# Web of Science<sup>™</sup>

# JNU publications for the month of July, 2024

# Record 1 of 45

**Title:** The C-terminal proline-rich repeats of Enteropathogenic <i>E. coli</i> effector EspF are sufficient for the depletion of tight junction membrane proteins and interactions with early and recycling endosomes

**Author(s):** Ansari, I (Ansari, Imran); Mandal, A (Mandal, Anupam); Kansal, K (Kansal, Kritika); Walling, P (Walling, Pangertoshi); Khan, S (Khan, Sumbul); Aijaz, S (Aijaz, Saima)

**Source:** GUT PATHOGENS **Volume:** 16 **Issue:** 1 **Article Number:** 36 **DOI:** 10.1186/s13099-024-00626-8 **Published Date:** 2024 JUL 7

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

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# **Cited Reference Count:** 31

Abstract: Background Enteropathogenic E. coli (EPEC) causes acute infantile diarrhea accounting for significant morbidity and mortality in developing countries. EPEC uses a type three secretion system to translocate more than twenty effectors into the host intestinal cells. At least four of these effectors, namely EspF, Map, EspG1/G2 and NleA, are reported to disrupt the intestinal tight junction barrier. We have reported earlier that the expression of EspF and Map in MDCK cells causes the depletion of the TJ membrane proteins and compromises the integrity of the intestinal barrier. In the present study, we have examined the role of the proline-rich repeats (PRRs) within the C-terminus of EspF in the depletion of the tight junction membrane proteins and identified key endocytosis markers that interact with EspF via these repeats. Results We generated mutant EspF proteins which lacked one or more proline-rich repeats (PRRs) from the N-terminus of EspF and examined the effect of their expression on the cellular localization of tight junction membrane proteins. In lysates derived from cells expressing the mutant EspF proteins, we found that the C-terminal PRRs of EspF are sufficient to cause the depletion of TJ membrane proteins. Pull-down assays revealed that the PRRs mediate interactions with the TJ adaptor proteins ZO-1 and ZO-2 as well as with the proteins involved in endocytosis such as caveolin-1, Rab5A and Rab11. Conclusions Our study demonstrates the direct role of the proline-rich repeats of EspF in the depletion of the TJ membrane proteins and a possible involvement of the PRRs in the endocytosis of host proteins. New therapeutic strategies can target these PRR domains to prevent intestinal barrier dysfunction in EPEC infections.

Accession Number: WOS:001264876800002

**PubMed ID:** 38972985

Language: English

**Document Type:** Article

**Author Keywords:** Enteropathogenic E. Coli; EspF; Intestinal barrier; Proline rich repeats; Tight Junctions; Endocytosis

KeyWords Plus: ESCHERICHIA-COLI; DISRUPT; DYSFUNCTION; MECHANISMS; INFECTION

**Addresses:** [Ansari, Imran; Mandal, Anupam; Kansal, Kritika; Walling, Pangertoshi; Khan, Sumbul; Aijaz, Saima] Jawaharlal Nehru Univ, Special Ctr Mol Med, New Delhi 110067, India.

**Corresponding Address:** Aijaz, S (corresponding author), Jawaharlal Nehru Univ, Special Ctr Mol Med, New Delhi 110067, India.

**E-mail Addresses:** s\_aijaz@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

# **Author Identifiers:**

Author	Web of Science ResearcherID	ORCID Number
Aijaz, Saima	AFL-7686-2022	0000-0002-7512-9859

**Publisher:** BMC

Publisher Address: CAMPUS, 4 CRINAN ST, LONDON N1 9XW, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

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Research Areas: Gastroenterology & Hepatology; Microbiology

**IDS Number: XX1E9** 

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Education, Government of India	SIARS/APR2019/BS/661

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# Open Access: gold

Output Date: 2024-08-05

# Record 2 of 45

**Title:** Future land use and land cover simulations with cellular automata-based artificial neural network: A case study over Delhi megacity (India)

Author(s): Jain, M (Jain, Madhavi)

Source: HELIYON Volume: 10 Issue: 14 Article Number: e34662 DOI: 10.1016/j.heliyon.2024.e34662 Published Date: 2024 JUL 30

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

# Cited Reference Count: 110

**Abstract:** According to United Nations projections, future global urban growth will mostly occur in Asian megacities. In this study, a Cellular Automata based Artificial Neural Network (CA-ANN) model is used to simulate the future land use and land cover (LULC) over Delhi megacity (India). Delhi, projected to become the world's most populated city by 2030, is an example of a data poor city in Asia, having millions of climate vulnerable people. The CA-ANN model of Modules for Land Change Simulation (MOLUSCE), an open-source plugin, is first tested to simulate the LULC for 2009. Based on good validation results-structural similarity (SSIM; 0.8288), overall accuracy (79.78%), kappa index of agreement (KIA; 77.25%), and minimum validation overall error (0.0379), the same model set-up is used to carry out LULC simulation for 2030. This model is found to be simple, efficient, and computationally less expensive tool, and can be used to model future LULCs with a minimal set of inputs, a constraint often found in data poor cities. Results show continued increase in built-up area from 38.3% (2014) to 53.8% (2030), at the expense of cultivable areas, forests, and

wastelands. The study incorporates past and future LULC change trajectories to highlight the changing LULC dynamics of the megacity from 1977 to 2030. Rate of urban sprawl, calculated using compound annual growth rate (CAGR) is projected to be 2.51 % for 2014-2030, substantially higher than the estimates for 2006-2014 (0.62 %). Further, the past and future urban growth patterns for Delhi are found to mimic other big Asian cities. The database generated from the present study has wide applicability for scientific research community, governmental bodies, profit and non-profit organizations for topics concerning-future urban climate research, climate risk and adaption policy frameworks, climate finance budgeting, future town planning, etc.

Accession Number: WOS:001275655800001

Language: English **Document Type:** Article Author Keywords: Land use and Land cover (LULC); Cellular automata-artificial neural network (CA-ANN); Future simulation; Modules for Land change simulation (MOLUSCE); Megacity; Delhi KeyWords Plus: URBAN-GROWTH; SURFACE TEMPERATURE; CLIMATE-CHANGE; TRAJECTORY ANALYSIS; LANDSCAPE DYNAMICS; SPATIAL DYNAMICS; DRIVING FORCES; SAN-FRANCISCO; MODEL; URBANIZATION Addresses: [Jain, Madhavi] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India. **Corresponding Address:** Jain, M (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India. **E-mail Addresses:** madhav81\_ses@jnu.ac.in Affiliations: Jawaharlal Nehru University, New Delhi **Publisher:** CELL PRESS Publisher Address: 50 HAMPSHIRE ST, FLOOR 5, CAMBRIDGE, MA 02139 USA **Web of Science Index:** Science Citation Index Expanded (SCI-EXPANDED) Web of Science Categories: Multidisciplinary Sciences **Research Areas:** Science & Technology - Other Topics **IDS Number: ZM2R5** eISSN: 2405-8440 29-char Source Abbrev.: HELIYON **ISO Source Abbrev.:** Heliyon Source Item Page Count: 15 **Open Access:** gold **Output Date:** 2024-08-05

# Record 3 of 45

Title: Ladakh's Quest For Autonomy Amidst Geopolitical And Strategic Contestations Author(s): Verma, NK (Verma, Naresh Kumar); Rawat, R (Rawat, Rahul) Source: JOURNAL OF ASIAN AND AFRICAN STUDIES DOI: 10.1177/00219096241263963 Early Access Date: JUL 2024 Published Date: 2024 JUL 25 Times Cited in Web of Science Core Collection: 0 Total Times Cited: 0 Usage Count (Last 180 days): 0 Usage Count (Since 2013): 0 Cited Reference Count: 55

**Abstract:** Ladakh has become the major flashpoint of contestation between India and China. The existing dynamics can be attributed to the abrogation of the special status of Jammu and Kashmir (J&K) and the creation of the Union Territory of Ladakh in August 2019, resulting in constitutional, geopolitical, and strategic changes. This paper examines Ladakh's attainment of UT status and the paradigm shift in the conception of its role as a

strategic territory in light of the local struggle for autonomy, the diplomatic position of global actors, and the ongoing territorial conflict between India and China.

Accession Number: WOS:001275808700001

Language: English

**Document Type:** Article; Early Access

**Author Keywords:** Ladakh; Article-370; China; Galwan; geopolitics; autonomy; development; border infrastructure; India-China; military challenge

# KeyWords Plus: INDIA

Addresses: [Verma, Naresh Kumar] Jawaharlal Nehru Univ, Special Ctr Natl Secur Studies, New Delhi 110067, India.

[Rawat, Rahul] Jawaharlal Nehru Univ, Diplomacy & Disarmament Div, SIS, New Delhi, India.

**Corresponding Address:** Verma, NK (corresponding author), Jawaharlal Nehru Univ, Special Ctr Natl Secur Studies, New Delhi 110067, India.

E-mail Addresses: nareshrai.jnu@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi; Jawaharlal Nehru University, New Delhi

**Publisher:** SAGE PUBLICATIONS INC

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# Record 4 of 45

Title: Sports and the American presidency: from Theodore Roosevelt to Donald Trump Author(s): Khajuria, A (Khajuria, Abhishek) Source: INTERNATIONAL AFFAIRS Volume: 100 Issue: 4 Pages: 1813-1814 DOI: 10.1093/ia/iiae154 Published Date: 2024 JUL 10 Times Cited in Web of Science Core Collection: 0 Total Times Cited: 0 Usage Count (Last 180 days): 0 Usage Count (Since 2013): 0 Cited Reference Count: 0 Accession Number: WOS:001267002600037 Language: English **Document Type:** Book Review Addresses: [Khajuria, Abhishek] Jawaharlal Nehru Univ, New Delhi, India. **Corresponding Address:** Khajuria, A (corresponding author), Jawaharlal Nehru Univ, New Delhi, India. Affiliations: Jawaharlal Nehru University, New Delhi **Publisher:** OXFORD UNIV PRESS Publisher Address: GREAT CLARENDON ST, OXFORD OX2 6DP, ENGLAND Web of Science Index: Social Science Citation Index (SSCI) Web of Science Categories: International Relations **Research Areas:** International Relations **IDS Number: YF2J8 ISSN:** 0020-5850 eISSN: 1468-2346 29-char Source Abbrev.: INT AFF **ISO Source Abbrev.:** Int. Aff. Source Item Page Count: 2 **Output Date:** 2024-08-05

#### Record 5 of 45

Title: Dancing on Bones. History and Power in China, Russia, and North Korea Author(s): Yadav, A (Yadav, Ankur) Source: EUROPE-ASIA STUDIES Volume: 76 Issue: 6 Pages: 988-989 DOI: 10.1080/09668136.2024.2358668 **Published Date:** 2024 JUL 2 **Times Cited in Web of Science Core Collection:** 0 Total Times Cited: 0 Usage Count (Last 180 days): 0 Usage Count (Since 2013): 0 Cited Reference Count: 0 Accession Number: WOS:001261441900002 Language: English **Document Type:** Book Review Addresses: [Yadav, Ankur] Jawaharlal Nehru Univ, New Delhi, India. **Corresponding Address:** Yadav, A (corresponding author), Jawaharlal Nehru Univ, New Delhi, India. **E-mail Addresses:** ankuryadav@mail.jnu.ac.in Affiliations: Jawaharlal Nehru University, New Delhi Publisher: ROUTLEDGE JOURNALS, TAYLOR & FRANCIS LTD Publisher Address: 2-4 PARK SQUARE, MILTON PARK, ABINGDON OX14 4RN, OXON, ENGLAND Web of Science Index: Social Science Citation Index (SSCI) Web of Science Categories: Area Studies; Economics; Political Science Research Areas: Area Studies; Business & Economics; Government & Law **IDS Number: XJ9T6 ISSN:** 0966-8136 eISSN: 1465-3427 29-char Source Abbrev.: EUROPE-ASIA STUD

# Record 6 of 45

**Title:** Unravelling the signatures of submarine groundwater discharge and seawater intrusion along the coastal plains of Odisha, India: a multi-proxy approach

Author(s): Nayak, SK (Nayak, Soumya Kanta); Nandimandalam, JR (Nandimandalam, Janardhana Raju) Source: ENVIRONMENTAL GEOCHEMISTRY AND HEALTH Volume: 46 Issue: 7 Article Number: 254 DOI: 10.1007/s10653-024-02010-6 Published Date: 2024 JUL

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

# Cited Reference Count: 120

**Abstract:** Submarine Groundwater Discharge (SGD) and Seawater Intrusion (SWI) are two contrary hydrological processes that occur across the land-sea continuum and understanding their nature is essential for management and development of coastal groundwater resource. Present study has attempted to demarcate probable zones of SGD and SWI along highly populated Odisha coastal plains which is water stressed due to indiscriminate-exploitation of groundwater leading to salinization and fresh groundwater loss from the alluvial aquifers. A multi-proxy investigation approach including decadal groundwater level dynamics, LANDSAT derived sea surface temperature (SST) anomalies and in-situ physicochemical analysis (pH, EC, TDS, salinity and temperature) of porewater, groundwater and seawater were used to locate the SGD and SWI sites. A total of 340 samples for four seasons (85 samples i.e., 30 porewater, 30 seawater and 25 groundwater in each season) were collected and their in-situ parameters were measured at every 1-2 km gap along similar to 145 km coastline of central Odisha (excluding the estuarine region). Considering high groundwater EC values (> 3000 mu S/cm), three probable SWI and low porewater salinities (< 32 ppt in pre- and < 25 ppt in post-monsoons), four probable SGD zones were identified. The identified zones were validated with observed high positive hydraulic gradient (> 10 m) at SGD and negative hydraulic gradient (< 0 m) at SWI sites along with anomalous SST (colder in pre- and warmer in post-monsoon) near probable SGD locations. This study is first of its kind along the Odisha coast and may act as initial basis for subsequent investigations on fresh-saline interaction along the coastal plains where environmental integrity supports the livelihood of coastal communities and the ecosystem.

Accession Number: WOS:001249674900006

**PubMed ID:** 38884664

Language: English

Document Type: Article

**Author Keywords:** Submarine groundwater discharge (SGD); Seawater intrusion (SWI); Porewater salinity; Groundwater level dynamics; Sea surface temperature (SST); Odisha coast

**KeyWords Plus:** CLIMATE-CHANGE; RIVER INPUT; TAMIL-NADU; BAY; AQUIFER; BENGAL; IDENTIFICATION; SOUTH; SALINIZATION; EVOLUTION

**Addresses:** [Nayak, Soumya Kanta; Nandimandalam, Janardhana Raju] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

**Corresponding Address:** Nandimandalam, JR (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

E-mail Addresses: rajunj7@gmail.com

**Affiliations:** Jawaharlal Nehru University, New Delhi **Publisher:** SPRINGER

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**Research Areas:** Engineering; Environmental Sciences & Ecology; Public, Environmental & Occupational Health; Water Resources

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# Record 7 of 45

**Title:** Firehose instability in heat-conducting solar wind plasmas including FLR corrections and electrical resistivity

Author(s): Prajapati, RP (Prajapati, Ram prasad)

**Source:** EPL **Volume:** 147 **Issue:** 1 **Article Number:** 14003 **DOI:** 10.1209/0295-5075/ad59c0 **Published Date:** 2024 JUL

**Times Cited in Web of Science Core Collection:** 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

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# **Cited Reference Count:** 40

**Abstract:** The effects of finite Larmor radius (FLR) corrections and heat-flux vector are studied on the pressure anisotropy-driven firehose instability in finitely conducting solar wind plasmas described by the double-adiabatic Chew, Goldberger and Low (CGL) fluid theory. The fluid description of collisionless plasmas is governed through modified adiabatic equations due to the heat-flux vector and finite ion Larmor radius corrections. The analytical dispersion relation of the firehose instability has been derived using the normal mode analysis and discussed in the solar wind plasmas. In the transverse mode, the dispersion relation of the Alfve<acute accent>nic mode is modified due to electrical resistivity and FLR corrections. In the longitudinal mode, the effects of the heat-flux parameter and electrical resistivity are observed separately. The dispersion relation of the firehose mode is modified due to the combined effects of FLR corrections and electrical resistivity. The graphical illustrations show that finite electrical resistivity and ion Larmor frequency destabilize

the growth rate of the firehose instability. The results are useful for analyzing the solar mission data to study the firehose instability in the solar wind plasmas.

Accession Number: WOS:001271423100001

Language: English

Document Type: Article

**KeyWords Plus:** ION LARMOR RADIUS; GRAVITATIONAL-INSTABILITY; TEMPERATURE ANISOTROPY; KINETIC INSTABILITIES; MOLECULAR CLOUDS; MHD WAVES; PROTON; PROPAGATION; DIFFUSION; PARALLEL

Addresses: [Prajapati, Ram prasad] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

**Corresponding Address:** Prajapati, RP (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: rpprajapati@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Prajapati, Ram Prasad		0000-0002-5370-2933

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Output Date: 2024-08-05

# Record 8 of 45

**Title:** Comparison of a Few Perturbation Methods to Evaluate Axial Secular Frequencies in a Nonlinear Planar Dual-Frequency Paul Trap

Author(s): Kansal, A (Kansal, Anuranjan); Saxena, V (Saxena, Varun)

Source: IEEE TRANSACTIONS ON PLASMA SCIENCE DOI: 10.1109/TPS.2024.3420164 Early Access Date: JUL 2024 Published Date: 2024 JUL 8

**Times Cited in Web of Science Core Collection:** 0

Total Times Cited: 0

# Usage Count (Last 180 days): 0

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# **Cited Reference Count:** 41

**Abstract:** Modified homotopy and modified Lindstedt-Poincare perturbation methods have been applied to the dynamics of an ion in a dual-frequency planar Paul trap in the presence of hexapole, octopole, and decapole field aberrations. Approximate analytical expressions for axial secular frequency correct up to second order have been evaluated for the ion trapped inside the device. The motion of the ion in rapidly oscillating fields is transformed into a motion under the influence of an effective potential encapsulated by a nonlinear Duffing-like differential equation. The results obtained using perturbation methods have been matched with the exact axial secular frequency and are well in agreement for different voltage and frequency ratios for the dual-frequency Paul trap.

Accession Number: WOS:001271487000001

Language: English

**Document Type:** Article; Early Access

**Author Keywords:** Ions; Electrodes; Perturbation methods; Radio frequency; Mathematical models; Voltage; Electric potential; Modified homotopy method; modified Lindstedt-Poincare method; nonlinear systems; perturbation methods

**KeyWords Plus:** ION-TRAP; HOMOTOPY-PERTURBATION; TOMOGRAPHY; OSCILLATOR; EXCITATION; IMPACT

Addresses: [Kansal, Anuranjan] JSS Acad Tech Educ, Dept Elect & Commun Engn, Noida 201301, Uttar Pradesh, India.

[Saxena, Varun] Jawaharlal Nehru Univ, Sch Engn, Delhi 110067, India.

**Corresponding Address:** Saxena, V (corresponding author), Jawaharlal Nehru Univ, Sch Engn, Delhi 110067, India.

E-mail Addresses: nuranjankansal@jssaten.ac.in; arunsaxena@mail.jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi

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**ISO Source Abbrev.:** IEEE Trans. Plasma Sci.

Source Item Page Count: 8

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# Record 9 of 45

Title: Rohingya women as refugees: Examining displacement, refugeehood and 'bare life'
Author(s): Paul, S (Paul, Samanwita); Butola, BS (Butola, Balbir Singh)
Source: JOURNAL OF REFUGEE STUDIES DOI: 10.1093/jrs/feae039 Early Access Date: JUL 2024 Published Date: 2024 JUL 16
Times Cited in Web of Science Core Collection: 0
Total Times Cited: 0
Usage Count (Last 180 days): 0

# Usage Count (Since 2013): 0

# Cited Reference Count: 64

**Abstract:** Based on Agamben's assertions (1998) refugees are often compared to 'bare life' (homo sacer) without any political agency. They are considered to be outside the purview of national or international legal and yet at its mercy for survival. For refugee women, this stripping of their autonomy stereotypes them as reproductive vessels in need of chivalrous protection within the larger refugee discourse. Policy projects frequently regard them as 'vulnerable populations' in need of assistance. Given this theoretical framework, the present study contextualizes the life of Rohingya women prior to displacement and as refugees in India. It aims to assess the de jure and de facto rights of these women through the process of displacement. Moving beyond rigid assertions, this study postulates that refugeehood does not mean a complete absence of decision-making spaces for Rohingya women nor does it in any way mean a sudden disappearance of their sufferings. It focuses on their experiences as women and steers clear of homogenizing their narratives as refugees.

Accession Number: WOS:001271044600001

Language: English

**Document Type:** Article; Early Access

Author Keywords: refugees; homo sacer; Rohingya women; displacement; agency

KeyWords Plus: AGAMBEN

Addresses: [Paul, Samanwita; Butola, Balbir Singh] Jawaharlal Nehru Univ JNU, Ctr Study Reg Dev, Sch Social Sci, New Delhi 110067, India.

**Corresponding Address:** Paul, S (corresponding author), Jawaharlal Nehru Univ JNU, Ctr Study Reg Dev, Sch Social Sci, New Delhi 110067, India.

E-mail Addresses: samanwitapaul@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

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**Research Areas:** Demography; Ethnic Studies

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ISO Source Abbrev.: J. Refug. Stud.

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#### Record 10 of 45

**Title:** A comparative study of calcium oxide nanoparticle and its ferrite (CaO/ Fe 2 O 3 ) nanocomposite for removal of zinc and nickel from electroplating effluent

Author(s): Archana (Archana); Yadav, N (Yadav, Nikita); Thakur, A (Thakur, Atul); Singh, S (Singh, Satyendra); Srivastava, S (Srivastava, Shaili)
 Source: INORGANIC CHEMISTRY COMMUNICATIONS Volume: 167 Article Number: 112746 DOI:

10.1016/j.inoche.2024.112746 Early Access Date: JUL 2024 Published Date: 2024 SEP

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 1

Usage Count (Since 2013): 1

# Cited Reference Count: 58

**Abstract:** Electroplating effluent contains many heavy metals including Zinc (Zn) and Nickel (Ni) are some of the crucial metals which exist in high concentrations. Calcium Oxide nanoparticles (CaONPs) and CaO/Fe2O3 nanocomposite (CaO/Fe2O3NC) were synthesized to evaluate the feasibility of Zn (II) and Ni (II) removal from wastewater. CaO NPs were successfully synthesized from waste eggshells by the sol-gel process while the chemical precipitation method was used for the synthesis of CaO NC. The morphology of the prepared material was characterized by X-ray diffraction (XRD), DLS, Fourier transform infrared spectroscopy (FTIR), and scanning electron microscopy (SEM) analysis. Batch studies were performed to assess the effect of pH, time, and adsorbent dose on the adsorption efficiency of the nanoparticle and nanocomposite for Zn (II) and Ni (II) removal. Inductively coupled plasma mass spectroscopy (ICP-MS) was used to monitor the amount of Zn (II) and Ni (II) ions in the aqueous solutions. The adsorption capacity of both metal ions increases with an increase in pH, with maximum adsorption occurring at pH 8. An optimum dose of 75 mg/L was observed with both CaO nanoparticle and CaO/Fe2O3 nanocomposite to remove Zn (II) and Ni (II) while equilibrium was achieved after 1 h. The high adsorption capacity makes these adsorbents a promising candidate for removal of metal ions from electroplating effluent.

Accession Number: WOS:001266917200001

Language: English

**Document Type:** Article

**Author Keywords:** Toxic heavy metals; Nanocomposite; Batch studies; Wastewater; Adsorption Efficiency **KeyWords Plus:** HEAVY-METAL IONS; EFFICIENT REMOVAL; AQUEOUS-SOLUTIONS; WASTE-WATER; ADSORPTION; EQUILIBRIUM; ADSORBENT; CARBON

**Addresses:** [Archana; Yadav, Nikita; Srivastava, Shaili] Amity Univ Haryana, Amity Sch Engn & Technol, Gurugram, Haryana, India.

[Thakur, Atul] Amity Univ Haryana, Amity Inst Nanotechnol, Gurugram, India.

[Singh, Satyendra] Jawaharlal Nehru Univ, Special Ctr Nanosci, New Delhi 110067, India.

**Corresponding Address:** Srivastava, S (corresponding author), Amity Univ Haryana, Amity Sch Engn & Technol, Gurugram, Haryana, India.

**E-mail Addresses:** shailisrivastava05@gmail.com

Affiliations: Jawaharlal Nehru University, New Delhi

#### **Author Identifiers:**

Author	Web of Science ResearcherID	ORCID Number
Singh, Satyendra		0000-0001-9203-7879
SRIVASTAVA, SHAILI		0000-0001-6133-4555

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**Title:** Impact of declining traditional agropastoral practices on soil system in high-altitude pastures of Ladakh, Trans-Himalaya

Author(s): Ladon, P (Ladon, Padma); Garkoti, SC (Garkoti, Satish Chandra)

Source: CATENA Volume: 243 Article Number: 108228 DOI: 10.1016/j.catena.2024.108228 Early Access Date: JUL 2024 Published Date: 2024 AUG

# **Times Cited in Web of Science Core Collection:** 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

# **Cited Reference Count:** 82

**Abstract:** This investigation delineates the interplay of altitudinal gradients and traditional pastoral practices on the physico-chemical properties of soils within high-altitude pastoral ecosystems in Ladakh, India. Focused on three distinct villages-Gya, Shang, and Igoo-in the Leh valley, the research comprehensively analysed soil characteristics under varying grazing regimes: intact, dwindling, and abandoned. A pivotal observation is the enhancement of soil nutrient profiles in Gya, where enduring traditional practices, including the establishment of temporary settlements and animal resting places, are evident. This contrasts with the sites of Shang and Igoo, which exhibit a decline in such practices. Critical to the findings is the elucidation of a robust altitudedependent variation in soil pH, which in turn markedly influences nutrient bioavailability and overall soil fertility. Spatial variances in soil attributes, specifically in water-holding capacity, organic carbon content, and total nitrogen levels, were conspicuous, reflecting the distinctive pastoral attributes intrinsic to each surveyed locale. This research elucidates the complex and dynamic relationships between environmental variables and anthropogenic practices in defining soil physico-chemical dynamics in high-altitude pastoral systems. The study accentuates the imperative of integrating environmental dynamics with indigenous pastoral knowledge for effective and sustainable land management, crucial for preserving ecological integrity and supporting highaltitude communities' sustenance. By offering in-depth insights into soil health and its determinants in highaltitude ecosystems, the study advocates for an integrative approach to conserving natural resources and traditional knowledge systems in agropastoral management. It posits that safeguarding these delicate ecosystems while fortifying the livelihoods of local communities, necessitates comprehensive, knowledgeinformed management strategies. This research thus contributes significantly to the discourse on conservation efforts, underlining the necessity of holistic approaches in managing and preserving the delicate balance of high-altitude ecosystems.

Accession Number: WOS:001263213800001

Language: English

Document Type: Article

**Author Keywords:** High-altitude pastures; Mountain agropastoralism; Trans-Himalaya; Socio-economic changes; Traditional knowledge system

**KeyWords Plus:** ECOSYSTEM SERVICES; NORTHERN AREAS; FOOD SECURITY; LIVESTOCK; ABANDONMENT; MOUNTAINS; COMMUNITY; TRANSHUMANCE; DIVERSITY; REGION

**Addresses:** [Ladon, Padma; Garkoti, Satish Chandra] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

**Corresponding Address:** Garkoti, SC (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

E-mail Addresses: padmaladon@gmail.com; sgarkoti@yahoo.com

Affiliations: Jawaharlal Nehru University, New Delhi

**Publisher:** ELSEVIER

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Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Geosciences, Multidisciplinary; Soil Science; Water Resources

Research Areas: Geology; Agriculture; Water Resources

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CSIR-UGC JRF fellowship	191620198411

This work was supported by the National Natural Science Foundation of China (22177067), the Program for Distinguished Professor of Shanghai Universities (Oriental Scholars), the Tracking Plan (GZ2022009) and the Shanghai Rising-Star Program (20QA1403400).r essential contribution to the soil micronutrient analysis. Financial assistance from the Department of Science and Technol-ogy, Government of India, under the National Mission for Sustaining the Himalayan Ecosystem (NMSHE), vide grant number

DST/SPLICE/CCP/NMSHE/TF-5/JNU/2014 [G] is thankfully acknowledged. We extend our thanks to the two anonymous reviewers for their constructive comments. Financial support by CSIR-UGC JRF fellowship for this study is duly acknowledged (Joint CSIR-UGC JRF NTA; NTA Ref. no.: 191620198411) . The study was carried out as part of the PhD pro-gramme of Padma Ladon.

Output Date: 2024-08-05

#### Record 12 of 45

**Title:** The new Nancy: Flexible and relatable daily comics in the twenty-first century Author(s): Goyal, T (Goyal, Tanya) Source: JOURNAL OF POPULAR CULTURE DOI: 10.1111/jpcu.13361 Early Access Date: JUL 2024 **Published Date:** 2024 JUL 3 Times Cited in Web of Science Core Collection: 0 Total Times Cited: 0 Usage Count (Last 180 days): 0 Usage Count (Since 2013): 0 **Cited Reference Count:** 0 Accession Number: WOS:001262246200001 Language: English **Document Type:** Book Review; Early Access Addresses: [Goval, Tanva] Jawaharlal Nehru Univ, New Delhi, India. [Goyal, Tanya] H Net Humanities & Social Sci Online, E Lansing, MI 48824 USA. **Corresponding Address:** Goyal, T (corresponding author), Jawaharlal Nehru Univ, New Delhi, India. Goyal, T (corresponding author), H Net Humanities & Social Sci Online, E Lansing, MI 48824 USA. **E-mail Addresses:** tanyag41 ssg@jnu.ac.in Affiliations: Jawaharlal Nehru University, New Delhi **Publisher:** WILEY Publisher Address: 111 RIVER ST, HOBOKEN 07030-5774, NJ USA Web of Science Index: Social Science Citation Index (SSCI); Arts & Humanities Citation Index (A&HCI) **Web of Science Categories:** Humanities, Multidisciplinary; Cultural Studies **Research Areas:** Arts & Humanities - Other Topics; Cultural Studies

IDS Number: XN0M2 ISSN: 0022-3840 eISSN: 1540-5931 29-char Source Abbrev.: J POP CULT ISO Source Abbrev.: J. Pop. Cult. Source Item Page Count: 2 Output Date: 2024-08-05

#### Record 13 of 45

Title: Deep Learning for Flash Drought Detection: A Case Study in Northeastern Brazil

**Author(s):** Barbosa, HA (Barbosa, Humberto A.); Buriti, CO (Buriti, Catarina O.); Kumar, TVL (Kumar, T. V. Lakshmi)

Source: ATMOSPHERE Volume: 15 Issue: 7 Article Number: 761 DOI: 10.3390/atmos15070761 Published Date: 2024 JUL

**Times Cited in Web of Science Core Collection:** 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

#### **Cited Reference Count:** 41

**Abstract:** Flash droughts (FDs) pose significant challenges for accurate detection due to their short duration. Conventional drought monitoring methods have difficultly capturing this rapidly intensifying phenomenon accurately. Machine learning models are increasingly useful for detecting droughts after training the models with data. Northeastern Brazil (NEB) has been a hot spot for FD events with significant ecological damage in recent years. This research introduces a novel 2D convolutional neural network (CNN) designed to identify spatial FDs in historical simulations based on multiple environmental factors and thresholds as inputs. Our model, trained with hydro-climatic data, provides a probabilistic drought detection map across northeastern Brazil (NEB) in 2012 as its output. Additionally, we examine future changes in FDs using the Coupled Model Intercomparison Project Phase 6 (CMIP6) driven by outputs from Shared Socioeconomic Pathways (SSPs) under the SSP5-8.5 scenario of 2024-2050. Our results demonstrate that the proposed spatial FD-detecting model based on 2D CNN architecture and the methodology for robust learning show promise for regional comprehensive FD monitoring. Finally, considerable spatial variability of FDs across NEB was observed during 2012 and 2024-2050, which was particularly evident in the S & atilde;o Francisco River Basin. This research significantly contributes to advancing our understanding of flash droughts, offering critical insights for informed water resource management and bolstering resilience against the impacts of flash droughts.

Accession Number: WOS:001276675700001

Language: English

#### Document Type: Article

**Author Keywords:** flash drought; convolutional neural network; encoder-decoder architecture; Caatinga; climate change; hydro-climatic data

Addresses: [Barbosa, Humberto A.] Univ Fed Alagoas, Lab Analise & Proc Imagens Satelites LAPIS, Inst Ciencias Atmosfer, AC Simoes Campus, BR-57072900 Maceio, Brazil.

[Buriti, Catarina O.] Minist Sci Technol & Innovat MCTI, Natl Semiarid Inst INSA, BR-58100000 Campina Grande, Brazil.

[Kumar, T. V. Lakshmi] Jawaharlal Nehru Univ, Sch Environm Sci, New Mehrauli Rd, New Delhi 110067, India.

**Corresponding Address:** Barbosa, HA (corresponding author), Univ Fed Alagoas, Lab Analise & Proc Imagens Satelites LAPIS, Inst Ciencias Atmosfer, AC Simoes Campus, BR-57072900 Maceio, Brazil.

E-mail Addresses: barbosa33@gmail.com; lakshmikumar@jnu.ac.in

**Affiliations:** Universidade Federal de Alagoas; Jawaharlal Nehru University, New Delhi **Publisher:** MDPI

Publisher Address: ST ALBAN-ANLAGE 66, CH-4052 BASEL, SWITZERLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

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Research Areas: Environmental Sciences & Ecology; Meteorology & Atmospheric Sciences

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CNPq through the Desertification Monitoring Program in the Brazilian Semi-arid Region	403223/2021-0

This study was supported by the Coordenacao de Aperfeicoamento de Pessoal de Nivel Superior (CAPES 01/2022), Brazil, under the Project No. 88881.7050501/2022-01 to H.A.B through PEPEEC (Programa Emergencial de Prevencao e Enfretamento de Desastres Relacionados a Emergencias Climaticas, Eventos Extremos e Acidentes Ambientais). It also had the support of the CNPq under project No. 403223/2021-0 to H.A.B through the Desertification Monitoring Program in the Brazilian Semi-arid Region.

**Open Access:** gold

Output Date: 2024-08-05

# Record 14 of 45

**Title:** Amla (<i>Emblica officinalis</i>)-Derived Bionanosilver (Ag NPs) for Excellent Antibacterial Activity **Author(s):** Yadav, AN (Yadav, Amar Nath); Singh, P (Singh, Pallavi); Upadhyay, S (Upadhyay, Shiva); Tyagi, UP (Tyagi, U. P.); Singh, AK (Singh, Ashwani Kumar); Singh, P (Singh, Pushpa); Srivastava, A (Srivastava, Amit)

Source: PLASMONICS DOI: 10.1007/s11468-024-02410-5 Early Access Date: JUL 2024 Published Date: 2024 JUL 8

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

# Cited Reference Count: 85

**Abstract:** Despite the growing need for effective and environmentally friendly antimicrobial agents, the synthesis methods for such materials often involve toxic chemicals and complex procedures. There is a pressing need for a sustainable approach to synthesize nanoparticles with potent antibacterial properties. This study aims to address this gap by developing a green synthesis method for silver nanoparticles (Ag NPs) using Amla extract. Powder X-ray diffraction (XRD), UV-Vis absorption spectroscopy, and Transmission Electron Microscopy (TEM) demonstrated that face-centered cubic Ag NPs with sizes in the range of 15-30 nm can be synthesized through an environmentally friendly process. Further, the formation mechanism of Ag NPs has been discussed in detail with the help of schematic diagrams. The Amla-derived Ag NPs have been further tested for their antibacterial activity against two different antibacterial strains: Escherichia coli (E. coli) and

Staphylococcus aureus (S. aureus) using the plate count method. The NPs showed excellent biocompatibility where approximately 90% of growth reduction have been found for both strains at 100 mu g/mL of Ag NPs and growth time of 30 min. These outcomes exhibited that Ag NPs, as a kind of antibacterial material, had an incredible guarantee for application in a wide scope of biomedical applications.

Accession Number: WOS:001264887700001

Language: English

Document Type: Article; Early Access

**Author Keywords:** Phyllanthus emblica (Amla); Silver nanoparticles; Antibacterial activity Escherichia coli (E. coli); Staphylococcus aureus (S. aureus)

**KeyWords Plus:** SILVER NANOPARTICLES; GREEN SYNTHESIS; GOLD NANOPARTICLES; METAL NANOPARTICLES; LEAF EXTRACT; AQUEOUS-SOLUTION; BIOSYNTHESIS; COMPOSITE; CHEMISTRY; MECHANISM

Addresses: [Yadav, Amar Nath] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

[Singh, Pallavi; Singh, Pushpa] Univ Delhi, Ramjas Coll, Dept Bot, Delhi 110007, India.

[Upadhyay, Shiva] Univ Delhi, Swami Shraddhanand Coll, Dept Phys, Delhi 110036, India.

[Tyagi, U. P.; Singh, Ashwani Kumar] Univ Delhi, Deshbandhu Coll, Dept Phys, New Delhi 110019, India.

[Srivastava, Amit] TDPG Coll VBS Purvanchal Univ, Dept Phys, Jaunpur 222001, India.

**Corresponding Address:** Singh, P (corresponding author), Univ Delhi, Ramjas Coll, Dept Bot, Delhi 110007, India.

Singh, AK (corresponding author), Univ Delhi, Deshbandhu Coll, Dept Phys, New Delhi 110019, India.

**E-mail Addresses:** asingh22@db.du.ac.in; pushpasingh@ramjas.du.ac.in

**Affiliations:** Jawaharlal Nehru University, New Delhi; University of Delhi; University of Delhi; University of Delhi

# **Author Identifiers:**

Author	Web of Science ResearcherID	ORCID Number
Yadav, Dr. Amar Nath		0000-0003-4500-3304

Publisher: SPRINGER

Publisher Address: ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

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Research Areas: Chemistry; Science & Technology - Other Topics; Materials Science

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ISO Source Abbrev.: Plasmonics

Source Item Page Count: 12

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# Record 15 of 45

**Title:** Enhancing anticancer activity of Clerodendrum viscosum vent. extracts by solvent fractionation: An in vitro and in silico mechanistic study

**Author(s):** Roy, AC (Roy, Ashim Chandra); Singh, K (Singh, Kajal); Prasad, A (Prasad, Abhinav); Kulshreshtha, D (Kulshreshtha, Diksha); Priya, K (Priya, Komal); Kumari, A (Kumari, Anuradha); Ghosh, I (Ghosh, Ilora)

Source: PROCESS BIOCHEMISTRY Volume: 145 Pages: 320-339 DOI: 10.1016/j.procbio.2024.07.007 Early Access Date: JUL 2024 Published Date: 2024 OCT

#### **Times Cited in Web of Science Core Collection:** 0 **Total Times Cited:** 0

Usage Count (Last 180 days): 0

# Usage Count (Since 2013): 0

# Cited Reference Count: 108

Abstract: Clerodendrum viscosum Vent. is a well-known plant in Indian and Chinese traditional medicine systems. While studies showed its crude leaf extract's cytotoxicity against HT-29 and HeLa cells, various nonbioactive compounds present in crude extracts may influence overall bioactivity. This study aimed to separate the most bioactive fractions from Clerodendrum viscosum's crude extracts that exhibit anticancer potential against HepG2 cells. Crude extracts were fractionated using a solvent-polarity-based process and their anticancer activity was investigated through in vitro, in silico, and network pharmacology approaches. Nonpolar leaf (CVLH) and root (CVRH) fractions showed maximum cytotoxicity in HepG2 cells without affecting noncancer-origin WRL68 cells. Both extracts induced oxidative stress, DNA damage, cell cycle arrest, and apoptosis in HepG2 cells, with CVRH exhibiting a superior effect. GC-MS analysis identified various anticancer phytochemicals differentially present in CVLH and CVRH. Network pharmacology with these phytochemicals predicted Bcl-2 as the primary target, while molecular docking confirmed lupeol, stigmasterol, alpha-amyrin, cycloartenol, and calysterol being the top five phytochemicals exhibiting strong binding against Bcl-2, androgen receptor (AR), and epidermal growth factor receptor (EGFR). Western blot confirmed an elevated Bax/Bcl-2 ratio in HepG2 cells by CVLH and CVRH. In summary, the nonpolar fractions of Clerodendrum viscosum leaf and root crude extracts showed enhanced anticancer activity, suggesting their potential pharmaceutical applications.

Accession Number: WOS:001273311200001

Language: English

**Document Type:** Article

**Author Keywords:** Solvent separation; Natural product extraction; Molecular docking; DNA damage; Mitochondrial dysfunction; Apoptosis; Network pharmacology

**KeyWords Plus:** OXIDATIVE STRESS; MITOCHONDRIAL MASS; HEXANE EXTRACT; DNA-DAMAGE; CELL LINE; APOPTOSIS; ANTIOXIDANT; LEAVES; INDUCTION; MEDICINE

Addresses: [Roy, Ashim Chandra; Singh, Kajal; Prasad, Abhinav; Kulshreshtha, Diksha; Kumari, Anuradha; Ghosh, Ilora] Jawaharlal Nehru Univ, Sch Environm Sci, Biochem & Environm Toxicol Lab, Lab 103, New Delhi 110067, India.

[Kulshreshtha, Diksha] Jawaharlal Nehru Univ, Special Ctr Mol Med, New Delhi 110067, India. [Prasad, Abhinav] Univ Delhi, Shaheed Rajguru Coll Appl Sci Women, Dept Microbiol, New Delhi 110096, India.

**Corresponding Address:** Ghosh, I (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, Biochem & Environm Toxicol Lab, Lab 103, New Delhi 110067, India.

E-mail Addresses: iloraghosh17@gmail.com

**Affiliations:** Jawaharlal Nehru University, New Delhi; Jawaharlal Nehru University, New Delhi; University of Delhi

Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Prasad, Abhinav	ACQ-0030-2022	0000-0002-6240-2668

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**Research Areas:** Biochemistry & Molecular Biology; Biotechnology & Applied Microbiology; Engineering **IDS Number:** ZD3H5

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DST-PURSE	

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Output Date: 2024-08-05

# Record 16 of 45

**Title:** Antioxidant enzyme activities and markers of oxidative stress in the life cycle of different Earthworm species

**Author(s):** Kumar, R (Kumar, Rahul); Yadav, R (Yadav, Renu); Gupta, RK (Gupta, R. K.); Pal, A (Pal, Ajay); Yodha, K (Yodha, Kiran); Kumar, A (Kumar, Akshay)

Source: INDIAN JOURNAL OF EXPERIMENTAL BIOLOGY Volume: 62 Issue: 7 Pages: 578-583 DOI: 10.56042/ijeb.v62i07.12084 Published Date: 2024 JUL 1

# Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

#### Cited Reference Count: 27

Abstract: Earthworms play a crucial role in soil fertility through decomposition, nutrient mineralization and water infiltration, and they are used as a standard organism in ecotoxicological testing. However, to use them for evaluations of environmental pollution, knowledge on the age-related variations in antioxidant enzymes within this species as they undergo different environmental conditions such as treatment to heavy metal insecticides, herbicides, salinity and polluted soil, vermifiltration etc. that cause stress. Due to oxidative stress, the growth and reproductive potential of earthworms are affected because of an imbalance between antioxidant enzymes and Reactive oxygen species (ROS). This study provides a fundamental understanding of the antioxidant enzyme activity and oxidative stress in three earthworm species (Eisenia fetida, Eudrilus eugeniae and Pheretima posthuma) at various stages of their lives. Before studying their usage as potential biomarkers, it is necessary to explore the age-related variations in antioxidant enzymes within these species which serve as the quintessential terrestrial invertebrates in evaluations of environmental pollution. The superoxide dismutase (SOD), catalase (CAT), ascorbic peroxidase (APX), and peroxidase (POD), as well as hydrogen peroxide (H2O2) as an oxidative stress marker, were measured in the total body of juvenile, sub-adult, and adult earthworms. SOD and CAT activities respectively declined and increased with age in all earthworm species and maximum SOD activity (4.86 U/g FW) and CAT activity (12.33 U/g FW) were found in respectively juvenile (EF- J) and adult (EF- A) stages of E. fetida. In P. posthuma, APX and POD activities rose with age. APX activity was significantly maximum (6.18 U/g FW) in P. posthuma adult stage (PP-A) whereas significant maximum POD activity (0.46 +/- 0.01 Delta OD/min) in EF- J stage. H2O2, an oxidative stress marker, increased with age in all earthworm species. P. posthuma adult (PP-A) had the maximum activity (4.06 mu mole/g FW), and EF- J life stage had the lowest activity (1.35 mu mole/g FW). In response to increased oxidative stress (H2O2), the antioxidant enzymes (SOD, CAT, APX, and POD) work together. Overall, Eisenia

fetida performed better than E. eugeniae and P. posthuma. This study fills the gaps in antioxidant enzyme activities at the different age stages of earthworms.

Accession Number: WOS:001272217300014

Language: English

Document Type: Article

**Author Keywords:** Eisenia fetida; Eudrilus eugeniae; Oxidative stress marker; Pheretima posthuma; Reactive oxygen species (ROS)

**KeyWords Plus:** EISENIA FETIDA; PEROXIDASE; RESPONSES

Addresses: [Kumar, Rahul] Chaudhary Charan Singh Haryana Agr Univ, Coll Agr, Dept Zool, Rewari, Haryana, India.

[Yadav, Renu; Gupta, R. K.; Yodha, Kiran] Chaudhary Charan Singh Haryana Agr Univ, Dept Zool, Hisar, Haryana, India.

[Pal, Ajay] Chaudhary Charan Singh Haryana Agr Univ, Dept Biochem, Hisar, Haryana, India.

[Kumar, Akshay] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi 110067, India.

**Corresponding Address:** Kumar, R (corresponding author), Chaudhary Charan Singh Haryana Agr Univ, Coll Agr, Dept Zool, Rewari, Haryana, India.

E-mail Addresses: drrkr321@gmail.com

**Affiliations:** CCS Haryana Agricultural University; CCS Haryana Agricultural University; CCS Haryana Agricultural University; Jawaharlal Nehru University, New Delhi

Publisher: NATL INST SCIENCE COMMUNICATION-NISCAIR

Publisher Address: DR K S KRISHNAN MARG, PUSA CAMPUS, NEW DELHI 110 012, INDIA

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

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Research Areas: Life Sciences & Biomedicine - Other Topics

**IDS Number:** YZ1M2

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**ISO Source Abbrev.:** Indian J. Exp. Biol.

Source Item Page Count: 6

**Open Access:** gold

Output Date: 2024-08-05

# Record 17 of 45

**Title:** Seasonal variations of leaf ecophysiological traits and strategies of co-occurring evergreen and deciduous trees in white oak forest in the central Himalaya

**Author(s):** Joshi, RK (Joshi, Rajendra Kr.); Gupta, R (Gupta, Rajman); Mishra, A (Mishra, Ambuj); Garkoti, SC (Garkoti, Satish Chandra)

Source: ENVIRONMENTAL MONITORING AND ASSESSMENT Volume: 196 Issue: 7 Article Number: 634 DOI: 10.1007/s10661-024-12771-3 Published Date: 2024 JUL

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 9

Usage Count (Since 2013): 9

# **Cited Reference Count:** 82

**Abstract:** The present study investigates the seasonal variations in leaf ecophysiological traits and strategies employed by co-occurring evergreen and deciduous tree species within a white oak forest (Quercus

leucotrichophora A. Camus) ecosystem in the central Himalaya. Seasonal variations in physiological, morphological, and chemical traits were observed from leaf initiation until senescence in co-occurring deciduous and evergreen tree species. We compared various parameters, including net photosynthetic capacity (Aarea and Amass), leaf stomatal conductance (gswarea and gswmass), transpiration rate (Earea and Emass), specific leaf area (SLA), mid-day water potential (Psi md), leaf nitrogen (N) and phosphorus (P) concentration, leaf total chlorophyll concentration, photosynthetic nitrogen- and phosphorus-use efficiency (PNUE and PPUE), and water use efficiency (WUE) across four evergreen and four deciduous tree species. Our findings reveal that evergreen and deciduous trees exhibit divergent strategies in coping with seasonal changes, which are crucial for their survival and growth. Deciduous trees consistently exhibited significantly higher photosynthetic rates, transpiration rates, mass-based N and P concentrations (Nmass and Pmass), mass-based chlorophyll concentration (Chlmass), SLA, and leaf Psi md, while maintaining lower leaf structural investments throughout the year compared to evergreen trees. These findings indicate that deciduous trees achieve greater assimilation rates per unit mass and higher nutrient-use efficiency. Physiological, morphological, and leaf N and P concentrations were higher in the summer (fully expanded leaf) than in the fall (senesced leaf). These insights provide valuable contributions to our understanding of tree species coexistence and their ecological roles in temperate forest ecosystems, with implications for forest management and conservation in the Himalayan region.

Accession Number: WOS:001252028700001

**PubMed ID:** 38900402

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**Document Type:** Article

**Author Keywords:** Evergreen and deciduous trees; Acquisitive and conservative strategies; Leaf longevity; Leaf phenology; Photosynthesis and stomatal conductance; Water potential

**KeyWords Plus:** TROPICAL DRY FORESTS; WATER RELATIONS; GAS-EXCHANGE; USE EFFICIENCY; MATURE TREES; PLANT; PATTERNS; GROWTH; LEAVES; PHENOLOGY

**Addresses:** [Joshi, Rajendra Kr.; Gupta, Rajman; Mishra, Ambuj; Garkoti, Satish Chandra] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

[Joshi, Rajendra Kr.] Univ Delhi, Daulat Ram Coll, Dept Environm Sci, New Delhi 110007, India.

**Corresponding Address:** Garkoti, SC (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

E-mail Addresses: sgarkoti@yahoo.com

Affiliations: Jawaharlal Nehru University, New Delhi; University of Delhi

#### Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
joshi, rajendra kumar		0000-0002-3410-7733

Publisher: SPRINGER

Publisher Address: VAN GODEWIJCKSTRAAT 30, 3311 GZ DORDRECHT, NETHERLANDS

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

Web of Science Categories: Environmental Sciences

**Research Areas:** Environmental Sciences & Ecology

**IDS Number: WA0K5** 

**ISSN:** 0167-6369

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**ISO Source Abbrev.:** Environ. Monit. Assess.

Source Item Page Count: 16

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## Record 18 of 45

**Title:** RETRACTION: Retraction Note: Cost effective liquid phase exfoliation of MoS<sub>2</sub> nanosheets and photocatalytic activity for wastewater treatment enforced by visible light

**Author(s):** Sahoo, D (Sahoo, Dhirendra); Kumar, B (Kumar, Birendra); Sinha, J (Sinha, Jaivardhan); Ghosh, S (Ghosh, Subhasis); Roy, SS (Roy, Susanta Sinha); Kaviraj, B (Kaviraj, Bhaskar)

**Source:** SCIENTIFIC REPORTS **Volume:** 14 **Issue:** 1 **Article Number:** 16775 **DOI:** 10.1038/s41598-024-67387-x **Published Date:** 2024 JUL 22

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Accession Number: WOS:001274726000082

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Language: English

**Document Type:** Retraction

**Addresses:** [Sahoo, Dhirendra; Roy, Susanta Sinha; Kaviraj, Bhaskar] Shiv Nadar Univ, Sch Nat Sci, Dept Phys, NH91, Greater Noida 201314, Uttar Pradesh, India.

[Kumar, Birendra; Ghosh, Subhasis] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India. [Sinha, Jaivardhan] SRM Inst Sci & Technol, Dept Phys & Nanotechnol, Kattankulathur 603203, India.

**Corresponding Address:** Kaviraj, B (corresponding author), Shiv Nadar Univ, Sch Nat Sci, Dept Phys, NH91, Greater Noida 201314, Uttar Pradesh, India.

**E-mail Addresses:** bhaskar.kaviraj@snu.edu.in

**Affiliations:** Shiv Nadar University; Jawaharlal Nehru University, New Delhi; SRM Institute of Science & Technology Chennai

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Source Item Page Count: 1

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#### Record 19 of 45

Title: Synergistic reduction of nitrophenols by Au-CDs nanoconjugates with NaBH<sub>4</sub>
Author(s): Priyadarshini, E (Priyadarshini, Eepsita); Minzar, M (Minzar, Mohd); Pandey, S (Pandey, Saurabh); Rawat, K (Rawat, Kamla)
Source: NANOTECHNOLOGY Volume: 35 Issue: 27 Article Number: 275101 DOI: 10.1088/1361-6528/ad355a Published Date: 2024 JUL 1

**Times Cited in Web of Science Core Collection:** 0

Total Times Cited: 0

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**Abstract:** Developing sustainable and innovative approaches for the efficient reduction of nitrophenols is crucial for environmental remediation, for managing health concerns posed by their widespread presence as hazardous pollutants in industrial effluents and contaminated water. We report the use of 12.9 +/- 1 nm (TEM data) sized gold carbon dot nanoconjugates (Au@CDs) for catalytic conversion of o, m, p-nitrophenols to aminophenols by sodium borohydride. A simple approach was followed to synthesize ultra-small and highly stable Au@CDs, using citric acid and PEG as reducing and stabilizing agents. X-ray diffraction analysis verified the formation of nano-crystalline nanoconjugates. These nanoconjugates showed a remarkable catalytic activity in the range of 0.22-0.33 s(-1) (varying with nanoconjugate concentration) which was much higher compared to conventional chemical methods of reduction. All the catalytic reaction experiments were performed at room temperature (27 +/- 2 degree celsius). Furthermore, an increase in rate constant was observed with increasing concentration of nanoconjugates. The catalytic activity of Au@CDs nanoconjugates was observed to be in order of m-nitrophenol > o-nitrophenol > p-nitrophenol with apparent rate constant (k(aap)) values of 0.068, 0.043 and 0.031, respectively. Comparative analysis with GNPs, CDs and Au@CDs nanoconjugates had superior catalytic activity. The research can have significant implications in the development of new strategies for environmental remediation and biomedical applications.

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**Author Keywords:** gold-carbon dot nanoconjugates; catalytic reduction; nitrophenols; nitrophenolates; rate constant; environmental remediation

**KeyWords Plus:** NANOPARTICLE CATALYST; SILVER NANOPARTICLES; CARBON DOTS; GOLD; 4-NITROPHENOL; HYDROGENATION

Addresses: [Priyadarshini, Eepsita] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi, India. [Minzar, Mohd; Rawat, Kamla] Jamia Hamdard, Sch Chem & Life Sci, Dept Chem, New Delhi, India. [Pandey, Saurabh] Jamia Hamdard, Sch Chem & Life Sci, Dept Biochem, New Delhi, India.

**Corresponding Address:** Rawat, K (corresponding author), Jamia Hamdard, Sch Chem & Life Sci, Dept Chem, New Delhi, India.

Pandey, S (corresponding author), Jamia Hamdard, Sch Chem & Life Sci, Dept Biochem, New Delhi, India.

**E-mail Addresses:** saurabhpandey@jamiahamdard.ac.in; kamlarawat@jamiahamdard.ac.in

**Affiliations:** Jawaharlal Nehru University, New Delhi; Jamia Hamdard University; Jamia Hamdard University **Author Identifiers:** 

Author	Web of Science ResearcherID	ORCID Number
priyadarshini, Eepsita		0000-0003-3416-5922
Rawat, kamla	D-3962-2017	0000-0003-3825-376X

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**Web of Science Categories:** Nanoscience & Nanotechnology; Materials Science, Multidisciplinary; Physics, Applied

**Research Areas:** Science & Technology - Other Topics; Materials Science; Physics

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# Record 20 of 45

Title: Graph-Based Hotspot Detection of Socio-Economic Data Using Rough-Set

**Author(s):** Tabarej, MS (Tabarej, Mohd Shamsh); Minz, S (Minz, Sonajharia); Shaikh, AA (Shaikh, Anwar Ahamed); Shuaib, M (Shuaib, Mohammed); Jeribi, F (Jeribi, Fathe); Alam, S (Alam, Shadab)

Source: MATHEMATICS Volume: 12 Issue: 13 Article Number: 2031 DOI:

10.3390/math12132031 Published Date: 2024 JUL

**Times Cited in Web of Science Core Collection:** 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

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# Cited Reference Count: 48

**Abstract:** The term hotspot refers to a location or an area where the occurrence of a particular phenomenon, event, or activity is significantly higher than in the surrounding areas. The existing statistical methods need help working well on discrete data. Also, it can identify a false hotspot. This paper proposes a novel graph-based hotspot detection using a rough set (GBHSDRS) for detecting the hotspots. This algorithm works well with discrete spatial vector data. Furthermore, it removes the false hotspot by finding the statistical significance of the identified hotspots. A rough set theory is applied to the graph of the spatial polygon data, and the nodes are divided into lower, boundary, and negative regions. Therefore, the candidate hotspots if the hotspot is present in the dataset. The p-value is used to find the statistical significance of the hotspots. The algorithm is tested on the socioeconomic data of Uttar Pradesh (UP) from 1991 on medical facilities. The average gain in density and Hotspot Prediction Accuracy Index (HAPI) of the detected hotspots is 26.54% and 23.41%, respectively. An average reduction in runtime is 27.73%, acquired compared to all other methods on the socioeconomic data.

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Language: English

Document Type: Article

Author Keywords: geospatial data; graph; hotspot; rough set; tree; DBSCAN

KeyWords Plus: SPATIAL ASSOCIATION; PATTERNS

Addresses: [Tabarej, Mohd Shamsh; Minz, Sonajharia] Jawaharlal Nehru Univ, Sch Comp & Syst Sci, New Delhi 110067, India.

[Tabarej, Mohd Shamsh; Shaikh, Anwar Ahamed] Koneru Lakshmaiah Educ Fdn, Dept CSE, Vaddeswaram 522502, India.

[Shuaib, Mohammed; Jeribi, Fathe; Alam, Shadab] Jazan Univ, Coll Engn & Comp Sci, Dept Comp Sci, Jazan 45142, Saudi Arabia.

**Corresponding Address:** Jeribi, F (corresponding author), Jazan Univ, Coll Engn & Comp Sci, Dept Comp Sci, Jazan 45142, Saudi Arabia.

**E-mail Addresses:** shamsh72\_scs@jnu.ac.in; sonaminz@mail.jnu.ac.in; sanwarahmad@kluniversity.in; msashraf@jazanu.edu.sa; fjeribi@jazanu.edu.sa; snafis@jazanu.edu.sa

**Affiliations:** Jawaharlal Nehru University, New Delhi; Koneru Lakshmaiah Education Foundation (K L Deemed to be University); Jazan University

#### Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
SHUAIB, MOHAMMED	AHD-4560-2022	0000-0001-6657-2587

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Open Access: gold Output Date: 2024-08-05

# Record 21 of 45

**Title:** Advancements in Nano-Mandoor Bhasma: Unravelling the Particle Size-Ascorbic Acid Synergy for Enhanced Iron Bioavailability for Anemia Treatment

**Author(s):** Balkrishna, A (Balkrishna, Acharya); Bhattacharya, K (Bhattacharya, Kunal); Samanta, HS (Samanta, Himadri Sekhar); Tomer, M (Tomer, Meenu); Varshney, A (Varshney, Anurag)

Source: BIOLOGICAL TRACE ELEMENT RESEARCH DOI: 10.1007/s12011-024-04304-3 Early Access Date: JUL 2024 Published Date: 2024 JUL 15

**Times Cited in Web of Science Core Collection:** 0

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Usage Count (Last 180 days): 0

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# **Cited Reference Count:** 54

**Abstract:** Mandoor Bhasma (MB) medicine, based on classical Indian Ayurveda, was size- and surfacemodified to improve its therapeutic efficiency for treating iron-deficient anemia. Physical grinding reduced the size of MB to the nanoparticle (nano-MB) range without changing its chemical composition, as measured by particle size distribution. The surface of nano-MB was modified with ascorbic acid (nano-AA-MB) and confirmed using scanning electron microscopy and Fourier transformed infrared spectroscopy. Enhanced iron dissolution from the surface-modified nano-AA-MB under neutral-to-alkaline pH conditions, and in the intestinal region of the simulated gastrointestinal tract (GIT) digestion model was determined using inductively coupled plasma mass spectroscopy. GIT digestae of MB microparticles and nano-AA-MB were found to be biocompatible in human colon epithelial (Caco-2) cells, with the latter showing threefold higher iron uptake. Subsequently, a dose-dependent increase in cellular ferritin protein was observed in the nano-AA-MB digestae-treated Caco-2 cells, indicating the enhanced bioavailability and storage of dissolved iron. Overall, the study showed that reducing the size of centuries-old traditional Mandoor Bhasma medicine to nanoscale, and its surface-modification with ascorbic acid would help in enhancing its therapeutic abilities for treating iron-deficient anemia.

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**Author Keywords:** Mandoor Bhasma nanoparticles; Iron deficiency anemia; Ascorbic acid; Surface modification; Simulated digestion; Caco-2 cells

**KeyWords Plus:** DEHYDROASCORBIC ACID; OXIDE NANOPARTICLES; VITAMIN-C; ABSORPTION; TRANSPORT; FERRITIN; CELLS; BILE

Addresses: [Balkrishna, Acharya; Bhattacharya, Kunal; Samanta, Himadri Sekhar; Tomer, Meenu; Varshney, Anurag] Patanjali Res Fdn, Drug Discovery & Dev Div, Haridwar 249405, Uttarakhand, India. [Balkrishna, Acharya; Varshney, Anurag] Univ Patanjali, Dept Allied & Appl Sci, Haridwar 249405, Uttarakhand, India.

[Balkrishna, Acharya] Patanjali Yog Peeth UK Trust, 40 Lambhill St,Kinning Pk, Glasgow G41 1AU, Scotland. [Balkrishna, Acharya] Ved Acharya Samaj Fdn Inc, NFP 21725 CR 33, Groveland, FL 34736 USA. [Varshney, Anurag] Jawaharlal Nehru Univ, Special Ctr Syst Med, New Delhi 110067, India.

**Corresponding Address:** Bhattacharya, K; Varshney, A (corresponding author), Patanjali Res Fdn, Drug Discovery & Dev Div, Haridwar 249405, Uttarakhand, India.

Varshney, A (corresponding author), Univ Patanjali, Dept Allied & Appl Sci, Haridwar 249405, Uttarakhand, India.

Varshney, A (corresponding author), Jawaharlal Nehru Univ, Special Ctr Syst Med, New Delhi 110067, India. **E-mail Addresses:** kunal@patanjali.res.in; anurag@patanjali.res.in

Affiliations: University of Patanjali; Jawaharlal Nehru University, New Delhi

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# Record 22 of 45

**Title:** Simultaneous estimation of rutin and donepezil through RP-HPLC: implication in pharmaceutical and biological samples

**Author(s):** Rana, R (Rana, Rafquat); Mishra, K (Mishra, Keerti); Tripathi, S (Tripathi, Shourya); Gupta, AK (Gupta, Animesh Kumar); Tiwari, AK (Tiwari, Amrendra Kumar); Yadav, PK (Yadav, Pavan Kumar); Kumar, A (Kumar, Abhiram); Chakradhar, JVUS (Chakradhar, J. V. U. S.); Singh, S (Singh, Sanjay); Verma, S (Verma, Sonia); Yadav, P (Yadav, Pooja); Chourasia, MK (Chourasia, Manish K.)

Source: BIOANALYSIS DOI: 10.1080/17576180.2024.2344395 Early Access Date: JUL 2024 Published Date: 2024 JUL 10

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Usage Count (Last 180 days): 2

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# Cited Reference Count: 31

**Abstract:** Aim: A HPLC method was developed and validated for the novel combination of rutin (RN) and donepezil (DNP). Materials & methods: RN and DNP were simultaneously eluted through a C18 column (& Oslash; 150 x 4.6 mm) with a 60:40 v/v ratio of 0.1% formic acid aqueous solution to methanol at 0.5 ml/min. Results: The purposed method was found linear, selective, reproducible, accurate and precise with percent RSD less than 2. The limit of quantification for RN and DNP was found 3.66 and 3.25 mu g/ml, respectively. Conclusion: Validated as per the ICH guidelines, the developed method efficiently quantified RN and DNP coloaded in DQAsomes (121 nm) estimating matrix effect, release profile, entrapment efficiency, loading efficiency and in vivo plasma kinetics.

[GRAPHICS]

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PubMed ID: 39011589

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Author Keywords: donepezil; DQAsomes; HPLC; PKSolver; rutin; simultaneous estimation

KeyWords Plus: MATRIX; MITOCHONDRIA; DQASOMES; PLASMA

Addresses: [Rana, Rafquat; Mishra, Keerti; Tripathi, Shourya; Gupta, Animesh Kumar; Tiwari, Amrendra Kumar; Yadav, Pavan Kumar; Kumar, Abhiram; Chakradhar, J. V. U. S.; Singh, Sanjay; Verma, Sonia; Yadav, Pooja; Chourasia, Manish K.] Cent Drug Res Inst, Div Pharmaceut & Pharmacokinet, CSIR, Sect 10, Sitapur Rd, Lucknow 226031, UP, India.

[Rana, Rafquat; Mishra, Keerti; Tripathi, Shourya] Jawaharlal Nehru Univ JNU, New Delhi 110067, India. [Tiwari, Amrendra Kumar; Yadav, Pavan Kumar; Verma, Sonia; Yadav, Pooja; Chourasia, Manish K.] Acad Sci & Innovat Res AcSIR, Ghaziabad 201002, India.

**Corresponding Address:** Chourasia, MK (corresponding author), Cent Drug Res Inst, Div Pharmaceut & Pharmacokinet, CSIR, Sect 10,Sitapur Rd, Lucknow 226031, UP, India.

Chourasia, MK (corresponding author), Acad Sci & Innovat Res AcSIR, Ghaziabad 201002, India.

E-mail Addresses: manish\_chourasia@cdri.res.in

**Affiliations:** Council of Scientific & Industrial Research (CSIR) - India; CSIR - Central Drug Research Institute (CDRI); Jawaharlal Nehru University, New Delhi; Academy of Scientific & Innovative Research (AcSIR)

#### **Author Identifiers:**

Author	Web of Science ResearcherID	ORCID Number
Tripathi, Shourya		0000-0003-2525-6531
YADAV, PAVAN K.		0000-0002-4092-2320
Verma, Sonia		0000-0002-9188-1952
Mishra, Keerti		0000-0003-1525-0267
Gupta, Animesh Kumar		0009-0009-4676-6419

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# Record 23 of 45

**Title:** Spatio-temporal trends and variability in extreme temperature and precipitation indices in the Kashmir Valley, North Western Himalayas

**Author(s):** Ul Shafiq, M (Ul Shafiq, Mifta); Ul Islam, Z (Ul Islam, Zahoor); Fayaz, A (Fayaz, Abida); Mahmood, R (Mahmood, Rashid); Ahmed, P (Ahmed, Pervez); Dimri, AP (Dimri, A. P.)

Source: JOURNAL OF WATER AND CLIMATE CHANGE DOI: 10.2166/wcc.2024.141 Early Access Date: JUL 2024 Published Date: 2024 JUL 4

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**Abstract:** Earth's average air temperature is warming at a substantial rate leading to an increase in the frequency and severity of extremes with major environmental and socio-economic impacts. The present study discusses temperature and precipitation extremes in Kashmir Valley using observational data from six meteorological stations. An Expert Team on Climate Change Detection and Indices (ETCCDI) (http://etccdi.pacificclimate.org/) provides 25 extreme climate indices (15 for temperature and 10 for precipitation) to be used. The absolute extreme temperature indices (TXx, TXn, TNx, and TNn) exhibit increasing tendencies, according to the findings. The number of changes witnessed in daily maximum temperature was greater than the daily minimum temperature which was manifested by increasing diurnal temperature range (DTR; 0.012 degrees C/year). These changes in extremes have impacts that pose a threat to agriculture, snow day and cover, glaciers, water resources, ecosystem services, etc. of the study region. The region is undergoing significant urban and land system changes making it further vulnerable to natural hazards. The findings are expected to further augment the hazard and risk analysis and the necessary disaster risk reduction measures for climate-related disasters in the region. These analyses will be helpful for the development of strategies for climate risk management in Kashmir.

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Language: English

Document Type: Article; Early Access

**Author Keywords:** climate extremes; Kashmir Himalaya; Kashmir Valley; warming/cooling indices; Western Himalaya

**KeyWords Plus:** CHANGING CLIMATE; REGION; 20TH-CENTURY; MINIMUM; INTENSE; MAXIMUM; EVENTS; BASIN

Addresses: [Ul Shafiq, Mifta] Govt Degree Coll Doda, Dept Geog, Higher Educ Dept, Doda, Jammu & Kashmir, India.

[Ul Islam, Zahoor; Fayaz, Abida; Ahmed, Pervez] Univ Kashmir, Sch Earth & Environm Sci, Dept Geog & Disaster Management, Srinagar, India.

[Mahmood, Rashid] Chinese Acad Sci, Inst Geog Sci, Beijing, Peoples R China.

[Dimri, A. P.] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi, India.

**Corresponding Address:** Ul Shafiq, M (corresponding author), Govt Degree Coll Doda, Dept Geog, Higher Educ Dept, Doda, Jammu & Kashmir, India.

E-mail Addresses: saabid9@gmail.com

**Affiliations:** University of Kashmir; Chinese Academy of Sciences; Jawaharlal Nehru University, New Delhi **Author Identifiers:** 

Author	Web of Science ResearcherID	ORCID Number
Shafiq, Mifta ul		0000-0002-0185-4919

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# Record 24 of 45

**Title:** Determination of antifungal efficacy and phytotoxicity of a unique silica coated porous zinc oxide nanocomposite medium for slow-release agrochemicals

**Author(s):** Yadav, A (Yadav, Annu); Sohlot, M (Sohlot, Monika); Sahu, SR (Sahu, Sudama Ram); Banerjee, T (Banerjee, Tirthankar); Bhattacharya, J (Bhattacharya, Jaydeep); Bandyopadhyay, K (Bandyopadhyay, Kaustav); Das, S (Das, Sumistha); Debnath, N (Debnath, Nitai)

**Source:** JOURNAL OF APPLIED MICROBIOLOGY **Volume:** 135 **Issue:** 7 **Article Number:** lxae153 **DOI:** 10.1093/jambio/lxae153 **Published Date:** 2024 JUL 8

# Times Cited in Web of Science Core Collection: 0

**Total Times Cited:** 0

Usage Count (Last 180 days): 1

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Cited Reference Count: 76

**Abstract:** Aims In this study, the antifungal efficacy and phytotoxicity of silica coated porous zinc oxide nanoparticle (SZNP) were analyzed as this nanocomposite was observed to be a suitable platform for slow release fungicides and has the promise to bring down the dosage of other agrochemicals as well. Methods and results Loading and release kinetics of tricyclazole, a potent fungicide, were analyzed by measuring surface area (SBET) using Brunauer-Emmett-Teller (BET) isotherm and liquid chromatography tandem mass spectrometry (LC-MS/MS), respectively. The antifungal efficacy of ZnO nanoparticle (ZNP) and SZNP was investigated on two phytopathogenic fungi (Alternaria solani and Aspergillus niger). The morphological changes to the fungal structure due to ZNP and SZNP treatment were studied by field emission-scanning electron microscopy. Nanoparticle mediated elevation of reactive oxygen species (ROS) in fungal samples was detected by analyzing the levels of superoxide dismutase, catalase, thiol content, lipid peroxidation, and by 2,7dichlorofluorescin diacetate assay. The phytotoxicity of these two nanostructures was assessed in rice plants by measuring primary plant growth parameters. Further, the translocation of the nanocomposite in the same plant model system was examined by checking the presence of fluorescein isothiocyanate tagged SZNP within the plant tissue. Conclusions ZNP had superior antifungal efficacy than SZNP and caused the generation of more ROS in the fungal samples. Even then, SZNP was preferred as an agrochemical delivery vehicle because, unlike ZNP alone, it was not toxic to plant system. Moreover, as silica in nanoform is entomotoxic in nature and nano ZnO has antifungal property, both the cargo (agrochemical) and the carrier system (silica coated porous nano zinc oxide) will have a synergistic effect in crop protection.

Accession Number: WOS:001267671000001

**PubMed ID:** 38925655

Language: English

**Document Type:** Article

**Author Keywords:** sustainable agriculture; controlled release; fungitoxicity; reactive oxygen species; biosafety **KeyWords Plus:** LIPID-PEROXIDATION; ZNO NANOPARTICLES; GROWTH; METAL; L.

Addresses: [Yadav, Annu; Sohlot, Monika; Bandyopadhyay, Kaustav; Das, Sumistha; Debnath, Nitai] Amity Univ Haryana, Amity Inst Biotechnol, Gurugram 122413, India.

[Sahu, Sudama Ram; Banerjee, Tirthankar] Indian Agr Res Inst, ICAR, Div Agr Chem, New Delhi 110012, India.

[Bhattacharya, Jaydeep] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi 110067, India.

**Corresponding Address:** Debnath, N (corresponding author), Amity Univ Haryana, Amity Inst Biotechnol, Gurugram 122413, India.

E-mail Addresses: nitai.debnath@gmail.com

**Affiliations:** Indian Council of Agricultural Research (ICAR); ICAR - Indian Agricultural Research Institute; Jawaharlal Nehru University, New Delhi

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# Record 25 of 45

Title: Efficient synthesis of indole-chalcones based glycohybrids and their anticancer activity

**Author(s):** Tyagi, R (Tyagi, Rajdeep); Yadav, K (Yadav, Kanchan); Khanna, A (Khanna, Ashish); Mishra, SK (Mishra, Sunil K.); Sagar, R (Sagar, Ram)

Source: BIOORGANIC & MEDICINAL CHEMISTRY Volume: 109 Article Number: 117778 DOI: 10.1016/j.bmc.2024.117778 Published Date: 2024 JUL 15

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**Abstract:** Indole based glycosides belong to the class of pharmacologically active molecules and found in diverse natural compounds. Herein, we report the synthesis of 1,2,3-triazole bridged chirally enriched diverse indole-chalcones based glycohybrids. Three series of glycohybrids were designed and efficiently synthesized using D-glucose, D-galactose and D-mannose derived 1-azido glycosides. The reactions sequence involved were, the synthesis of indole derived chalcones which were formed via Claisen-Schmidt condensation reaction and subsequently N-propargylation which leads to the production of N-propargylated indole-chalcones. The N-propargylated indolechalcones get transformed into 1,2,3-triazole bridged indole-chalcone based glycohybrids by reacting with 1-azido sugar glycosides under click-chemistry reaction conditions. Further, the biological activity of synthesized glycohybrids (n = 27) was assessed in-vitro against MDA-MB231, MCF-7, MDA-MB453 cancer, and MCF-10A normal cell lines. The selected compounds showed potent anti-oncogenic properties against MCF-7 and MDA-MB231 breast cancer cell line with IC50 values of 1.05 mu M and 11.40 mu M respectively, with very good selectivity index (SI > 161). The active compounds show better binding affinity as compared to co-crystallized inhibitor 1-(tert-butyl)-3-(p-tolyl)-1H-pyrazolo[3,4-d]pyrimidin-4-amine (PP1) with HCK (PTKs) proteins in molecular docking studies.

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**Author Keywords:** Glycohybrids; 1,2,3-Triazole; Indole-chalcones; Click-Chemistry; Anti-Cancer activity; Molecular Docking

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**Addresses:** [Tyagi, Rajdeep; Yadav, Kanchan; Sagar, Ram] Jawaharlal Nehru Univ, Sch Phys Sci, Glycochemistry Lab, New Delhi 110067, India.

[Khanna, Ashish; Sagar, Ram] Banaras Hindu Univ, Inst Sci, Dept Chem, Varanasi 221005, India. [Mishra, Sunil K.] Indian Inst Technol IIT BHU, Dept Pharmaceut Engn & Technol, Varanasi, India.

**Corresponding Address:** Sagar, R (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, Glycochemistry Lab, New Delhi 110067, India.

E-mail Addresses: ram.sagar@jnu.ac.in

Affiliations: Jawaharlal Nehru University, New Delhi; Banaras Hindu University (BHU); Indian Institute of Technology System (IIT System); Indian Institute of Technology BHU Varanasi (IIT BHU Varanasi)

# Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
KHANNA, ASHISH	IQU-0626-2023	0000-0002-7909-5692
Yadav, Kanchan		0009-0008-0516-3374
Tyagi, Rajdeep		0009-0004-3108-067X
Sagar, Ram		0000-0003-2472-6247

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# Record 26 of 45

Title: Amplification of temperature extremes in Arabian Peninsula under warmer worlds

Author(s): Vinodhkumar, B (Vinodhkumar, Buri); Ullah, S (Ullah, Safi); Kumar, TVL (Kumar, T. V. Lakshmi); Al-Ghamdi, SG (Al-Ghamdi, Sami G.)

**Source:** SCIENTIFIC REPORTS **Volume:** 14 **Issue:** 1 **Article Number:** 16604 **DOI:** 10.1038/s41598-024-67514-8 **Published Date:** 2024 JUL 18

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#### Total Times Cited: 0

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**Abstract:** The Paris Agreement and the Special Report on Global Warming of 1.5 degrees C from the Intergovernmental Panel on Climate Change (IPCC) highlighted the potential risks of climate change across different global warming levels (GWLs). The increasing occurrence of extreme high-temperature events is

linked to a warmer climate that is particularly prevalent in the Arabian Peninsula (AP). This study investigates future changes in temperatures and related extremes over AP, under four GWLs, such as 1.5 degrees C, 2.0 degrees C, 3.0 degrees C, and 4.0 degrees C, with three different Shared Socioeconomic Pathways (SSPs: SSP1-2.6, SSP2-4.5, and SSP5-8.5). The study uses high-resolution datasets of 27 models from the NASA Earth Exchange Global Daily Downscaled Projections of the Coupled Model Intercomparison Project Phase 6 (NEX-GDDP-CMIP6). The results showed that the NEX-GDDP-CMIP6 individual models and their multi-model means reasonably captured the extreme temperature events. The summer maximum and winter minimum temperatures are projected to increase by 0.11-0.67 degrees C and 0.09-0.70 degrees C per decade under the selected SSPs. Likewise, the projected temperature extremes exhibit significant warming with varying degrees across the GWLs under the selected SSPs. The warm temperature extremes are projected to increase, while the cold extremes are projected to decrease under all GWLs and the selected SSPs. Overall, the findings provide a comprehensive assessment of temperature changes over AP in response to global warming, which can be helpful in the development of climate adaptation and mitigation strategies.

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**Author Keywords:** Temperature extremes; NEX-GDDP-CMIP6; SSPs; Global warming levels; Arabian Peninsula

KeyWords Plus: 1.5 DEGREES-C; PROJECTED CHANGES; PRECIPITATION; INDEXES; MODELS

Addresses: [Vinodhkumar, Buri; Ullah, Safi; Al-Ghamdi, Sami G.] King Abdullah Univ Sci & Technol KAUST, Environm Sci & Engn Program, Biol & Environm Sci & Engn Div, Thuwal 239556900, Saudi Arabia. [Vinodhkumar, Buri; Ullah, Safi; Al-Ghamdi, Sami G.] King Abdullah Univ Sci & Technol KAUST, KAUST Climate & Livabil Initiat, Thuwal 239556900, Saudi Arabia.

[Vinodhkumar, Buri] Natl Inst Technol Rourkela, Dept Earth & Atmospher Sci, Rourkela 769008, India. [Kumar, T. V. Lakshmi] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

**Corresponding Address:** Al-Ghamdi, SG (corresponding author), King Abdullah Univ Sci & Technol KAUST, Environm Sci & Engn Program, Biol & Environm Sci & Engn Div, Thuwal 239556900, Saudi Arabia. Al-Ghamdi, SG (corresponding author), King Abdullah Univ Sci & Technol KAUST, KAUST Climate & Livabil Initiat, Thuwal 239556900, Saudi Arabia.

E-mail Addresses: sami.alghamdi@kaust.edu.sa

**Affiliations:** King Abdullah University of Science & Technology; King Abdullah University of Science & Technology; National Institute of Technology (NIT System); National Institute of Technology Rourkela; Jawaharlal Nehru University, New Delhi

# Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Al-Ghamdi, Sami	AAH-6959-2020	0000-0002-7416-5153
Ullah, Safi	X-6228-2019	0000-0002-2328-8321

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#### Record 27 of 45

**Title:** Identification of host immune-related biomarkers in active tuberculosis: A comprehensive analysis of differentially expressed genes

**Author(s):** Ansari, A (Ansari, Alisha); Singh, GP (Singh, Gajendra Pratap); Singh, M (Singh, Mamtesh); Singh, H (Singh, Harpreet)

Source: TUBERCULOSIS Volume: 148 Article Number: 102538 DOI: 10.1016/j.tube.2024.102538 Early Access Date: JUL 2024 Published Date: 2024 SEP

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**Abstract:** Tuberculosis (TB) is a serious public health issue in India. Numerous molecular mechanisms and immunological responses play significant roles in the pathogenesis of tuberculosis. This study aimed to identify host immunerelated biomarkers that are significantly differentially expressed in active TB and that play a vital role in disease progression. The methodology employed in this study included data collection, pre-processing, analysis, and interpretation of the results. Six microarray datasets were used to identify differentially expressed genes (DEGs), and only the common DEGs were used for further downstream analysis, such as hub gene identification, gene ontology, pathway enrichment analysis, and drug-gene interaction analysis. The study identified 1728 DEGs, including 906 upregulated and 822 downregulated genes. Five hub genes were identified that were: STAT1, GBP5, GBP1, FCGR1A, and BATF2. Gene ontology and pathway enrichment revealed that most of the genes were involved in interferon-gamma signaling. In addition, through drug-gene interactions, known drugs have been identified for STAT1, FCGR1A and GBP1. The findings of this study may contribute to early detection and treatment of active TB.

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Author Keywords: Tuberculosis; Mtb; GEO; Network biology; Differential gene expression

KeyWords Plus: GAMMA

Addresses: [Ansari, Alisha; Singh, Gajendra Pratap] Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi 110067, Delhi, India.

[Singh, Mamtesh] Univ Delhi, Gargi Coll, Dept Zool, New Delhi 110049, Delhi, India.

[Singh, Harpreet] Indian Council Med Res, Dept Bioinformat, Div Biomed Informat, Delhi 110029, India.

**Corresponding Address:** Singh, GP (corresponding author), Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi 110067, Delhi, India.

E-mail Addresses: gajendra@jnu.ac.in

**Affiliations:** Jawaharlal Nehru University, New Delhi; University of Delhi; Indian Council of Medical Research (ICMR)

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# Record 28 of 45

Title: Substantial enhancement in thermoelectric figure-of-merit of half-Heusler ZrNiPb alloys

**Author(s):** Sagar, A (Sagar, Amardeep); Bhardwaj, A (Bhardwaj, Aman); Lamba, M (Lamba, Manoj); Novitskii, A (Novitskii, Andrei); Khovaylo, V (Khovaylo, Vladimir); Patnaik, S (Patnaik, Satyabrata)

Source: BULLETIN OF MATERIALS SCIENCE Volume: 47 Issue: 3 Article Number: 146 DOI: 10.1007/s12034-024-03217-0 Published Date: 2024 JUL 10

#### **Times Cited in Web of Science Core Collection:** 0

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**Abstract:** Ternary half-Heusler (HH) alloys are under intense investigations recently towards achieving high thermoelectric (TE) figure-of-merit (ZT). Of particular interest is the ZrNiPb-based HH alloy, where an optimal value of ZT similar to 0.7 at 773 K has been achieved by co-doping Sn and Bi at Pb site. In this work, we identify an excellent ZT of 1.3 in ZrNi1+xPb0.38Sn0.6Bi0.02 (x = 0.03, at 773 K) composite alloy. This is achieved by synergistic modulation of electronic as well as thermal properties via introduction of minor phase of full-Heusler (FH) in the HH matrix through compositional tuning approach. These Ni-rich ZrNi1+xPb0.38Sn0.6Bi0.02 (0 <= x <= 0.07) alloys were synthesized via energy efficient and time-curbed techniques that involved Arc melting followed by consolidation via spark plasma sintering. These alloys were characterized by XRD and SEM, which show formation of nanocomposites comprising of HH matrix phase and FH secondary minor phases. Enhancement in ZT is mainly attributed to a synchronized increase in power factor (similar to 42%) and similar to 25% decrease in its thermal conductivity. Here, TE compatibility factor (S) was also calculated for all samples. The value of vertical bar S vertical bar similar to 2.7 V-1 (at 773 K) is observed for x = 0.03, which is similar to 17% higher than bare HH composition (x = 0.0). The theoretically calculated TE device efficiency of best-performing sample ZrNi1.03Pb0.38Sn0.6Bi0.02 is estimated to be eta similar to 13.6%. Our results imply that deliberately controlled fine tuning in compositions of HH compounds through compositional tuning approach would lead to novel off-stoichiometric HH phases with enhanced ZT value for efficient TE device fabrication.

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**Author Keywords:** Thermoelectric materials; compositional tuning approach; half-Heusler; spark plasma sintering; nanocomposite; thermoelectric figure-of-merit

Addresses: [Sagar, Amardeep; Bhardwaj, Aman; Lamba, Manoj; Patnaik, Satyabrata] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

[Novitskii, Andrei; Khovaylo, Vladimir] Natl Univ Sci & Technol MISiS, Moscow 119049, Russia. [Khovaylo, Vladimir] Belgorod State Univ, Belgorod 308015, Russia.

[Bhardwaj, Aman] Reg Inst Educ RIE, Dept Educ Sci & Math DESM, Chem Sect, Bhubaneswar, India.

**Corresponding Address:** Patnaik, S (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: spatnaik@mail.jnu.ac.in

**Affiliations:** Jawaharlal Nehru University, New Delhi; National University of Science & Technology (MISIS); Belgorod State University

# **Author Identifiers:**

Author	Web of Science ResearcherID	ORCID Number
Patnaik, Prof. Satyabrata		0000-0003-4984-9243

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# Record 29 of 45

**Title:** Biomarker Identification for Preterm Birth Susceptibility: Vaginal Microbiome Meta-Analysis Using Systems Biology and Machine Learning Approaches

**Author(s):** Kulshrestha, S (Kulshrestha, Sudeepti); Narad, P (Narad, Priyanka); Singh, B (Singh, Brojen); Pai, SS (Pai, Somnath S.); Vijayaraghavan, P (Vijayaraghavan, Pooja); Tandon, A (Tandon, Ansh); Gupta, P (Gupta, Payal); Modi, D (Modi, Deepak); Sengupta, A (Sengupta, Abhishek)

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Abstract: ProblemThe vaginal microbiome has a substantial role in the occurrence of preterm birth (PTB), which contributes substantially to neonatal mortality worldwide. However, current bioinformatics approaches mostly concentrate on the taxonomic classification and functional profiling of the microbiome, limiting their abilities to elucidate the complex factors that contribute to PTB.Method of studyA total of 3757 vaginal microbiome 16S rRNA samples were obtained from five publicly available datasets. The samples were divided into two categories based on pregnancy outcome: preterm birth (PTB) (N = 966) and term birth (N = 2791). Additionally, the samples were further categorized based on the participants' race and trimester. The 16S rRNA reads were subjected to taxonomic classification and functional profiling using the Parallel-META 3 software in Ubuntu environment. The obtained abundances were analyzed using an integrated systems biology and machine learning approach to determine the key microbes, pathways, and genes that contribute to PTB. The resulting features were further subjected to statistical analysis to identify the top nine features with the greatest effect sizes.ResultsWe identified nine significant features, namely Shuttleworthia, Megasphaera, Sneathia, proximal tubule bicarbonate reclamation pathway, systemic lupus erythematosus pathway, transcription machinery pathway, lepA gene, pepX gene, and rpoD gene. Their abundance variations were observed through the trimesters.ConclusionsVaginal infections caused by Shuttleworthia, Megasphaera, and Sneathia and altered small metabolite biosynthesis pathways such as lipopolysaccharide folate and retinal may increase the susceptibility to PTB. The identified organisms, genes, pathways, and their networks may be specifically targeted for the treatment of bacterial infections that increase PTB risk.

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**Author Keywords:** bioinformatics; machine learning; pregnancy outcomes; preterm birth; reproductive health; systems biology; vaginal microbiome

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Addresses: [Kulshrestha, Sudeepti; Tandon, Ansh; Gupta, Payal; Sengupta, Abhishek] Amity Univ, Amity Inst Biotechnol, Ctr Computat Biol & Bioinformat, Syst Biol & Data Analyt Res Lab, Noida, Uttar Pradesh, India. [Narad, Priyanka] Indian Council Med Res, Div Biomed Informat BMI, Ansari Nagar, New Delhi, India. [Singh, Brojen] Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi, India.

[Pai, Somnath S.] Amity Univ, Amity Inst Virol & Immunol, Noida, Uttar Pradesh, India.

[Vijayaraghavan, Pooja] Amity Univ, Amity Inst Biotechnol, Antimycot Drug Susceptibil Lab, Noida, Uttar Pradesh, India.

[Modi, Deepak] Natl Inst Res Reprod & Child Hlth, Mol & Cellular Biol Lab, Mumbai, Maharashtra, India.

**Corresponding Address:** Sengupta, A (corresponding author), Amity Univ, Amity Inst Biotechnol, Ctr Computat Biol & Bioinformat, Syst Biol & Data Analyt Res Lab, Noida, Uttar Pradesh, India.

E-mail Addresses: asengupta@amity.edu

**Affiliations:** Amity University Noida; Indian Council of Medical Research (ICMR); Jawaharlal Nehru University, New Delhi; Amity University Noida; Amity University Noida

#### Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Tandon, Ansh		0009-0003-5804-4145

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# Record 30 of 45

**Title:** Barrel effect of high-rate capability determined by anode for LiNi<sub>0.5</sub>Co<sub>0.2</sub>Mn<sub>0.3</sub>O<sub>2</sub>/graphite lithium-ion battery

**Author(s):** Liu, MY (Liu, Mengyang); Zhang, ST (Zhang, Songtong); Zhu, XY (Zhu, Xiayu); Kumar, P (Kumar, Pushpendra); Ming, H (Ming, Hai); Meng, WJ (Meng, Wenjie); Guan, HS (Guan, Hongsheng); Qiu, JY (Qiu, Jingyi); Chen, ZJ (Chen, Zhijun)

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**Abstract:** To date, charging time remains a critical issue that impedes the widespread application of lithium-ion batteries (LIBs). A comprehensive understanding of the attenuation mechanism of LIBs at high (dis)charging rates is essential for clarifying application strategies for extreme operating conditions and environments, thereby enhancing battery control, and guiding the design of advanced batteries with superior rate capability. In line with this focus, particular commercial NCM/graphite batteries were explored under various high-rate (dis) charging procedures, alongside the investigation of the impact of constant voltage steps on battery performance. This exploration revealed that capacity degradation occurs in three stages, and the rate of capacity decay is directly proportional to the (dis)charging rate. Furthermore, the in-situ temperature and stress of the battery during cycling, primarily caused by side reactions, were monitored to confirm the thermal effects and stress variations under high-rate conditions. By characterizing the morphology and composition of the electrode surface after post-mortem analysis, the "barrel effect" of high-rate capability determined by the anode electrode for LIBs is proposed. This research aims to establish optimal guidelines for designing batteries with excellent highrate properties and to provide solutions for improving the safety and reliability of batteries applied in high-rate conditions.

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Language: English

**Document Type:** Article

**Author Keywords:** Lithium -ion battery; High -rate capability; Accelerates aging; Barrel effect; Failure mechanism

Addresses: [Liu, Mengyang; Chen, Zhijun] Zhengzhou Univ Light Ind, Sch Chem Engn & Mat Sci, Henan Prov Key Lab Surface & Interface Sci, Zhengzhou 450002, Peoples R China.

[Liu, Mengyang; Zhang, Songtong; Zhu, Xiayu; Ming, Hai; Qiu, Jingyi] AMS, Chem Def Inst, Beijing 100191, Peoples R China.

[Meng, Wenjie; Guan, Hongsheng] Beihang Univ, Sch Reliabil & Syst Engn, Beijing 100191, Peoples R China. [Kumar, Pushpendra] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

**Corresponding Address:** Chen, ZJ (corresponding author), Zhengzhou Univ Light Ind, Sch Chem Engn & Mat Sci, Henan Prov Key Lab Surface & Interface Sci, Zhengzhou 450002, Peoples R China.

Ming, H; Qiu, JY (corresponding author), AMS, Chem Def Inst, Beijing 100191, Peoples R China.

**E-mail Addresses:** hai.mingenergy@hotmail.com; qiujingyi1202@163.com; chenzj@zzuli.edu.cn

**Affiliations:** Zhengzhou University of Light Industry; Beihang University; Jawaharlal Nehru University, New Delhi

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# Record 31 of 45

**Title:** <i>Mycobacterium tuberculosis</i> Essential Gene Thymidylate Synthase Is Involved in Immune Modulation and Survival inside the Host

**Author(s):** Tanweer, S (Tanweer, Sana); Sharma, T (Sharma, Tarina); Grover, A (Grover, Abhinav); Agarwal, M (Agarwal, Meetu); Grover, S (Grover, Sonam)

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**Abstract:** A Mycobacterium tuberculosis essential gene, ThyX (Rv2754c), plays a key role in intermediate metabolism and respiration by catalyzing the formation of dTMP and tetrahydrofolate from dUMP and methylenetetrahydrofolate. ThyX is present in the M.tb complex and in M. smegmatis a nonpathogenic strain of Mycobacteria. In this study, we identified a novel function of ThyX, an enzyme with immune-modulating properties. We have shown that ThyX can activate the macrophages in the host toward M1 response. Overexpression of ThyX stimulates the production of nitrite oxide (NO) and induces apoptosis in macrophages; indeed both responses help the host to control growth of M.tb. ThyX was also discovered to play a role in the recombinant bacterium's ability to survive when it was subjected to oxidative and hypoxic stress by

macrophages. These findings demonstrate the protein's functional importance in M.tb. Indeed these findings represent ThyX as a potential candidate for future research and show this as a therapeutic target.

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Addresses: [Tanweer, Sana; Agarwal, Meetu; Grover, Sonam] Jamia Hamdard, Dept Mol Med, New Delhi 110062, India.

[Sharma, Tarina] State Univ New Jersey, New Jersey Med Sch Rutgers, Rutgers, Newark, NJ 07103 USA. [Grover, Abhinav] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi 110069, India.

**Corresponding Address:** Agarwal, M; Grover, S (corresponding author), Jamia Hamdard, Dept Mol Med, New Delhi 110062, India.

E-mail Addresses: meetuagarwal2388@gmail.com; sonamgbt@gmail.com

**Affiliations:** Jamia Hamdard University; Rutgers University System; Rutgers University New Brunswick; Rutgers University Biomedical & Health Sciences; Jawaharlal Nehru University, New Delhi

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DST-INSPIRE Faculty Fellowship, Department of Science and Technology, Government of India	DST/INSPIRE/04/2019/002743
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# **Open Access:** gold

Output Date: 2024-08-05

# Record 32 of 45

**Title:** The long noncoding RNA (LINC-RBE) expression in testicular cells is associated with aging of the rat **Author(s):** Danga, AK (Danga, Ajay Kumar); Kour, S (Kour, Sukhleen); Kumari, A (Kumari, Anita); Rath, PC (Rath, Pramod C.)

# Source: BIOGERONTOLOGY DOI: 10.1007/s10522-024-10119-5 Early Access Date: JUL

2024 **Published Date:** 2024 JUL 17

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# **Cited Reference Count:** 59

**Abstract:** Long noncoding RNAs (lncRNAs) are important regulatory biomolecules responsible for many cellular processes. The aging of mammals is manifested by a slow and gradual decline of physiological functions after adulthood, progressively resulting in age-related diseases. Testis comprises different cell-types with defined functions for producing haploid gametes and androgens in males, contributing gene-pool to the next generation with genetic variations to species for evolutionary advantage. The LINC-RBE (long intergenic noncoding-rat brain expressed) RNA showed highest expression in the Leydig cells, responsible for steroidogenesis and production of testosterone; higher expression in Sertoli cells, the nursing cells of the testes. Testes of immature (4-weeks), adult (16- and 44-weeks), and nearly-old (70-weeks) rats showed low, high, and again low levels of expression, respectively. This along with the nuclear-cytoplasmic localization of LINC-RBE RNA showed age-related expression and function. Thus, expression of LINC-RBE is involved in the molecular physiology of testes, especially Leydig cells, primary spermatocytes, and Sertoli cells. The decline in its expression correlates with diminishing reproductive function of the testes during aging of the rat.

Accession Number: WOS:001271798400002

**PubMed ID:** 39017749

Language: English

Document Type: Article; Early Access

Author Keywords: Long noncoding RNA; Testis; Aging

KeyWords Plus: TESTIS; SERTOLI

Addresses: [Danga, Ajay Kumar; Kour, Sukhleen; Kumari, Anita; Rath, Pramod C.] Jawaharlal Nehru Univ, Sch Life Sci, Mol Biol Lab, New Delhi 110067, India.

[Kour, Sukhleen] Univ Pittsburgh, Med Ctr, Childrens Hosp Pittsburgh, Dept Pediat, Pittsburgh, PA 15224 USA.

**Corresponding Address:** Rath, PC (corresponding author), Jawaharlal Nehru Univ, Sch Life Sci, Mol Biol Lab, New Delhi 110067, India.

**E-mail Addresses:** ajaykumardanga@ymail.com; suk106@pitt.edu; anitaksaa@gmail.com; pcrath@mail.jnu.ac.in

**Affiliations:** Jawaharlal Nehru University, New Delhi; Pennsylvania Commonwealth System of Higher Education (PCSHE); University of Pittsburgh

#### Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Kour, Sukhleen	GPP-2145-2022	0000-0002-8068-5278

Publisher: SPRINGER

**Publisher Address:** ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES **Web of Science Index:** Science Citation Index Expanded (SCI-EXPANDED)

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Research Areas: Geriatrics & Gerontology

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Indian Council of Medical Research	BT/INF/22/SP45382/2022
Department of Biotechnology (DBT)-Builder	SR/FST/LSII-046/2016(C)
Department of Science & Technology (DST)-FIST-II	
Indian Council of Medical Research (ICMR)	
University Grants Commission (UGC)	

This work was supported by the Govt. of India: Department of Biotechnology (DBT)-Builder (grant No. BT/INF/22/SP45382/2022) and Department of Science & Technology (DST)-FIST-II [grant No. SR/FST/LSII-046/2016(C)] to the School of Life Sciences, J.N.U. as well as the Junior/Senior Research Fellowships (JRF/SRF) from the Indian Council of Medical Research (ICMR) to AKD and the University Grants Commission (UGC) to SK and AK.DAS:The data and materials will be available for academic and research purposes by reasonable request to the corresponding author.

**Output Date:** 2024-08-05

# Record 33 of 45

Title: Unraveling the Triad: Hypoxia, Oxidative Stress and Inflammation in Neurodegenerative Disorders Author(s): Dakal, TC (Dakal, Tikam Chand); Choudhary, K (Choudhary, Kanika); Tiwari, I (Tiwari, Isha); Yadav, V (Yadav, Vikas); Maurya, PK (Maurya, Pawan Kumar); Sharma, NK (Sharma, Narendra Kumar) Source: NEUROSCIENCE Volume: 552 Pages: 126-141 DOI: 10.1016/j.neuroscience.2024.06.021 Early Access Date: JUL 2024 Published Date: 2024 AUG 6

**Times Cited in Web of Science Core Collection:** 0

Total Times Cited: 0

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Usage Count (Since 2013): 0

# **Cited Reference Count:** 193

**Abstract:** The mammalian brain's complete dependence on oxygen for ATP production makes it highly susceptible to hypoxia, at high altitudes or in clinical scenarios including anemia or pulmonary disease. Hypoxia plays a crucial role in the development of various brain disorders, such as Alzheimer's, Parkinson's, and other age-related neurodegenerative diseases. On the other hand, a decrease in environmental oxygen levels, such as prolonged stays at high elevations, may have beneficial impacts on the process of ageing and the likelihood of death. Additionally, the utilization of controlled hypoxia exposure could potentially serve as a therapeutic approach for age-related brain diseases. Recent findings indicate that the involvement of HIF-1 alpha and the NLRP3 inflammasome is of significant importance in the development of Alzheimer's disease. HIF-1 alpha serves as a pivotal controller of various cellular reactions to oxygen deprivation, exerting influence on a multitude of physiological mechanisms such as energy metabolism and inflammatory responses. The NLRP3 plays a crucial role in the innate immune system by coordinating the initiation of inflammatory reactions through the assembly of the inflammasome complex. This review examines the information pertaining to the contrasting effects of hypoxia on the brain, highlighting both its positive and deleterious effects and molecular pathways that are involved in mediating these different effects. This study explores potential strategies for therapeutic intervention that focus on restoring cellular balance and reducing neuroinflammation, which are critical aspects in addressing this severe neurodegenerative condition and addresses crucial inquiries that warrant further future investigations.

Accession Number: WOS:001267656600001 PubMed ID: 38936458

# Language: English

Document Type: Review

**Author Keywords:** hypoxia; neurodegenerative Disorders; inflammation; hypoxia Inducible Factor (HIF); NLRP3 Inflammasome

**KeyWords Plus:** NF-KAPPA-B; INDUCED TAU PHOSPHORYLATION; INDUCIBLE FACTOR 1-ALPHA; NECROSIS-FACTOR-ALPHA; NLRP3 INFLAMMASOME; PARKINSONS-DISEASE; GENE-EXPRESSION; HIF-1-ALPHA EXPRESSION; CELL-PROLIFERATION; NITRIC-OXIDE

Addresses: [Dakal, Tikam Chand] Mohanlal Sukhadia Univ, Genome & Computat Biol Lab, Udaipur 313001, Rajasthan, India.

[Choudhary, Kanika; Yadav, Vikas] Jawaharlal Nehru Univ, Sch Life Sci, New Delhi 110067, India. [Tiwari, Isha; Sharma, Narendra Kumar] Banasthali Vidyapith, Dept Biosci & Biotechnol, Tonk 304022, Rajasthan, India.

[Maurya, Pawan Kumar] Cent Univ Haryana, Dept Biochem, Mahendergarh 123031, India.

**Corresponding Address:** Sharma, NK (corresponding author), Banasthali Vidyapith Deemed Univ, Dept Biosci & Biotechnol, PO Banasthali Vidyapith, Tonk 304022, Rajasthan, India.

E-mail Addresses: drnarendraks@gmail.com

**Affiliations:** Mohanlal Sukhadia University; Jawaharlal Nehru University, New Delhi; Banasthali Vidyapith; Central University of Haryana

# **Author Identifiers:**

Author	Web of Science ResearcherID	ORCID Number
Choudhary, Kanika		0009-0001-2801-7766

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**Publisher Address:** THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, ENGLAND

Web of Science Index: Science Citation Index Expanded (SCI-EXPANDED)

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Output Date: 2024-08-05

Title: Health systems in India: analysing barriers to inclusive health leadership through a gender lens Author(s): Gideon, J (Gideon, Jasmine); Asthana, S (Asthana, Sumegha); Bisht, R (Bisht, Ramila) Source: BMJ-BRITISH MEDICAL JOURNAL Volume: 386 Article Number: e078351 DOI: 10.1136/bmj-2023-078351 Published Date: 2024 JUL 17 Times Cited in Web of Science Core Collection: 2 Total Times Cited: 2 Usage Count (Last 180 days): 0 Usage Count (Since 2013): 0

**Cited Reference Count:** 52

**Accession Number:** WOS:001274879500011

**PubMed ID:** 39019544

Language: English

**Document Type:** Editorial Material

KeyWords Plus: WOMEN; PATRIARCHY; PIPELINE; MEDICINE; KERALA

Addresses: [Gideon, Jasmine] Birkbeck Univ London, London, England.

[Gideon, Jasmine] Global Hlth 5050, Cambridge, England.

[Asthana, Sumegha] Georgetown Univ, Ctr Global Hlth Sci & Secur, Washington, DC USA.

[Bisht, Ramila] Jawaharlal Nehru Univ, Ctr Social Med & Community Hlth, New Delhi, India.

**Corresponding Address:** Gideon, J (corresponding author), Birkbeck Univ London, London, England. Gideon, J (corresponding author), Global Hlth 5050, Cambridge, England.

E-mail Addresses: Jasmine.gideon@globalhealth5050.org

**Affiliations:** University of London; Birkbeck University London; Georgetown University; Jawaharlal Nehru University, New Delhi

Publisher: BMJ PUBLISHING GROUP

**Publisher Address:** BRITISH MED ASSOC HOUSE, TAVISTOCK SQUARE, LONDON WC1H 9JR, ENGLAND

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Research Areas: General & Internal Medicine

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ISO Source Abbrev.: BMJ-British Medical Journal

Source Item Page Count: 4

**Output Date:** 2024-08-05

# Record 35 of 45

**Title:** Proteome profile of Leishmania donovani Centrin1-/- parasite-infected human macrophage cell line and its implications in determining possible mechanisms of protective immunity

**Author(s):** Reyaz, E (Reyaz, Enam); Tandon, R (Tandon, Rati); Beg, MA (Beg, Mirza Adil); Dey, R (Dey, Ranadhir); Puri, N (Puri, Niti); Salotra, P (Salotra, Poonam); Nakhasi, HL (Nakhasi, Hira L.); Selvapandiyan, A (Selvapandiyan, A.)

Source: MICROBES AND INFECTION Volume: 26 Issue: 5-6 Article Number: 105340 DOI: 10.1016/j.micinf.2024.105340 Early Access Date: JUL 2024 Published Date: 2024 JUL-AUG

Times Cited in Web of Science Core Collection: 0

# Total Times Cited: 0 Usage Count (Last 180 days): 0 Usage Count (Since 2013): 0 **Cited Reference Count:** 53

**Abstract:** Our developed cell division-specific 'centrin' gene deleted Leishmania donovani (LdCen1-/-) the causative parasite of the fatal visceral-leishmaniasis (VL), exhibits a selective growth arrest at the intracellular stage and is anticipated as a live attenuated vaccine candidate against VL. LdCen1-/- immunization in animals has shown increased IFN-g secreting CD4+ and CD8+ T cells along with protection conferred by a protective proinflammatory immune response. A label-free proteomics approach has been employed to understand the physiology of infection and predict disease interceptors during Leishmania-host interactions. Proteomic modulation after infection of human macrophage cell lines suggested elevated annexin A6, implying involvement in various biological processes such as membrane repair, transport, actin dynamics, cell proliferation, survival, differentiation, and inflammation, thereby potentiating its immunological protective capacity. Additionally, S100A8 and S100A9 proteins, known for maintaining homeostatic balance in regulating the inflammatory response, have been upregulated after infection. The inhibitory clade of serpins, known to inhibit cysteine proteases (CPs), was upregulated in host cells after 48 h of infection. This is reflected in the diminished expression of CPs in the parasites during infection. Such proteome analysis confirms LdCen1-/efficacy as a vaccine candidate and predicts potential markers in future vaccine development strategies against infectious diseases. (c) 2024 Institut Pasteur. Published by Elsevier Masson SAS. All rights reserved.

Accession Number: WOS:001265454700001

**PubMed ID:** 38663721

Language: English

**Document Type:** Article

Author Keywords: Leishmania donovani; Proteomics; Infection; LdCen1; Proinflammatory cytokines; Protein modulation

KeyWords Plus: AUTOPHAGY; DISRUPTION; EXPRESSION; S100A8/A9; GROWTH

Addresses: [Reyaz, Enam; Tandon, Rati; Beg, Mirza Adil; Selvapandiyan, A.] Jamia Hamdard, JH Dept Mol Med, New Delhi 110062, India.

[Puri, Niti] Jawaharlal Nehru Univ, Sch Life Sci, New Delhi 110067, India.

[Salotra, Poonam] Safdarjung Hosp Campus, ICMR Natl Inst Pathol, New Delhi 110029, India. [Dey, Ranadhir; Nakhasi, Hira L.] FDA, Ctr Biol Evaluat & Res CBER, Div Emerging & Transfus Transmitted Dis, Silver Spring, MD 20993 USA.

**Corresponding Address:** Selvapandiyan, A (corresponding author), Jamia Hamdard, JH Dept Mol Med, New Delhi 110062, India.

**E-mail Addresses:** selvapandiyan@jamiahamdard.ac.in

Affiliations: Jamia Hamdard University; Jawaharlal Nehru University, New Delhi; Indian Council of Medical Research (ICMR); ICMR - National Institute of Pathology (IOP); US Food & Drug Administration (FDA) **Publisher:** ELSEVIER

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**Research Areas:** Immunology; Infectious Diseases; Microbiology

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University Grants Commission-Maulana Azad National Fellowship, New Delhi, India	2014-15-MUS-BIH-41181

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Output Date: 2024-08-05

#### Record 36 of 45

Title: Dismantling the structures of inequality: why we need feminist leadership in the health sector

Author(s): Hawkes, S (Hawkes, Sarah); Baru, R (Baru, Rama)

Source: BMJ-BRITISH MEDICAL JOURNAL Volume: 386 Article Number: e078927 DOI: 10.1136/bmj-2023-078927 Published Date: 2024 JUL 17

**Times Cited in Web of Science Core Collection:** 2

Total Times Cited: 2

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

Cited Reference Count: 37

Accession Number: WOS:001274879500014

PubMed ID: 39019539

Language: English

**Document Type:** Article

KeyWords Plus: GENDER

Addresses: [Hawkes, Sarah] Global Hlth 50 50, Wellington House, Cambridge, England. [Hawkes, Sarah] UCL, UK Inst Global Hlth, London, England. [Baru, Rama] Jawaharlal Nehru Univ, Ctr Social Med & Community Hlth, New Delhi, India.

**Corresponding Address:** Hawkes, S (corresponding author), Global Hlth 50 50, Wellington House, Cambridge, England.

Hawkes, S (corresponding author), UCL, UK Inst Global Hlth, London, England.

E-mail Addresses: sarah.hawkes@globalhealth5050.org

**Affiliations:** University of London; University College London; Jawaharlal Nehru University, New Delhi **Publisher:** BMJ PUBLISHING GROUP

**Publisher Address:** BRITISH MED ASSOC HOUSE, TAVISTOCK SQUARE, LONDON WC1H 9JR, ENGLAND

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Web of Science Categories: Medicine, General & Internal

**Research Areas:** General & Internal Medicine

IDS Number: ZJ3D4

**ISSN:** 0959-535X

**eISSN:** 1756-1833

#### Record 37 of 45

**Title:** In Vitro Studies of Pumpkin (<i>Cucurbita moschata</i> var. Kashi Harit) Seed Protein Fraction(s) to Evaluate Anticancer and Antidiabetic Properties

**Author(s):** Vinayashree, S (Vinayashree, S.); Hemakumar, C (Hemakumar, C.); Veeranna, RP (Veeranna, Ravindra P.); Kumar, R (Kumar, Ravi); Pavithra, V (Pavithra, V.); Mahendra, VP (Mahendra, V. P.); Vasu, P (Vasu, Prasanna)

Source: PLANT FOODS FOR HUMAN NUTRITION DOI: 10.1007/s11130-024-01205-7 Early Access Date: JUL 2024 Published Date: 2024 JUL 1

Times Cited in Web of Science Core Collection: 0

Total Times Cited: 0

Usage Count (Last 180 days): 0

Usage Count (Since 2013): 0

# Cited Reference Count: 35

**Abstract:** Chronic diseases like cancer and diabetes are the major public health concerns of India and worldwide. Nowadays, plant-derived products are in great demand for the treatment of these diseases. Pumpkin seeds are traditionally implicated for their pharmacological properties, as exemplified by benign prostatic hyperplasia. Earlier, pumpkin seed proteins were extracted by the Osborne method, and their functional and nutritional qualities were evaluated. Here, the aim is to assess in vitro, the anticancer and antidiabetic properties of seed protein fractions. HepG2, MDA-MB-231, and MCF-7 cell lines were treated with water-soluble (WF) and alkali-soluble fractions (AF) to assess cytotoxicity, while pancreatic beta-cells and insulin resistance (IR) - HepG2 cell lines were treated with WF to evaluate the antidiabetic potential. WF and AF showed cytotoxic effects towards HepG2 and MDA-MB-231 cell lines, suggesting apoptosis-mediated anticancerous activity. WF potentiates glucose-stimulated insulin secretion in pancreatic beta-cells, in a dose-dependent manner. In IR-HepG2 cell line studies, control, metformin, and WF-treated groups showed uptake of glucose, when compared to the diabetic group, which is well-correlated with the upregulated expressions of GLUT2 and GLUT4 transporters in these groups. These results indicate that proteins from WF and AF may have anticancerous and antidiabetic properties and thus have the potential to utilize pumpkin proteins in the management of cancer and diabetes.

Accession Number: WOS:001260362400004

**PubMed ID:** 38951376

Language: English

Document Type: Article; Early Access

Author Keywords: Pumpkin seed proteins; Cancer; Diabetes; Apoptosis; Glucose transporters

**KeyWords Plus:** MOMORDICA-CHARANTIA; INSULIN-SECRETION; CANCER-CELLS; BETA-CELLS; EXTRACT; APOPTOSIS; PLANTS

**Addresses:** [Vinayashree, S.; Vasu, Prasanna] CSIR Cent Food Technol Res Inst, Dept Food Safety & Analyt Qual Control Lab, Mysuru 570020, Karnataka, India.

[Hemakumar, C.; Veeranna, Ravindra P.; Pavithra, V.] CSIR, CFTRI, Dept Biochem, Mysuru 570020, Karnataka, India.

[Kumar, Ravi; Mahendra, V. P.] CSIR, Dept Mol Nutr, CFTRI, Mysuru 570020, Karnataka, India. [Vinayashree, S.; Pavithra, V.; Mahendra, V. P.; Vasu, Prasanna] Acad Sci & Innovat Res AcSIR, Ghaziabad 201002, Uttar Pradesh, India.

[Hemakumar, C.] Dayananda Sagar Coll Engn, Dept Biotechnol, Shavige Malleshwara Hills, Bengaluru 560078, Karnataka, India.

[Veeranna, Ravindra P.] Xavier Univ, Sch Vet Med, Sch Med, St Helenastr 23, Oranjestad, Aruba, Aruba. [Kumar, Ravi] Jawaharlal Nehru Univ, Sch Biotechnol, New Delhi, India.

**Corresponding Address:** Vasu, P (corresponding author), CSIR Cent Food Technol Res Inst, Dept Food Safety & Analyt Qual Control Lab, Mysuru 570020, Karnataka, India.

Vasu, P (corresponding author), Acad Sci & Innovat Res AcSIR, Ghaziabad 201002, Uttar Pradesh, India.

**E-mail Addresses:** vinaya.sathya22@gmail.com; hemash2001@yahoo.co.in; raviravindra1@gmail.com; ravikr@jnu.ac.in; pavithravpavi1620@gmail.com; vpmaahi@gmail.com; vprasanna@cftri.res.in

Affiliations: Council of Scientific & Industrial Research (CSIR) - India; CSIR - Central Food Technological Research Institute (CFTRI); Council of Scientific & Industrial Research (CSIR) - India; CSIR - Central Food Technological Research Institute (CFTRI); Council of Scientific & Industrial Research (CSIR) - India; CSIR - Central Food Technological Research Institute (CFTRI); Academy of Scientific & Innovative Research (AcSIR); Dayananda Sagar College of Engineering; Jawaharlal Nehru University, New Delhi

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Research Areas: Plant Sciences; Chemistry; Food Science & Technology; Nutrition & Dietetics

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# Record 38 of 45

**Title:** Observational evidence of changing cloud macro-physical properties under warming climate over the Indian summer monsoon region

**Author(s):** Sharma, S (Sharma, Saloni); Ojha, PK (Ojha, Piyush Kumar); Bangar, V (Bangar, Vaibhav); Sarangi, C (Sarangi, Chandan); Koren, I (Koren, Ilan); Kumar, K (Kumar, Krishan); Mishra, AK (Mishra, Amit Kumar)

Source: SCIENCE OF THE TOTAL ENVIRONMENT Volume: 947 Article Number: 174454 DOI: 10.1016/j.scitotenv.2024.174454 Early Access Date: JUL 2024 Published Date: 2024 OCT 15

**Times Cited in Web of Science Core Collection:** 0

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Usage Count (Last 180 days): 0

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**Cited Reference Count:** 72

**Abstract:** The cloud responses to global warming are captured in various global climate models with distinct inferences on changes in cloud vertical structure as function of surface warming. However, long term observational evidences are scarce to validate the model outputs. Here, we have studied the changes in radiosonde derived cloud macro-physical properties and their association with other atmospheric variables during the period 2000-2019 in response to warming climate over the Indian summer monsoon region. We have observed a statistically significant increase in the frequency of cloudy days (similar to 13 % decade(-1)), high-level clouds (HLCs similar to 11 % decade(-1)) and simultaneous decrease in low-level clouds (LLCs similar to 8 % decade(-1)) over the Indian region during the monsoon season. The multiple linear regression, principle component analyses and further correlation analyses suggest significant associations between cloud vertical structure variations and large-scale climate indicators, such as global warming and El Ni & ntilde;o-Southern Oscillation. The vertical extension of the tropospheric column and the upward shift of clouds, attributed to global warming, explain the changes observed in both HLCs and LLCs. These results contribute to a deeper understanding of the dynamic interplay between global climate change and regional cloud dynamics, with implications for weather and climate modeling.

Accession Number: WOS:001267297000001

**PubMed ID:** 38969110

Language: English

**Document Type:** Article

**Author Keywords:** Global warming; Radiosonde; Cloud vertical structure; Cloud macrophysics; India **KeyWords Plus:** TROPICAL ANVIL CLOUDS; VERTICAL STRUCTURE; PROJECT ISCCP; WIND SHEAR; LONG-TERM; EL-NINO; EQUILIBRIUM; CIRCULATION; ATMOSPHERE; FEEDBACKS

**Addresses:** [Sharma, Saloni; Ojha, Piyush Kumar; Bangar, Vaibhav; Kumar, Krishan; Mishra, Amit Kumar] Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

[Sarangi, Chandan] Indian Inst Technol Madras, Dept Civil Engn, Chennai, Tamil Nadu, India. [Koren, Ilan] Weizmann Inst Sci, Dept Earth & Planetary Sci, Rehovot, Israel.

**Corresponding Address:** Mishra, AK (corresponding author), Jawaharlal Nehru Univ, Sch Environm Sci, New Delhi 110067, India.

**E-mail Addresses:** amitmishra@mail.jnu.ac.in

**Affiliations:** Jawaharlal Nehru University, New Delhi; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Madras; Weizmann Institute of Science

#### Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number	
Bangar, Vaibhav		0000-0002-8201-8508	
Publisher: ELSE	VIER		
Publisher Addre	ss: RADARWEG 29, 1043 NX	AMSTERDAM, NETH	ERLANDS
Web of Science I	<b>ndex:</b> Science Citation Index E	xpanded (SCI-EXPANE	DED)
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this research. Additionally, they extend their thanks to the MODIS team for their provision of cloud data. The authors also acknowledge Jawaharlal Nehru University for providing the essential facilities required to carry out this study. CS thanks the Asia-Pacific Network for Global Change Research (APN) research grant (CRRP2022-08MY-Sarangi) for supporting this work. The authors would like to thank two anonymous reviewers for their valuable comments and suggestions.

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# Record 39 of 45

**Title:** Characterization of G-quadruplexes in the <i>Helicobacter pylori</i> genome and assessment of therapeutic potential of G4 ligands

**Author(s):** Kumari, M (Kumari, Monika); Jaiswal, S (Jaiswal, Saumya); Shankar, U (Shankar, Uma); Gupta, S (Gupta, Sharad); Pradeepkumar, PI (Pradeepkumar, Pushpangadan Indira); Kumar, A (Kumar, Amit); Nayak, D (Nayak, Debasis); Yadav, V (Yadav, Vikas); Yadav, P (Yadav, Puja)

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**Abstract:** Helicobacter pylori, a leading human pathogen associated with duodenal ulcer and gastric cancer, presents a significant threat to human health due to increasing antibiotic resistance rates. This study investigates G-quadruplexes (G4s), which are non-canonical secondary structures form in G-rich regions within the H. pylori genome. Extensive research on G4s in eukaryotes has revealed their role in epigenetically regulating cellular processes like gene transcription, DNA replication, and oncogene expression. However, understanding of G4-mediated gene regulation in other organisms, especially bacterial pathogens, remains limited. Although G4 motifs have been extensively studied in a few bacterial species such as Mycobacterium, Streptococci, and Helicobacter, research on G4 motifs in other bacterial species is still sparse. Like in other organisms such as archaea, mammals, and viruses, G4s in H. pylori display a non-random distribution primarily situated within open reading frames of various protein-coding genes. The occurrence of G4s in functional regions of the genome and their conservation across different species indicates that their placement is not random, suggesting an evolutionary pressure to maintain these sequences at specific genomic sites. Moreover, G-quadruplexes show enrichment in specific gene classes, suggesting their potential involvement in regulating the expression of genes related to cell wall/membrane/envelope biogenesis, amino acid transport, and metabolism. This indicates a probable regulatory role for G4s in controlling the expression of genes essential for H. pylori survival and virulence. Biophysical techniques such as Circular Dichroism spectroscopy and Nuclear Magnetic Resonance were used to characterize G4 motifs within selected H. pylori genes. The study revealed that G-quadruplex ligand inhibited the growth of H. pylori, with minimal inhibitory concentrations in the low micromolar range. This suggests that targeting G4 structures could offer a promising approach for developing novel anti-H. pylori drugs.

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Addresses: [Kumari, Monika; Yadav, Puja] Cent Univ Haryana, Dept Microbiol, Mahendergarh, India. [Jaiswal, Saumya; Shankar, Uma; Gupta, Sharad; Kumar, Amit] Indian Inst Technol Indore, Dept Biosci & Biomed Engn, Indore, Madhya Pradesh, India. [Pradeepkumar, Pushpangadan Indira] Indian Inst Technol, Dept Chem, Mumbai, India.

[Yadav, Vikas] Jawaharlal Nehru Univ, Sch Life Sci, New Delhi, India.

[Nayak, Debasis] Indian Inst Sci Educ & Res IISER, Dept Biol Sci, Bhopal, Madhya Pradesh, India.

**Corresponding Address:** Yadav, P (corresponding author), Cent Univ Haryana, Dept Microbiol, Mahendergarh, India.

Yadav, V (corresponding author), Jawaharlal Nehru Univ, Sch Life Sci, New Delhi, India.

E-mail Addresses: vikasjnu@gmail.com; pujayadav@cuh.ac.in

**Affiliations:** Central University of Haryana; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Indore; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Bombay; Jawaharlal Nehru University, New Delhi; Indian Institute of Science Education & Research (IISER) - Bhopal

# **Author Identifiers:**

Author	Web of Science ResearcherID	ORCID Number
Yadav, Puja		0000-0002-8650-9638

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# Record 40 of 45

**Title:** Swift Au<SUP>+9</SUP> ion irradiation-induced defects and alloy complexity effect on the mechanical hardness of NiCoCrFePd HEA and NiCoCrFe MEA

**Author(s):** Hussain, A (Hussain, Abid); Khan, SA (Khan, S. A.); Sharma, SK (Sharma, Sandeep K.); Sharma, SK (Sharma, Saurabh K.); Singh, C (Singh, Chetan); Rastogi, A (Rastogi, Abhishek); Kulriya, PK (Kulriya, P. K.)

Source: JOURNAL OF APPLIED PHYSICS Volume: 136 Issue: 2 Article Number: 025902 DOI: 10.1063/5.0212176 Published Date: 2024 JUL 14

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**Abstract:** The outstanding radiation damage stability of an NiCoCrFePd high entropy alloy (HEA) as compared to conventional alloys poses the question for the mechanism of an ion-matter interaction. The positron annihilation lifetime spectroscopic and TEM (transmission electron microscopic) measurements are implemented to trace different kinds of defects produced by 120 MeV Au+9 ion irradiation and their evolution as a function of ion fluence. The variation of lifetimes and corresponding intensities with the ion fluence indicates the formation of dislocation-type defects at a lower ion fluence and vacancy clusters at a higher ion fluence caused by coalescence or agglomeration of dislocation defects. Formation of different types of defects in turn modulates the strain development inside the crystal. Additionally, the HR-TEM investigation of NiCoCrFePd HEA also exhibits the formation of dislocation and vacancy clusters with the average size of vacancy clusters increases from similar to 2.9 +/- 0.1 to similar to 3.8 +/- 0.1 nm with the increases in the ion fluence. Surprisingly, the average defect cluster size in NiCoCrFePd HEA is suppressed compared to NiCoCrFe MEA, thereby showing the enhanced radiation stability on Pd incorporation due to the high defect recombination caused by reduced thermal conductivity and high lattice distortion. Nano-indentation measurement shows that the radiation hardening behavior of the NiCoCrFePd HEA responded slowly owing to its damage suppression property as compared to the NiCoCrFe MEA. Additionally, softening behavior also appeared at an early fluence in NiCoCrFe MEA compared to the NiCoCrFePd HEA signifying its excellent resistance to defect accumulation.

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**Addresses:** [Hussain, Abid; Khan, S. A.] Inter Univ Accelerator Ctr, Mat Sci Grp, New Delhi 110067, India. [Sharma, Sandeep K.] Bhabha Atom Res Ctr, Radiochem Div, Mumbai 400085, India.

[Sharma, Saurabh K.] Rensselaer Polytech Inst, Mech Aerosp & Nucl Engn, Troy, NY 12180 USA.

[Singh, Chetan] Chungnam Natl Univ, Dept Mat Sci & Engn, Daejeon 34134, South Korea.

[Rastogi, Abhishek] Indian Inst Technol, Dept Mat Sci & Engn, New Delhi 110067, India.

[Kulriya, P. K.] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

**Corresponding Address:** Kulriya, PK (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

E-mail Addresses: pkkulriya@jnu.mail.ac.in

**Affiliations:** Inter-University Accelerator Centre; Bhabha Atomic Research Center (BARC); Rensselaer Polytechnic Institute; Chungnam National University; Indian Institute of Technology System (IIT System); Indian Institute of Technology (IIT) - Delhi; Jawaharlal Nehru University, New Delhi

# Author Identifiers:

Author Web of Science ResearcherID ORCID Number

Singh, Chetan		0000-0001-7721-470X
Kulriya, Prof. Pawan Kumar	H-3391-2011	0000-0001-5563-7584
Sharma, Dr. Saurabh Kumar	GYA-0495-2022	0000-0002-3520-9168
Rastogi, Abhishek		0000-0001-9239-5270

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# Record 41 of 45

**Title:** Impacts of industrial actions, protests, strikes and lockouts by health and care workers during COVID-19 and other pandemic contexts: a systematic review

**Author(s):** Craveiro, I (Craveiro, Isabel); Choudhury, PK (Choudhury, Pradeep Kumar); de OLiveira, APC (de OLiveira, Ana Paula Cavalcante); Pereira, A (Pereira, Alessandra); Fronteira, I (Fronteira, Ines); Chança, R (Chanca, Raphael); Cometto, G (Cometto, Giorgio); Dal Poz, MR (Dal Poz, Mario Roberto); Ferrinho, P (Ferrinho, Paulo)

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**Abstract:** BackgroundPublic health emergencies of international concern (PHEICs) as the COVID-19 pandemic and others that have occurred since the early 2000s put enormous pressure on health and care systems. This is being a context for protests by health and care workers (HCWs) because of additional workload, working conditions and effects on mental and physical health. In this paper, we intended to analyze the demands of HCWs associated with industrial actions, protests, strikes and lockouts (IAPSLs) which

occurred during COVID-19 pandemic and other PHEICs; to identify the impact of these grievances; and describe the relevant interventions to address these IAPSLs.MethodsWe included studies published between January 2000 and March 2022 in PubMed, Embase, Scopus, BVS/LILACS, WHO's COVID-19 Research Database, ILO, OECD, HSRM, and Google Scholar for grey literature. Eligibility criteria were HCWs as participants, IAPSLs as phenomenon of interest occurring in the context of COVID-19 and other PHEICs. GRADE CERQual was used to assess risk of bias and confidence of evidence.Results1656 records were retrieved, and 91 were selected for full-text screening. We included 18 publications. A system-wide approach, rather than a limited approach to institutions on strike, makes it possible to understand the full impact of the strike on health and care services. PHEICs tend to aggravate already adverse working conditions of HCWs, acting as drivers for HCWs strikes, leading to staff shortages, and financial issues, both in the North and in the Global South, particularly evident in Asia and Africa. In addition, issues related to deficiencies in leadership and governance in heath sector and lack of medical products and technologies (e.g., lack of personal protective equipment) were the main drivers of strikes, each contributing 25% of the total drivers identified. ConclusionsIt is necessary to focus on the preparedness of health and care systems to respond adequately to PHEICs, and this includes being prepared for HCWs' IAPSLs, talked much in the context of COVID-19 pandemic. Evidence to assist policymakers in defining strategies to respond adequately to the health and care needs of the population during IAPSLs is crucial. The main impact of strikes is on the disruption of health care services' provision. Gender inequality being a major issue among HCWs, a proper understanding of the full impact of the strike on health and care services will only be possible if gender lens is combined with a systemic approach, rather than gender-undifferentiated approaches limited to the institutions on strike.

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Addresses: [Craveiro, Isabel; Fronteira, Ines; Ferrinho, Paulo] Univ Nova Lisboa, Global Hlth & Trop Med, GHTM, LA REAL,Inst Higiene & Med Trop, Rua Junqueira 100, P-1349008 Lisbon, Portugal. [Choudhury, Pradeep Kumar] Jawaharlal Nehru Univ, Zakir Husain Ctr Educ Studies, Sch Social Sci, Room 234, New Delhi, India.

[de OLiveira, Ana Paula Cavalcante; Pereira, Alessandra; Dal Poz, Mario Roberto] Univ Estado Rio De Janeiro, Inst Med Social, Rua Sao Francisco Xavier 524,7 Andar, BR-20550013 Rio De Janeiro, RJ, Brazil. [Fronteira, Ines] NOVA Univ Lisbon, Comprehens Hlth Res Ctr, Publ Hlth Res Ctr, Natl Sch Publ Hlth, Ave Padre Cruz, P-1600560 Lisbon, Portugal.

[Chanca, Raphael] Minist Saude, Inst Nacl Canc, Rua Marques Pombal 125, BR-20230240 Rio De Janeiro, RJ, Brazil.

[Cometto, Giorgio] WHO, Hlth Workforce Dept, Ave Appia 20, CH-1202 Geneva, Switzerland.

**Corresponding Address:** Craveiro, I (corresponding author), Univ Nova Lisboa, Global Hlth & Trop Med, GHTM, LA REAL,Inst Higiene & Med Trop, Rua Junqueira 100, P-1349008 Lisbon, Portugal.

E-mail Addresses: isabelc@ihmt.unl.pt

**Affiliations:** Universidade Nova de Lisboa; Institute of Hygiene & Tropical Medicine - UNL; Jawaharlal Nehru University, New Delhi; Universidade do Estado do Rio de Janeiro; Universidade Nova de Lisboa; National Cancer Institute (Inca); World Health Organization

#### Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Dal Poz, Mario Roberto	D-3564-2009	0000-0002-3005-3280
Choudhury, Pradeep Kumar		0000-0001-7378-9426
Fronteira, Ines	I-2380-2012	0000-0003-1406-4585
Cavalcante de Oliveira, Ana Paula	M-3347-2016	0000-0003-0654-1417

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# Record 42 of 45

**Title:** Investigation of Angle-Dependent Shubnikov-de Haas Oscillations in Topological Insulator Bismuth **Author(s):** Karn, NK (Karn, Navneet Kumar); Kumar, Y (Kumar, Yogesh); Awana, G (Awana, Geet); Awana,

VPS (Awana, Veer Pal Singh)

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**Abstract:** The current article investigates the band structure in the presence and absence of spin-orbit coupling (SOC), examines the Z2 invariants, and investigates the detailed angle-dependent magneto-transport of up to 10 T (Tesla) and down to 2 K for the bismuth crystal. The out-of-plane field-dependent magnetoresistance (MR) is positive and is huge to the order of approximate to 10(4)% at 2 K and 10 T. On the contrary, the longitudinal (in-plane) field-dependent MR is relatively small and is negative. The thermal activation energy is also estimated by using the Boltzmann formula from resistivity versus temperature measurement under applied transverse magnetic fields. The topological nature of Bi is confirmed by Z2 invariant calculation using density functional theory (DFT). PBESol bands show trivial but hybrid functional (HSE) bands show non-trivial topology being present in Bismuth. This article comprehensively studies the dependence of MR oscillations upon the angle between the applied field and the current. The observed oscillations fade away as the angle is increased. This article is an extension of our previous work on bismuth (J. Sup. Novel Mag. 2023, 36, 389), in which a comprehensive analysis of its structural and micro-structural properties is conducted along with its transport behavior in an applied transverse magnetic field.

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**Author Keywords:** Berry's phase; Landau level index; magnetoresistance; Shubnikov-de Haas oscillations; single crystal; Z2 invariant

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Addresses: [Karn, Navneet Kumar; Kumar, Yogesh; Awana, Veer Pal Singh] CSIR, Natl Phys Lab, Dr KS Krishnan Marg, New Delhi 110012, India.

[Karn, Navneet Kumar; Kumar, Yogesh; Awana, Veer Pal Singh] Acad Sci & Innovat Res AcSIR, Ghaziabad 201002, India.

[Kumar, Yogesh] RMIT Univ, Sch Sci, Melbourne, Vic 3001, Australia.

[Awana, Geet] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

[Awana, Geet] Loughborough Univ, Dept Phys, Loughborough LE11 3TU, England.

**Corresponding Address:** Karn, NK (corresponding author), CSIR, Natl Phys Lab, Dr KS Krishnan Marg, New Delhi 110012, India.

Karn, NK (corresponding author), Acad Sci & Innovat Res AcSIR, Ghaziabad 201002, India.

E-mail Addresses: navneet10986@nplindia.org

**Affiliations:** Council of Scientific & Industrial Research (CSIR) - India; CSIR - National Physical Laboratory (NPL); Academy of Scientific & Innovative Research (AcSIR); Royal Melbourne Institute of Technology (RMIT); Jawaharlal Nehru University, New Delhi; Loughborough University

# Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
KARN, NAVNEET KUMAR		0000-0003-1095-1371
Awana, Veer		0000-0002-4908-8600

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# Record 43 of 45

**Title:** Bergenin inhibits growth of human cervical cancer cells by decreasing Galectin-3 and MMP-9 expression **Author(s):** Chauhan, R (Chauhan, Ravi); Malhotra, L (Malhotra, Lakshay); Gupta, A (Gupta, Ashna); Dagar, G (Dagar, Gunjan); Mendiratta, M (Mendiratta, Mohini); Masoodi, T (Masoodi, Tariq); Hashem, S (Hashem, Sheema); Al Marzooqi, S (Al Marzooqi, Sara); Das, D (Das, Dayasagar); Uddin, S (Uddin, Shahab); Ethayathulla, AS (Ethayathulla, Abdul Samath); Macha, MA (Macha, Muzafar A.); Akil, AA (Akil, Ammira Al-Shabeeb); Sahoo, RK (Sahoo, Ranjit Kumar); Rai, E (Rai, Ekta); Bhat, AA (Bhat, Ajaz A.); Singh, M (Singh, Mayank)

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**Abstract:** Cervical cancer is still the leading cause of cancer mortality worldwide even after introduction of vaccine against Human papillomavirus (HPV), due to low vaccine coverage, especially in the developing world. Cervical cancer is primarily treated by Chemo/Radiotherapy, depending on the disease stage, with Carboplatin/Cisplatin-based drug regime. These drugs being non-specific, target rapidly dividing cells, including normal cells, so safer options are needed for lower off-target toxicity. Natural products offer an attractive option compared to synthetic drugs due to their well-established safety profile and capacity to target multiple oncogenic hallmarks of cancer like inflammation, angiogenesis, etc. In the current study, we investigated the effect of Bergenin (C-glycoside of 4-O-methylgallic acid), a natural polyphenol compound that is isolated from medicinal plants such as Bergenia crassifolia, Caesalpinia digyna, and Flueggea leucopyrus. Bergenin has been shown to have anti-inflammatory, anti-ulcerogenic, and wound healing properties but its anticancer potential has been realized only recently. We performed a proteomic analysis of cervical carcinoma cells treated with bergenin and found it to influence multiple hallmarks of cancers, including apoptosis, angiogenesis, and tumor suppressor proteins. It was also involved in many different cellular processes unrelated to cancer, as shown by our proteomic analysis. Further analysis showed bergenin to be a potent-angiogenic agent by reducing key angiogenic proteins like Galectin 3 and MMP-9 (Matrix Metalloprotease 9) in cervical carcinoma cells. Further understanding of this interaction was carried out using molecular docking analysis, which indicated MMP-9 has more affinity for bergenin as compared to Galectin-3. Cumulatively, our data provide novel insight into the anti-angiogenic mechanism of bergenin in cervical carcinoma cells by modulation of multiple angiogenic proteins like Galectin-3 and MMP-9 which warrant its further development as an anticancer agent in cervical cancer.

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Addresses: [Chauhan, Ravi; Gupta, Ashna; Dagar, Gunjan; Singh, Mayank] All India Inst Med Sci AIIMS, Dept Med Oncol Lab, Dr BRAIRCH, New Delhi 110029, India.

[Mendiratta, Mohini; Sahoo, Ranjit Kumar] All India Inst Med Sci, Dept Med Oncol, Dr BRAIRCH, New Delhi, India.

[Malhotra, Lakshay; Ethayathulla, Abdul Samath] All India Inst Med Sci, Dept Biophys, New Delhi, India. [Malhotra, Lakshay] Univ Delhi, Sri Venkateswara Coll, Dept Biochem, New Delhi, India.

[Masoodi, Tariq] Sidra Med, Lab Canc Immunol & Genet, Doha, Qatar.

[Hashem, Sheema] Sidra Med, Dept Human Genet, Doha, Qatar.

[Al Marzooqi, Sara; Akil, Ammira Al-Shabeeb; Bhat, Ajaz A.] Sidra Med, Dept Human Genet Precis Med Diabet, Obes & Canc Program, Doha, Qatar.

[Das, Dayasagar] NYU Langone Hlth, Dept Med, New York, NY 10016 USA.

[Uddin, Shahab] Hamad Med Corp, Translat Res Inst, Acad Hlth Syst, Doha, Qatar.

[Macha, Muzafar A.] Islamic Univ Sci & Technol, Watson Crick Ctr Mol Med, Pulwama, Jammu & Kashmir, India.

[Rai, Ekta] Jawahar Lal Nehru Univ, Sch Life Sci, New Delhi, India.

**Corresponding Address:** Singh, M (corresponding author), All India Inst Med Sci AIIMS, Dept Med Oncol Lab, Dr BRAIRCH, New Delhi 110029, India.

E-mail Addresses: mayank.osu@gmail.com

Affiliations: All India Institute of Medical Sciences (AIIMS) New Delhi; DR. B.R.A. Institute Rotary Cancer Hospital; All India Institute of Medical Sciences (AIIMS) New Delhi; DR. B.R.A. Institute Rotary Cancer Hospital; All India Institute of Medical Sciences (AIIMS) New Delhi; University of Delhi; Sidra Medical & Research Center; Sidra Medical & Research Center; Sidra Medical & Research Center; NYU Langone Medical Center; Hamad Medical Corporation; Jawaharlal Nehru University, New Delhi

# **Author Identifiers:**

Author	Web of Science ResearcherID	ORCID Number
Malhotra, Lakshay	ITV-2196-2023	0000-0001-6700-5330

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#### Record 44 of 45

**Title:** MediatorWeb: a protein-protein interaction network database for the RNA polymerase II Mediator complex

**Author(s):** Maji, S (Maji, Sourobh); Waseem, M (Waseem, Mohd); Sharma, MK (Sharma, Manish Kumar); Singh, M (Singh, Maninder); Singh, A (Singh, Anamika); Dwivedi, N (Dwivedi, Nidhi); Thakur, P (Thakur, Pallabi); Cooper, DG (Cooper, David G.); Bisht, NC (Bisht, Naveen C.); Fassler, JS (Fassler, Jan S.); Subbarao, N (Subbarao, Naidu); Khurana, JP (Khurana, Jitendra P.); Bhavesh, NS (Bhavesh, Neel Sarovar); Thakur, JK (Thakur, Jitendra Kumar)

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**Abstract:** The protein-protein interaction (PPI) network of the Mediator complex is very tightly regulated and depends on different developmental and environmental cues. Here, we present an interactive platform for comparative analysis of the Mediator subunits from humans, baker's yeast Saccharomyces cerevisiae, and model plant Arabidopsis thaliana in a user-friendly web-interface database called MediatorWeb. MediatorWeb provides an interface to visualize and analyze the PPI network of Mediator subunits. The database facilitates downloading the untargeted and unweighted network of Mediator complex, its submodules, and individual Mediator subunits to better visualize the importance of individual Mediator subunits or their submodules.

Further, MediatorWeb offers network visualization of the Mediator complex and interacting proteins that are functionally annotated. This feature provides clues to understand functions of Mediator subunits in different processes. In an additional tab, MediatorWeb provides quick access to secondary and tertiary structures, as well as residue-level contact information for Mediator subunits in each of the three model organisms. Another useful feature of MediatorWeb is detection of interologs based on orthologous analyses, which can provide clues to understand the functions of Mediator complex in less explored kingdoms. Thus, MediatorWeb and its features can help the user to understand the role of Mediator complex and its subunits in the transcription regulation of gene expression.

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Addresses: [Maji, Sourobh; Singh, Anamika; Thakur, Jitendra Kumar] Int Ctr Genet Engn & Biotechnol, Plant Transcript Regulat, New Delhi, India.

[Maji, Sourobh; Khurana, Jitendra P.] Univ Delhi South Campus, Dept Plant Mol Biol, New Delhi, India. [Maji, Sourobh; Bhavesh, Neel Sarovar] Int Ctr Genet Engn & Biotechnol, Transcript Regulat, New Delhi, India.

[Waseem, Mohd; Sharma, Manish Kumar; Singh, Maninder; Dwivedi, Nidhi; Thakur, Pallabi; Bisht, Naveen C.; Thakur, Jitendra Kumar] Natl Inst Plant Genome Res, New Delhi, India.

[Waseem, Mohd; Subbarao, Naidu] Jawaharlal Nehru Univ, Sch Computat & Integrat Sci, New Delhi, India. [Cooper, David G.] Butler Univ, Dept Pharmaceut Sci, Indianapolis, IN USA.

[Fassler, Jan S.] Univ Iowa, Dept Biol, Iowa City, IA USA.

**Corresponding Address:** Thakur, JK (corresponding author), Plant Transcript Regulat Grp, Int Ctr Genet Engn & Biotechnol, Aruna Asaf Ali Marg, New Delhi 110067, India.

E-mail Addresses: jthakur@icgeb.res.in

Affiliations: Department of Biotechnology (DBT) India; International Center for Genetic Engineering & Biotechnology (ICGEB); International Center for Genetic Engineering & Biotechnology (ICGEB), New Delhi; University of Delhi; Department of Biotechnology (DBT) India; International Center for Genetic Engineering & Biotechnology (ICGEB); International Center for Genetic Engineering & Biotechnology (ICGEB); International Center for Genetic Engineering & Biotechnology (ICGEB); New Delhi; Department of Biotechnology (DBT) India; National Institute of Plant Genome Research (NIPGR); Jawaharlal Nehru University, New Delhi; Butler University; University of Iowa

# Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Thakur, Jitendra Kumar		0000-0001-7874-1923

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**Author(s):** Dubey, AK (Dubey, Ashim Kumar); Sardana, D (Sardana, Deepika); Verma, T (Verma, Taru); Alam, P (Alam, Parvez); Chattopadhyay, A (Chattopadhyay, Avik); Nandini, SS (Nandini, Santhi Sanil); Khamari, B (Khamari, Balaram); Bulagonda, EP (Bulagonda, Eswarappa Pradeep); Sen, S (Sen, Sobhan); Nandi, D (Nandi, Dipankar)

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**Abstract:** Accurate detection of bacterial antibiotic sensitivity is crucial for theranostics and the containment of antibiotic-resistant infections. However, the intricate task of detecting and quantifying the antibiotic-induced changes in the bacterial cytoplasmic membrane, and their correlation with other metabolic pathways leading to antibiotic resistance, poses significant challenges. Using a novel class of 4-aminophthalimide (4AP)-based fluorescent dyes with precisely tailored alkyl chains, namely 4AP-C9 and 4AP-C13, we quantify stress-mediated alterations in E. coli membranes. Leveraging the unique depth-dependent positioning and environment-sensitive fluorescence properties of these dyes, we detect antibiotic-induced membrane damage through single-cell imaging and monitoring the fluorescence peak maxima difference ratio (PMDR) of the dyes within the bacterial membrane, complemented by other methods. The correlation between the ROS-induced cytoplasmic membrane damage and the PMDR of dyes quantifies sensitivity against bactericidal antibiotics, which correlates to antibiotic-induced lipid peroxidation. Significantly, our findings largely extend to clinical isolates of E. coli and other ESKAPE pathogens like K. pneumoniae and Enterobacter subspecies. Our data reveal that 4AP-Cn probes can potentially act as precise scales to detect antibiotic-induced membrane damage ("thinning") occurring at a subnanometer scale through the quantification of dyes' PMDR, making them

promising membrane dyes for rapid detection of bacterial antibiotic resistance, distinguishing sensitive and resistant infections with high specificity in a clinical setup.

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Addresses: [Dubey, Ashim Kumar] Indian Inst Sci, Undergrad Programme, Bangalore 560012, Karnataka, India.

[Dubey, Ashim Kumar] Swiss Fed Inst Technol Lausanne EPFL, Global Hlth Inst, Sch Life Sci, CH-1015 Lausanne, Switzerland.

[Sardana, Deepika; Alam, Parvez; Sen, Sobhan] Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

[Sardana, Deepika] Swiss Fed Inst Technol Lausanne EPFL, Supramol Nanomat & Interfaces Lab, CH-1015 Lausanne, Switzerland.

[Verma, Taru] Indian Inst Sci, Ctr Biosyst Sci & Engn, Bangalore 560012, Karnataka, India.

[Verma, Taru] Univ Copenhagen, Globe Inst, Geogenet, DK-1350 Copenhagen, Denmark.

[Chattopadhyay, Avik; Nandini, Santhi Sanil; Nandi, Dipankar] Indian Inst Sci, Dept Biochem, Bangalore 560012, Karnataka, India.

[Khamari, Balaram; Bulagonda, Eswarappa Pradeep] Sri Sathya Sai Inst Higher Learning, Dept Biosci, Puttaparthi 515134, Andhra Pradesh, India.

**Corresponding Address:** Sen, S (corresponding author), Jawaharlal Nehru Univ, Sch Phys Sci, New Delhi 110067, India.

Nandi, D (corresponding author), Indian Inst Sci, Dept Biochem, Bangalore 560012, Karnataka, India.

**E-mail Addresses:** sens@mail.jnu.ac.in; nandi@iisc.ac.in

**Affiliations:** Indian Institute of Science (IISC) - Bangalore; Swiss Federal Institutes of Technology Domain; Ecole Polytechnique Federale de Lausanne; Jawaharlal Nehru University, New Delhi; Swiss Federal Institutes of Technology Domain; Ecole Polytechnique Federale de Lausanne; Indian Institute of Science (IISC) -Bangalore; University of Copenhagen; Indian Institute of Science (IISC) - Bangalore; Sri Sathya Sai Institute of Higher Learning

# Author Identifiers:

Author	Web of Science ResearcherID	ORCID Number
Dubey, Ashim Kumar		0000-0003-3155-2126
Sen, Sobhan		0000-0002-9047-3455

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