Front page of Research Paper

Review › Biochim Biophys Acta Mol Basis Dis. 2020 Oct 1;1866(10):165878.
doi: 10.1016/j.bbadis.2020.165878. Epub 2020 Jun 13.

# Insights into SARS-CoV-2 genome, structure, evolution, pathogenesis and therapies: Structural genomics approach

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PMID: 32544429 PMCID: PMC7293463 DOI: 10.1016/j.bbadis.2020.165878

Free PMC article



## Abstract

The sudden emergence of severe respiratory disease, caused by a novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has recently become a public health emergency. Genome sequence analysis of SARS-CoV-2 revealed its close resemblance to the earlier reported SARS-CoV and Middle East respiratory syndrome coronavirus (MERS-CoV). However, initial testing of the drugs used against SARS-CoV and MERS-CoV has been ineffective in controlling SARS-CoV-2. The present study highlights the genomic, proteomic, pathogenesis, and therapeutic strategies in SARS-CoV-2 infection. We have carried out sequence analysis of potential drug target proteins in SARS-CoV-2 and, compared them with SARS-CoV and MERS viruses. Analysis of mutations in the coding and non-coding regions, genetic diversity, and pathogenicity of SARS-CoV-2 has also been done. A detailed structural analysis of drug target proteins has been performed to gain insights into the mechanism of

Fernandez et al. *Advances in Difference Equations* (2020) 2020:529
https://doi.org/10.1186/s13662-020-02991-5

Advances in Difference Equations
a SpringerOpen Journal

RESEARCH Open Access

# Some fixed point results on $\mathcal{N}_b$-cone metric spaces over Banach algebra

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## Abstract

The main aim of this paper is to introduce the concept of $\mathcal{N}_b$-cone metric spaces over a Banach algebra as a generalization of $\mathcal{N}$-cone metric spaces over a Banach algebra and $b$-metric spaces. Also, we study some coupled common fixed point theorems for generalized Lipschitz mappings in this framework. Finally, we give an example and an application to the existence of solutions of integral equations to illustrate the effectiveness of our generalizations. Some results in the literature are special cases of our results.

**Keywords:** $\mathcal{N}_b$-cone metric spaces over Banach algebra; $c$-sequence; Iterative algorithm; Coupled fixed points

©Rajasthali Journal ISSN 2583-1720
Received: Aug '22
Revised: Aug '22
Accepted: Sep '22



# A STUDY ON THE FIRST EIGENVALUE OF THE *P*-LAPLACIAN AND CRITICAL SETS OF HARMONIC FUNCTIONS BY DEFINING GEOMETRIC *P*-LAPLACIAN ON RIEMANNIAN MANIFOLDS

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ABSTRACT

*The p-Laplacian, sometimes known as the p-Laplace chairman, is a second-request quasilinear elliptic deficient differential executive in mathematics. When p is permitted to surpass 1p, the Laplace head hypothesis is nonlinear. This is a sizeable chunk of the range of the weighted p-Laplacian on a complete Riemannian complex with changing mathematics, which propels as an invariant sum under any mathematical stream. The basic Eigen value of the p-Laplacian on an n-layered closed Riemannian complex, which is estimated by a summarised mathematical stream, takes into account variety plans, monotonicity, and differentiability. Mathematicians and physicists have been particularly interested in the range of the Laplacian on noncom pact non-complete manifolds over the past thirty years due to the applications in flexibility and various fields of the study of the phantom features of the Dirichlet Laplacian in infinitely expanded regions. The basic points for p-symphonious guides between Riemannian manifolds are investigated using p-Laplacian PDEs in differential mathematics, and the width of the manifolds is determined using p-Laplacian on Riemannian manifolds eigenvalue problems. The study of the bizarre characteristics of the direct Laplacian on an area in a Euclidean space or a complex has made substantial use of the concept of self-adjoin administrators.*

**Keywords:** Eigen Value, *P*-Laplacian, Harmonic Functions, Geometric, Riemannian, Manifolds, etc.

## 1. INTRODUCTION

The p-Laplacian is a second-request quasilinear elliptic incomplete differential administrator that is sometimes sometimes referred to as the p-Laplace administrator. The Laplace administrator's nonlinear hypothesis, where p might be any number more pronounced than $1<p<\infty$. A symphonious capacity is a two times constantly differentiable capacity $f: U \rightarrow R$, where $U$ is an open subset of $R^n$ that satisfies Laplace's condition in science, mathematical physical science and the speculation

The variety method, monotonicity, and differentiability are looked at for the primary Eigen value of the p-Laplacian on an n-layered closed Riemannian complex, which is estimated by a mathematical stream that has been condensed. It is demonstrated that, under certain mathematical hypotheses, the first nonzero Eigen value is differentiable everywhere and monotonically non-lessening along the stream. These findings offer a cohesive method for handling the examination of Eigen value fluctuations and applications in various mathematical fields

Juni Khyat
(UGC Care Group I Listed Journal)
ISSN: 2278-4632
Vol-10 Issue-6 No. 13 June 2020

# ZEOLITES IN AGRONOMY

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**Abstract**

Green Approach is an approach that protects human and environmental health by replacing hazardous chemicals, processes, and products with safer processes and safer alternatives. Mineral fertilizers applied to agricultural crops have great potency to improve yield but they have adverse effect on environment and cause air, water and soil pollution when applied at large scale. Zeolites are most appropriate in agricultural uses due to their unique structure and properties like ion exchange and adsorption. Application of zeolites as fertilizers improves quality and yield of crops and reduces the harmful and negative effects. Zeolites improve the nutrients holding capacity and act as water moderator. These promote plant growth, improve the efficiency and value of fertilizer & increase the yield. Zeolites can retain important plant nutrients like nitrogen (N), potassium (K), and calcium (Ca), magnesium (Mg) in the root zone to be used by plants when required. This leads more efficient use of N and K fertilizers by reducing their application rates for same yield. These zeolite samples can be characterized by FTIR, XRD, $N_2$ adsorption, TGA & DSC and SEM.

**Keywords**: Zeolites, Green chemistry, ion exchange capacity, Heavy metals, Soil remediation.

## INTRODUCTION

Fertilizers are used for proper and healthy growth of plants but with this they are very harmful for environment. Fertilizers are substance, which can be synthetic or organic and can be is added to the soil in order to increase the supply of essential nutrients that boost the growth of plants and vegetation in that soil. With the rapid increase in population globally, the demand of food and agricultural yield has been rising tremendously. To increase the production at high level almost 40-60% of agricultural crops are grown with the use of different types of fertilizers. More than 50% people

 

Journal of the Maharaja Sayajirao University of Baroda
ISSN :0025-0422

# A STUDY ON SOFTWARE MECHANISM TO ENHANCE THE SECURITY OF IOT AND ANDROID SOFTWARE FOR SMART HOME IN REAL WORLD SCENARIO

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***Abstract***
*The Internet of Things is the idea of associating any gadget (inasmuch as it has an on/off change) to the Internet and to other associated devices. A safe home framework comprises of an entryway lock framework which has been perhaps the most popular purchaser devices replacing many of the conventional locks because of sheer client comfort and affordable costs. IoT security covers both physical gadget security and network security, and impacts the cycles, advancements, and measures necessary to ensure IoT devices and networks we proposed the application will learn from the client behavior and increase security accordingly. The details of the client accessing the lock will be put away in the server along with date and time which can be additionally used to foresee the occasions when the client will go into the house and handle security accordingly. We used House Module, control module. Home automation, being quite possibly the most integral parts of the sprouting realty industry paves forward the need to establish a basic yet productive system that through training anticipates the client's actions and executes it for them.*
***Keywords:*** *Software, Enhance, Security, IoT, Android, Smart Home, etc.*

## 1. INTRODUCTION

The Internet of Things is the idea of associating any gadget (inasmuch as it has an on/off change) to the Internet and to other associated devices. The IoT is a giant network of associated things and individuals all of which gather and share data about the way they are utilized and about the climate around them. Classic smart home, internet of things, cloud computing and rule-based occasion handling, are the building squares of our proposed advanced smart home integrated compound. Each segment contributes its center attributes and advancements to the proposed structure. IoT contributes the internet association and far off management of versatile appliances, incorporated with a variety of sensors. Sensors may be attached to home related appliances, for example, air-conditioning, lights and other environmental devices. And thus, it inserts computer insight into home devices to give ways to measure home conditions and screen home appliances' functionality. A safe home framework comprises of an entryway lock framework which has been perhaps the most popular

Purchaser devices replacing many of the conventional locks because of sheer client comfort and affordable costs many remote network arrangements, for example, Bluetooth, ultra wide band (UWB), remote Ethernet and many more have a place with the area of home networking. From among these, Bluetooth has become the most attractive procedure in the research and commercial domain as Bluetooth enables to create various sort of remote frameworks via handsets or smartphones and also lead research by utilizing handset and actuator by distant operation of various electrical devices at home. Since Bluetooth is so prevalent in cell phones, it was viewed as a basic, economical and secure answer for remote network for associating a cell phone to home network framework.

- ✓ **IoT security:** IoT security covers both physical gadget security and network security, and impacts the cycles, advancements, and measures necessary to ensure IoT devices and networks. It spans industrial machines, smart energy grids, building automation systems, entertainment devices, and more, including devices that often aren't intended for network security. IoT gadget security should ensure systems, networks, and data from a broad range of IoT security attacks, which target four sorts of vulnerabilities:
  - Communication attacks on the data transmitted between IoT devices and workers.
  - Lifecycle attacks on the IoT gadget as it changes hands from client to maintenance.
  - Attacks on the gadget software.

Jijnasa : A Journal of the History of Ideas and Culture
ISSN : 0337-743X

# केन्द्रीय कृषक उपज व्यापार और वाणिज्य(संवर्धन और सरलीकरण) विधेयक कानून 2020 का मध्यप्रदेष की कृषि उपज मंडियो पर आर्थिक प्रभाव का अध्ययन

**श्रीमती दुर्गेषनंदिनी अग्रवाल,** षोध छात्राए मानसरोवर ग्लोबल विष्वविद्यालय भोपाल

म.प्र. की कृषि उपज मंडी समितियों पर किसानों की आय वर्ष 2020 तक दोगुना करने एवं कृषको को उनके द्वारा उत्पादित उपज स्वतंत्रतापूर्वक विक्रय किये जाने हेतु केन्द्र सरकार द्वारा वर्ष 2020 में देष में कृषि सुधारों को लागू करने हेतु कोराना अवधि में 05 जून 2020 तीन कृषि सुधार अध्यादेष केन्द्र सरकार द्वारा स्वीकृत किये गये और जिन्हें बाद में संसद के दोनों सदनों में पारित कर कानून का दर्जा प्रदान किया गया।

इन तीन कानूनों में केन्द्रीय कृषक उपज व्यापार और वाणिज्य (संवर्धन और सरलीकरण) विधेयक 2020, कृषि (सषक्तिकरण और संरक्षण ) कीमत आष्वासन और कृषि सेवा करार विधेयक, 2020 और आवष्यक वस्तु (संषोधन) विधेयक 2020 हैं।

हम इस शोध में केन्द्रीय कृषक उपज व्यापार और वाणिज्य (संवर्धन और सरलीकरण ) विधेयक 2020 का अध्ययन एवं विष्लेषण कर रहे है जो कि कृषि उपज विक्रय एवं कृषि उपज मंडी समितियों से जुड़ा है। इस कानून के लागू होने के उपरांत अभी तक जहां कृषि उपज विक्रय में राज्य सरकारों की कृषि उपज मंडी समितियों ; च्डब्द्ध द्वारा कृषि विपणन का कार्य किया जाता था अब इस कानून के लागू होने के बाद मंडियो के साथ–साथ निजि क्षेत्र और पेन कार्ड धारक व्यक्ति, प्रसंस्करण यूनिट एवं निजि बाजार यार्ड, उपयार्ड, प्रत्यक्ष खरीदी कैन्द्रो और ई टेडिग प्लेटफार्मो द्वारा भी मंडी क्षेत्र के बाहर कृषि उपज क्रय का कार्य एवं कृषको द्वारा अपनी उपज का सीधा विक्रय किसी को भी किया जा सकता है।

यह कानून लोकसभा द्वारों 17 सितंबर 2020 एवं राज्यसभा में 20 सितंबर 2020 को पारित होने और राष्ट्रपति के हस्ताक्षर उपरांत कानून बन चुका है। केन्द्र सरकार के पारित होने के उपरांत मध्यप्रदेष सरकार द्वारा भी अपने प्रदेष में लागू मध्यप्रदेष कृषि उपज मंडी अधिनियम 1972 के स्थान पर मध्यप्रदेष कृषि उपज मंडी (निजि बाजार यार्ड, निजि बाजार उप यार्ड प्रत्यक्ष खरीदी कैन्द्र और ई– टेडिग पलेटफार्म) नियम 2020 मध्यप्रदेष में लागू किया गया । जो संपूर्ण मध्यप्रदेष में लागू हो गया हैं । और इसके लागू होने के बाद मंडी क्षेत्र के बाहर में लागू मध्यप्रदेष कृषि उपज मंडी अधिनियम 1972 निष्प्रभावी हो चुका हैं ।

**<u>अध्यादेष के मुख्य प्रावधान–</u>**

1. कृषकों को अपनी उपजों को जो कि उनके द्वारा पूर्व में मंडियों में विक्रय की जाती थी से विक्रय में स्वतंत्रता देते हुए मंडी क्षेत्र से बाहर विक्रय करने का प्रावधान।
2. कृषक अपनी उपज पूरे भारत में कहीं भी और किसी को भी विक्रय कर सकते है।
3. किसानों को उत्पाद पर उपकर समाप्त कर माल ढुलाई व्ययों को समाप्त करना।
4. किसानों को इंटरनेट माध्यम से ई–ट्रेडिंग की सुविधा उपलब्ध कराना।
5. किसनों को मध्यस्थों से मुक्ति दिलाकर सीधे–सीधे प्रसंस्करण यूनिट, कोल्ड स्टोरेज, मिलों, प्रायवेट मंडियों अन्य व्यापारियों को विक्रय अवसर प्रदान करना।
6. किसानों को कृषि उपज के लिऐ कृषि मंडियों तक जाने वहॉ इंतजार कर बेचने की बाध्यता को समाप्त करना।
7. सरकारी मंडियों के साथ–साथ निजि मंडियों की स्थापना कर कृषि विपणन को सरल बनाना।

ANVESAK
ISSN : 0378 – 4568 UGC Care Group 1 Journal

# DESIGNING AND EXPERIMENTING THE INNOVATIVE, ALTERNATIVE AND COMLIMENTARY WIRELESS COMMUNICATION TECHNIQUE USED FOR THE IOT APPLICATION

**Jyoti Kashiv** Research Scholar, Mansarovar Global University, Sehore (MP)

**Abstract**
Internet of Things (IoT) is a new computing worldview that visualizes changing over regular common articles into keen items. Wireless technologies will be the most ideal choice to associate IoT devices on account of its advantages over wired technologies including simpler establishment, cheaper frameworks, portability backing, adaptability, and simplicity of association. There are various types of wireless technologies applicable for IoT; these technologies range various spaces from not many centimeters to numerous kilometers. In this paper the Internet Engineering Task Force (IETF) presented 6LowPAN protocol and ZigBee union created ZigBee protocol over low power IEEE802.15.4 protocol. Sensors in wireless sensor networks applications are assembled as bunches to inform hubs called sensor hubs. These hubs are typically powered by battery power supply. In IoT applications these hubs should do its capacity for years without change their batteries. IoT helps making choices upheld by real data gathered utilizing large number of ordinary day-to-day devices that have been augmented with knowledge through the installation of detecting, processing and communication capabilities. IoT devices mainly utilize wireless communication for communicating with different devices.

**Keywords:** Innovative, Wireless, Communication, Technique, IOT, etc.

## 1. INTRODUCRION

Internet of Things (IoT) is a new computing worldview that visualizes changing over regular common articles into keen items. IoT has been recognized as one of troublesome technologies of the here and now that will change the way sees and understands our general surroundings and responds to its changes. The Internet of things portrays the organization of actual articles "things" that are embedded with sensors, software, and different technologies for the motivation behind associating and trading information with different devices and frameworks over the Internet. Advances made in universal and inescapable computing, embedded devices, communication technologies, sensor networks, Internet protocols and online applications are the basic hidden technologies that help make normal devices keen ones and consequently made IoT conceivable. Thus, these technologies are regularly known as the empowering technologies of IoT. As of late, the advances in different wireless

Communication protocols in technologies, for example, 5G, RFID, Wi-Fi-Direct, Li-Fi, LTE, and 6LoWPAN have significantly helped the likely capacities of IoT and caused it to turn out to be more common than any time in recent memory, which additionally quicken the further reconciliation of IoT with arising technologies in different territories, for example, detecting, wireless reviving, information trading, and handling. However, how these technologies particularly the relating wireless communication protocols can be very much lined up with IoT to boost their advantages on such performance as adaptability, administration quality, energy productivity, and cost viability is as yet open to examination and consequently calls for novel arrangements. And the elaborate protection and security issues likewise should be painstakingly inspected and tended to.

## 2. WIRELESS TECHNOLOGIES FOR INTERNET OF THINGS APPLICATIONS

In IoT frameworks, IoT devices gather information from actual frameworks, speak with entryways for information total, and associate with the Internet to forward the information to the cloud or edge computing devices for additional preparing and examination. By associating IoT devices to the Internet, the IoT environment vows to carry enhancements to our nature of lives, climate and