Udaipur (RAJ) – India  
Published online in International Journal of Pharmacy & Life Sciences, (ISSN: 0976-7126); Website: [www.ijplsjournal.com](http://www.ijplsjournal.com)

**NOVEL CORONA VIRUS SARS-COV: A THREAT TO HUMAN ERA**

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**Abstract:**

SARS is the name of the respiratory illness that's caused by SARS-CoV. The acronym SARS stands for severe acute respiratory syndrome. The global SARS outbreak lasted from late 2002 to mid-2003. During this time, over 8,000 people Trusted Source were sickened and 774 people died. The origin of SARS-CoV is thought to be bats. It's believed that the virus passed from bats to an intermediate animal host, the civet cat, before jumping to humans. Fever is one of the first symptoms of SARS. The virus originated in bats and was transmitted to humans through yet unknown intermediary animals in Wuhan, Hubei province, China in December 2019. severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the seventh-generation coronavirus family causing viral pandemic coronavirus disease (COVID-19) across globe affecting millions of people. The symptoms are usually fever, cough, sore throat, breathlessness, fatigue, malaise among others. The disease is mild in most people; in some (usually the elderly and those with comorbidities), it may progress to pneumonia, acute respiratory distress syndrome (ARDS) and multi organ dysfunction. Many people are asymptomatic. Diagnosis is by demonstration of the virus in respiratory secretions by special molecular tests. Common laboratory findings include normal/ low white cell counts with elevated C-reactive protein (CRP). On December 31, 2019, a novel coronavirus, being the third highly infective CoV and named as coronavirus disease 2019 (COVID-19) in the city of Wuhan, was announced by the World Health Organization. It is the third highly pathogenic and transmissible coronavirus after severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) emerged in humans. Like other SARS CoV it has a large positive-stranded RNA genome.

**Keywords:** SARS-CoV-2, respiratory syndrome, **pneumonia**, MERS-CoV

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Published online in International Journal of Pharmacy & Life Sciences, (ISSN: 0976-7126); Website: [www.ijplsjournal.com](http://www.ijplsjournal.com)

## **Covid-19 Pandemic Reactions**

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### **Abstract:**

COVID-19, which has been widely spread worldwide, has an unusual way of stroking the entire world. Crises have spread rapidly; disease load and casualties are still on the rise around the globe, the reactions, perceptions, and outcomes were distinct. Globally, governments enforced quarantine and social distancing measures to prevent the spread of the infection. The most common symptoms for patients infected with COVID-19 are fever, cough, difficulty breathing, fatigue, and headache. Most symptomatic patients will develop mild symptoms. However, some patients may progress to serious illness, such pneumonia, acute respiratory distress syndrome, multi organ dysfunction and even death. Given the seriousness of the corona virus outbreaks, health professionals with expertise in public health are essential. Mitigating the advent of rumours and misinformation during the COVID-19 epidemic is crucial, since misinformation and fake news creates panic, fear and anxiety among people, predisposing them to various mental health conditions. It basically means that all COVID-treating nurses will have expertise in the basics of palliative care, as well as access to opioids for symptoms management like breathlessness. The pharmacy profession needs to build upon the lessons and experiences of this global pandemic and not let the momentum of the visible and invisible changes go to waste. The emergence of the new type of corona virus at the end of 2019 put significant pressure on the pharmaceutical industry. As health professionals were figuring out how to treat the virus, pharmaceutical providers set out to investigate what existing drugs might help treat patients with COVID-19, potential new medicines to help mitigate the symptoms and long-term effects and the production of a vaccine.

**Key words:** covid-19, Pharmaceutical industry, Vaccine, Corona virus

**Antiviral Medicinal Plants and their Metabolites Suitable Against Covid-19 Pandemic**

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**Abstract:**

Medicinal plants have been used against human viruses in practice since long time. Numerous herbal medicinal plants used by following traditional practices as by making leaf powder, decoctions, infusions, pastes and pills have been documented against viral infections. There are plentiful trials ongoing to find a right treatment for the COVID-19 viral pandemic through testing different vaccines as well as available drugs. There are many plants present having medicinal antiviral properties against human viruses such as *Sylibummarianum*, *Moringaoleifera*, *Sambucusnigra*, *Artemisia annua*, *Isatisindigotica*, *Lindera aggregate*, *Pelargonium sidoides*, and *Glychirrhiza* spp. And *Withaniasomnifera*, have been used against human viruses as well as SARS-CoV. Many varieties of vital phytoconstituents bioactive compounds, such as alkaloids, phenolic compounds, tannins, saponins, flavonoids, terpenoids, lignans, coumarins, and many more other active classes of these compounds from different parts like leaves, fruits, stem roots and as well as whole plant body have varied antiviral activities. Glycyrrhizin from the roots of *Glycyrrhiza glabra* has shown promising potential against the previously epidemic coronavirus, SARS-CoV. Active bioactive ingredients such as emodin, reserpine, aescin, myricetin, scutellarin, apigenin, luteolin, and betulonic acid also have shown promising results against the coronaviruses. Phytochemicals have demonstrated activity against the coronaviruses through mechanisms such as viral entry inhibition, inhibition of replication enzymes and virus release blockage. Therefore, along with other drugs currently testing against COVID-19, plant derived drugs should be included for speedy development of COVID-19 treatment.

**Keywords:** Medicinal plants, Phytochemicals, Antivirals, SARS-CoV-2, Covid 19.

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Published online in International Journal of Pharmacy & Life Sciences, (ISSN: 0976-7126); Website: [www.ijplsjournal.com](http://www.ijplsjournal.com)

**Prophylaxis of Covid-19 Through the Use of Selected Domestic Herbs**

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**Abstract**

Since the outbreak of Coronavirus disease (COVID-19) caused by SARS COV-2 in early December 2019, its impact on human life throughout the world and the complications thereof has been published widely. In spite of tremendous study and research, there is no established medicine or fully effective vaccine for COVID-19 to date. So, prevention is the key to combat COVID-19. The concept of immunity in the ancient science of life i.e., Ayurveda offers a holistic approach and a potential promise regarding immunotherapy. The selected eleven noble herbs are namely: *Cinnamon, Giloya, Haridra, Tulsi, Black pepper, Vasa, Bhumyamalaki, Kantakari, Laung, Mulethi, and Shunthi* contain various phytochemicals such as Cinnamaldehyde, Terpinolene, Eugenol, Piperine, Vasicinone, Coumarins, Liquoritin responsible for their pharmacological effect most importantly anti-inflammatory and antiviral ones. When administered in form of Kwath, may prove to be an important prophylactic therapy against COVID-19 due to Kwath's unique qualities, viz. good adaptability, better absorption, and assimilation in the body system, and retention of many of the water-soluble portions present in raw materials. Here we review the chemistry and pharmacological properties of eleven selected herbal drugs, that, if taken in form of Kwath, may act as an immunomodulator, by strengthening the immunity and provide the capacity to resist the external disease-causing agents including SARS COV-2.

**Keywords:** COVID-19, Domestic Herbs, Immunomodulation, Kwath, Antiviral.

**Molecular Docking Studies on USFDA Approved Drugs Against SARS-COV-2: A Drug Repurposing Study**

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**Abstract:**

COVID-19(corona virus disease -19) is a viral flu which is caused by SARS-CoV-2(severe acute respiratory syndrome corona virus 2) has affected more than 1.5 million people around the world. Currently there are 19 different ways to tackle this pandemic approved by USFDA, one of it is drug repurposing or positioning of current existing drugs. In this study more than 1800 molecules approved by the USFDA were chosen for the molecular docking studies. These molecules were docked on PDB code; 6LU7 (The crystal structure of COVID-19 main protease in complex with an inhibitor N3) using Molegro virtual docker version 6.0.1. The study helped in identifying HITS and further in vitro and in-vivo studies of the selected HITS can be studied for their therapeutic potential in treating COVID-19.

**Keywords:** Molecular Docking, Drug repurposing, COVID-19 or SARS-CoV-2.



**Listing of Medicinal Plants of Ajmer Division and Their Significance With Special Focus on Ashwagandha and Its Role in Management of Covid-19**

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**Abstract:**

Covid-19 is a highly contagious disease with highest mortality ever recorded, in recent times. Mass vaccination Drive is in progress in various countries around the globe but the available vaccines are not the absolute solution of the pandemic. The adversity of the virus depends on the immunity of the patient too. So along with vaccination we have to look towards nature.

Large number of Medicinal plants have been shown to be active against a variety of human pathogenic viruses and their near congeners. Ajmer division is the cradle of various medicinal plants. Many of them have been proved to be strong immunity booster i.e. Ashwagandha, Giloy, Tulsi, Kanghi, Beel Patra, Brahmi, Neem etc. Ayurvedic medicines, especially Ashwagandha (*Withania somnifera* (L.) Dunal, WS) may be beneficial in treatment of Covid-19.

National clinical management protocol (Ministry of AYUSH, GOI) also suggested *Withania somnifera* as a potential therapeutic adjuvant for Covid-19 management. *Withania somnifera* is a well-known prescribed ayurvedic medicine as an immunomodulatory, antiviral and anti-stress agent. Along with *Withania somnifera*, we have enlisted plants of medicinal importance and have also surveyed the available literature and collected data regarding medicinal importance of the plants of Ajmer division. Further investigation and clinical studies will be helpful in defining the role of these medicinal plants in treating Covid-19 as well as other human ailments.

**Keywords:** Ayurvedic medicines, *Withania somnifera*, immunomodulator, anti-stress agent.

**Pharmacological Activities of *Macrotyloma Uniflorum*: Un Update**

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**Abstract:**

Horse gram is used traditionally for kidney stone degeneration, cold cough, asthma and bronchial problems. Horse gram in seed part is dried, extracted with decoction and is used as a drug. It contains alkaloids, flavonoids, steroids, tannins and glycosides. Because of its wide variety of uses it has gone phytotherapeutic agent. It belongs to the family Fabaceae and it is mainly cultivated in India. It is used as an anti-obesity natural food supplements in India. It also contains various pharmacological principal activities such as Ruksha, Kashaya Rasa, Vipaka, Katu, Tikshna Guna and Ushna Veerya Laghu. Major anti-oxidants like natural phenols and flavonoids are found abundantly in the seeds of *Macrotyloma uniflorum* which are good source of food in animal feed. *M. uniflorum* is highly nutritious legumes with ethno-medicinal claims but its potential for human health and diet has not been explored. The purpose of this review is to conclude and discuss the scientific knowledge on medicinal properties of horse gram and main its ingredients and particularly obesity.

**Keywords:** *Macrotyloma uniflorum*, Horse gram, obesity, anti-oxidants, flavonoids.

## **Nanostructured Lipid Carriers (NLCs) as Oral Delivery System for the Treatment of Cancer**

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### **Abstract:**

Route of drug administration play as vital role is therapeutic efficacy and bioavailability of particular drug molecule. Every route of administration has its own merits and demerits with certain limitations. While, oral drug delivery is most prominent, safe and highly preferred route for drug administration. Aims to develop “Home treatment” or we can say “Hospital free treatment” are the footsteps to develop oral anticancer drug treatment strategies which achieve the pharmaco-economic and new tactics to target cancer as well as affordable treatment and patient compliance are accessible by those key steps. However, the efficacy of oral drug delivery system is restricted due to physiological and physicochemical behaviour of GIT and drug molecule. Meanwhile, the drug molecule must withstand in the acidic condition of GIT without degradation and achieved hydrophilic-lipophilic balance to cross intestinal region which led to achieve blood circulation without any GIT disturbances and systemic toxicity. Most of the anti-cancer drug could not achieve oral bioavailability and some of it has low bioavailability (5-20%) e.g.: Doxorubicin, docetaxel, tamoxifen, paclitaxel, etc. due to their low hydrophilicity, high para-glycoprotein efflux (P-gp), limited intestinal permeability and metabolism through liver and intestine CYP450. Hence, to overcome these issues new intervention for oral drug delivery may utilize like nano carriers and nano-particulate drug delivery via. liposomes, micelles, carbon nanotube, dendrimers, microemulsion, etc. In this review we are highlighted the oral delivery of nanocarrier i.e., nanostructured lipid carriers (NLCs) for the treatment of cancer which gain so much attention from researcher and scientist due to their ability to cross epithelial barrier as a prominent characteristic factor.

**Keywords:** Nanostructured lipid carriers (NLCs), oral drug delivery, bioavailability, Cancer

**Impact of Covid-19 in the Teaching-learning Outcome: A Pedagogical Challenge**

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**Abstract**

The disease has spread worldwide, resulting in a pandemic that is still underway. Since that time, the COVID-19 infection has posed a concern to humans, altering overall habits, lifestyles, working methods, and so on. Academic learning is considered to be the major factor in the national foundation. COVID-19 Pandemic badly affects the teaching-learning process by creating social, mental, and psychological isolation among the students and academicians. As per the delivery of subject content was concerned, internet connectivity with other software and hardware modality creates a major hindrance in the retrieval of content by the students. Inappropriate retrieval of content creates psychological agitation that puts down the confidence level of the students. Social and psychological distancing also deprived the students of practical hands-on learning sessions. Low confidence level in these situations does not meet the industry, academic, and research expectations. This creates psychological pressure which is the big question as per the career perspective of students and scholars. All these consequences ultimately affect the morale of academicians. In this situation, all kinds of academic activities are going on virtually which creates social isolation for the students. They are deprived of developing team-building qualities, leadership qualities, etc. that are required to attain optimum productivity in any field of development. A sedentary lifestyle also affects physical health and development that psychologically isolates the students socially. Virtual cum real-time home base miniature lab might be established to execute the practical session based on basic principles. Mini projects and different group tasks were assigned to the students related to the pharmaceutical principle that can improve the learning process among the students.

**Keywords:** COVID-19, Sedentary, Psychological, Pedagogical, Academicians,

**An Inventory of the Medicinal Flora of Aravalli Ranges of Kishangarh Subdivision,  
Ajmer (Rajasthan)**

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**Abstract:**

Aravallis traverse the northern tract of the Kishangarh sub-division, from south-west to north-east. The highest peak in the Kishangarh sub-division area is 623.33 metres (2,045 feet) above sea level. Owing to its location with reference to Aravalli and its varied physiography, the region exhibits a wide range of plant types, that range from typical Xerophytic vegetation to the Mesophytes. The region has a rich population of exotic plants like Eucalyptus, Prosopis juliflora, Lantana camara, Parthenium hysterophorus etc., in some of the patches.

Ground flora is dominated by numerous ephemerals and weeds, particularly during rainy and winter seasons. Different types of grasses form lush green carpet particularly in areas away from rural dwellings and on Hillocks where Rock mining is not on an extensive scale. The present inventory consists of 107 species of plants of medicinal importance belonging to 90 genera spread over 43 families. Asteraceae, Caesalpinaceae, Euphorbiaceae, Mimosaceae, Papilionaceae and Solanaceae are represented by 5 or more species of medicinal importance. The trees, shrubs as well as herbs of the region, whose medicinal value is cited in the literature perused have been documented in the present work, along with their medicinal value. Most of the herbs and weeds do have medicinally important principal. The same was found true for the notorious exotic species. However, the region with sufficient biodiversity is under great biotic stress, not only due to the anthropogenic activities but also due to the fast-growing invasive species in the area.

**Keywords:** Aravallis, Solanaceae, Eucalyptus, Prosopis juliflora, medicinally important principal.

## **Historically Deadliest Pandemic Covid-19: Challenges**

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### **Abstract:**

Till 27 June 2021, the crises of covid-19 with daily new cases of 3.7 million all over the world & still on count making it one of the historically deadliest pandemics. Globally, this pandemic leads to shut down the boundaries including mankind. Individually, the fear of death due to corona virus arise the difficulties in both the sampling procedure and vaccination care. With safety precautions including social distancing, proper mask wearing & strictly on hand sanitation leads the count to fall and will so on. With all loses the pandemic pouring new challenges to all as humanity, world leaders & especially to pharmaceutical scientists, health care and academic professionals. This severe acute syndrome of respiratory system causes fever, breathing difficulty, dysfunction of multiple organs and even death. This all created a meaningful thinking for researchers for discovery a way of re-searching for novel concepts of drug design that provides treatment effectiveness and save millions of lives. Researchers having great challenges due to the corona virus as because of the covid-virus evolve over time and also research in natural immunity booster supplements put the nutraceuticals on a treadmill competition. The pandemic teaches us to care the nature, respect the nature and build the humanity building with it. With all over the support and care to each other's, we the pharmaceuticals, health care and academic professionals having a chance of antagonizing the pandemic.

**Keywords:** Covid-19, nutraceuticals, breathing difficulty, natural immunity booster

## **A Comparative Analysis of Phenotypic and Genotypic Method for Detection of AMR**

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### **Abstract:**

The rise in zoonotic infections has put forward a need to identify the key components enhancing the virulence of microorganisms. One of the factor which contributes greatly to the virulence is, resistance to antibiotic. Antibiotics are the compounds possessing ability to kill or hamper the growth of micro-organism. Antibiotics are often recommended not only to treat bacterial infections, but also to prevent subsequent infections and as preventative measures. The continuous rise in use of antibiotic has led to a phenomenon of antibiotic resistance in the microorganism commonly called as AMR. The ability of microbe to resist antibiotic had created a new or more specifically a modified form of microbes, called as superbug. The infections from superbug is so dangerous that it forced policy makers and authorities to consider antimicrobial resistance as upcoming global thread. This review summaries the phenotypic and genotypic methods of AMR detection in sample. The phenotypic methods describe here includes disk diffusion method and LC-MS method along with their analysis, while genotypic method include next generation sequencing, polymerase chain reaction and microarray. The review also discusses the advantages and disadvantages of the strategies used.

**Key words:** AMR, Zoonotic, Microorganism, Phenotypic method, Genotypic method, NGS

**Review on the Clinical Trials Studies Performed in India for the Effective Treatment of COVID-19**

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**Abstract:**

**Object** – A review on the clinical trial studies was performed to evaluate to know the basic relationship among them and to know whether we should expect more molecules and vaccines in upcoming time or not?

**Material & Methods-** A literature and website on clinical trials.gov search was carried out.

**Result-** Till the date total 86 clinical studies has been performed out of 24 has been completed successfully, not studies was terminated or withdrawn. Interesting candidates such as Mesenchymal Stem Cells, Xiyanping injection, Natural killer cells, Nitric Oxide gas Inhalation, Pirfenidone, MERS-CoV Antibodies, Human Umbilical Cord Mesenchymal stem cells, bromhexine hydrochloride, Bevacizumab, Fingolimod, T89, Lopinavir, Eculizumab, Protease Inhibitors, Oselamvir, Favipiravir IFN- $\alpha$ 2 $\beta$ , Carrimycin, Iopinavir, Lopinavir/ritonavir tablets combined with Xiyanping injection, Gangovo(Danoprevir)combined with ritonavir, oxygen therapy, Methyl prednisolone, Inhaled nitric oxide gas, Losartan, Darunavir and Cobicistat, Favipiravir combined with tocilizumab, Tetrandrine, Intravenous aviptadil, Thalidomide, Unfractionated heparin , streptokinase and various others compounds are still in clinical trials. Some of the compound has also been used in other conditions but their effect on COVID-19 is still not evaluated yet. And some of the above-mentioned compounds has shown marvelling effect against COVID-19.

**Conclusion:** Many interesting candidates for the treatment of COVID-19 are yet to come in the market.

**Keywords:** Clinical trial studies, Stem Cells, Oxygen therapy, MERS-CoV Antibodies.



**Current Advancements on Multi-Target-Directed-Scaffolds as Anti-Alzheimer Agents**

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**Abstract:**

Alzheimer's disease (AD) is a neurodegenerative disease, having higher cases as compared to the other forms of dementia and being more common in elderly population. More than 4 million people are living with Alzheimer's related dementia in India, making it a global crisis. Alzheimer disease deteriorates cognitive functions with the passage of time and consists of multifaceted factors such as decline of acetylcholine level, amyloid  $\beta$ -aggregation, tau hyperphosphorylation, oxidative stress, etc. The classical drugs used till date, are focused on only one target and not serving the cause properly. Hence, the community of scientists are rigorously working on multi-target-directed agents that incorporate two or more active scaffolds in one compound or hybrid of active moieties. This article aims at the evaluation of structure-activity relationship and virtual screening of novel potential compounds and moieties such as quinolines, chalcones, coumarins, chromenes, piperazine, carbazoles, cinnamic acids, tacrine hybrids, donepezil hybrids and so on that have been introduced as multi-target-directed agents in recent five years.

**Keywords:** Multi-target-directed-ligands, Alzheimer's disease, Quinoline, Chromene, Carbazole

**Antiulcer activity of aqueous and ethanolic leaves extract of *Tinospora cordifolia* against aspirin induced peptic ulcer in albino wistar rat**

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**Abstract:**

**Background:** Various medicinal plants are used in tradition system of medicine to treat various diseases and many of these plants have been evaluated for their different pharmacological activities. *Tinosporacordifolia* is one of them.

**Objectives:**The present work deals with the study of aqueous and ethanolic leaves extract of *Tinospora cordifolia* for its antiulcer activity on albino Wister rat.

**Methods:** Thirty adult male Wistar rats were divided into five groups **Controlgroup** Received 0.5% w/v CMC solution, p.o.For 10 Days, **Aspirin only group** received aspirin alone For 10 Days **JOL-AE & JOL-EE group** Received JOL-AE & JOL-EE For 10 Days **Ranitidine group** Received ranitidine For 10 Days. The gastric ulcers were induced in rats by administrating Aspirinorally, after 2 h of aqueous and ethanolic extract and ranitidine treatment.

**Result:** Aspirin group showed a significant increase in the ulcer index and acid secretory parameters like gastric volume, pH, free and total acidity when compared with those of vehicle treated group. Administration of JOL-AE produced more significant decrease in ulcer index in comparison to JOL-EE group. The extract also significantly reduced the gastric volume, total and free acidity, and increased pH of the gastric fluid, proving its antisecretory activity. JOL-AE and JOL-EE groups at the dose of 300 mg/kg body weight showed percent inhibition of 68.62 % and 60.07 %, respectively.

**Conclusion:** *Tinosporacordifolia* leaves extract shows significant antiulcer activity and Aqueous extract of *Tinospora cordifolia* leaf exhibited comparatively better activities than ethanolic extract in the assay seemingly due to efficient extraction of phytochemicals.

**Key words:** Aspirin, ranitidine, peptic ulcer, *Tinospora cordifolia*, etc.

**Medicinal Plants in The Indian Arid Zone**

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**Abstract:**

Indian system of medicine viz. Ayurveda, Unani and Sidha employ a great variety of plants in their curative and preventive preparations. Renaissance of recent interest in the herbals as source of cosmetics, nutraceuticals, toners, rejuvenators, detoxifiers and anti aging compounds has opened up new vistas of research in their botany, cultivation, chemistry and clinical standardization. These plants are also being prospected for developing drugs to cure such diseases, for which no satisfactory control has been found in allopathy. Arid zone of Rajasthan is fortunately gifted with 628 species belonging to 352 genera and 87 families. Of these, 116 species from 99 genera and 52 families are medicinally important as household remedy and utilized in traditional system. Of these, 17 species are commercially exploited while 28 species are constituents of Ayurvedic and Unani preparations. Most of these species are collected from natural habitats, fallows, field fences and waste lands. A further study revealed that of the 19 species most frequently used in drug preparations and which also top the export market, 13 are from arid and semiarid zone. Besides, there are a large number of medicinal plants which are preferably sourced from arid and semi-arid Rajasthan due to specific agro climatic conditions here. The information on these plants, their occurrence, botany, uses as well as their raw and final marketable produce is either scattered or scanty or quite often not available. An attempt has been made here to collate this information about some 110 medicinal plants.

**Keywords:** Ayurveda, Arid zone, Semiarid zone, Nutraceuticals, Allopathy

**Herbal Medicines as Potential Anti-Anaemic Agents: A Detailed Review with Special Emphasis on Semi-Arid Zone**

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**Abstract:**

Anaemia is a very common nutritional disorder which affects almost two billion of the total world population and the major reason for this is deficiency of iron in diet. It is prevalent mostly in developing and underdeveloped nations and is very common in infants, pregnant women and the elderly due to the poor absorption or reduced intake of iron. Treatment of anaemia depends on its type and severity. The most common treatment is administration of iron, folic acid and Vitamin B<sub>12</sub> supplements. But iron supplements have their own side effects of causing stomach upset, constipation, nausea and sometimes vomiting. With the paradigm shift in use of herbal drug technology throughout the globe it is estimated that high quality phytomedicines will provide a safe and effective remedy for the ailment. The semi-arid zone provides for a large number of herbal remedies some of which are being used as anti-anaemic and some are reported in Ayurveda, Siddha and Unani system and needs investigation. Literature survey has shown that many plants like *Amaranthus spinosus*, *Hollandia opposita*, *Hibiscus cannabis*, *Solanum nigrum*, *Operculina turpethum silva*, have shown potential anti-anemic activity and are being used traditionally. Apart from those plants like *Corriander sativum*, *Mentha piperata*, *Cajanus cajan*, *Amaranthus paniculata* have been found to have good amount of iron in them and can be investigated for anti-anaemic activity. This review aims to conglomerate the available indigenous literature on herbal treatment of anaemia and will also focus on newer potentials which needs attention and investigation.

**Keywords:** Anaemia, anti-anaemic, herbal remedies, medicinal plants, semi-arid zone.