

# Curriculum vitae

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Dr Vivek Sheel

## Personal Details

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**Address:** Associate Professor, Department of Chemistry & Chemical Science, School of Physical & Material Sciences, Central University of Himachal Pradesh, Dharamshala, Academic Block Shahpur, Distt. Kangra, Himachal Pradesh, India.

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**Citizenship** India

## Professional Qualifications

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M.Sc. : Department of Chemistry, Guru Nanak Dev University, Amritsar in the year 2005.

Ph.D. : Department of Chemistry, UGC Sponsored Centre for Advanced Studies-I, Guru Nanak Dev University, Amritsar in the year 2012.

## Employment History

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Dr. Vivek Sheel is currently working as Associate Professor in the Department of Chemistry & Chemical Science. He obtained M.Sc. from Department of Chemistry, Guru Nanak Dev University, Amritsar (Punjab), and Ph.D. in Sciences (Chemistry) from Department of Chemistry, UGC Sponsored Centre for Advanced Studies-I, Guru Nanak Dev University, Amritsar (Punjab). He joined Maharishi Markandeshwar Trust, Mullana, Haryana in 2012, and worked there till October 2019. After that, he began working at SMDRSD College, Pathankot (Punjab), where he remained till March 2022. In his guidance, one PhD viva-voce has been completed, and thirty Masters Students have been awarded degrees till date. His current research topics include synthesis, characterization and application of Nanostructures and studies of their self-assembly behaviour, anticancer properties of transition metal Nanostructures, nanostructures analysis using high resolution microscopy & investigations of surfactant-polymer systems.

## Personal Distinctions

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1. 48<sup>th</sup> Position in Himachal Pradesh Board of School Education, Dharamshala in the year 1997.
2. Merit Certificate in B.Sc. I Year for standing 1<sup>st</sup> in English & 3<sup>rd</sup> in Chemistry in the year 2001.
3. Participated in the inter-college Physics Quiz in B.Sc. II year in the year 2002.
4. GNDU Campus Placement in Ranbaxy Pharmaceutical in M. Sc. IV semester in the year 2005.
5. Awarded Project Fellow in University Grants Commission Scheme in the year 2008.
6. Appreciation Certificate by National Children's Science Congress in the year 2013.
7. The Highest Impact Factor Paper (Impact Factor = 8.431).

## Seminars and Invited Conference Presentations

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SHORT TERM COURSE / FACULTY DEVELOPMENT PROGRAMME (FDP) ATTENDED: (08)

1. Two weeks FDP on "Advanced Research Methodology" at Ramanujan College, University of Delhi, from 20<sup>th</sup> August to 3<sup>rd</sup> September 2021.
2. Four weeks Faculty Induction Programme (FIP-04) at GNDU, Amritsar, from 2<sup>nd</sup> March to 29<sup>th</sup> March 2021.
3. One week FDP on "Molecular Manufacturing" at Central University Punjab, AICTE Training and Learning (ATAL) Academy, from 23<sup>rd</sup> November to 27<sup>th</sup> November 2020.
4. One week FDP on "Transforming Education with Industry 4.0" at Department of CSE & IT, Jaypee University of Informational Technology, Solan, from 15<sup>th</sup> June to 20<sup>th</sup> June 2020.
5. One week FDP on "Research Methodology" at MMU, Mullana (Haryana), from 9<sup>th</sup> January to 13<sup>th</sup> January 2017.

6. Two weeks FDP on “Business Startup and Social Entrepreneurship” at MMU, Mullana (Haryana), from 19<sup>th</sup> September to 30<sup>th</sup> September 2016.
7. One week STC on “Advances in Material Characterization Techniques” at IITR, Roorkee (Uttarakhand), from 30<sup>th</sup> May to 3<sup>rd</sup> June 2016.
8. One week STC on “Nanotechnology: Basics and Applications in Chemical Engineering” at IITR, Roorkee (Uttarakhand), from 22<sup>nd</sup> June to 26<sup>th</sup> June 2015.

#### PAPERS PRESENTED IN INTERNATIONAL CONFERENCES: (03)

1. Bioconjugated Gold Nanoparticles and Their Application in Protein Film Formation. “International Conference on Emerging Trends in Engineering and Science Technology”- Feb. 2018, MMEC, Mullana, India.
2. Bovine Serum Albumin Driven Interfacial Growth of Selenium – Gold/Silver Hybrid Nanoparticles. “International Conference on Advances in Condensed and Nano Materials” - Feb. 2011, Department of Physics, Panjab University, Chandigarh, India.
3. Aqueous Phase Shape Controlled Bovine Serum Albumin Assisted Synthesis and Characterization of Lead Selenide and Cadmium Selenide Nanoparticles. “Professor Ram Chand Paul International Conference on Emerging Trends in Chemistry”- Feb. 2011, Department of Chemistry & Centre of Advanced Studies in Chemistry, Panjab University, Chandigarh, India.

#### INTERNATIONAL CONFERENCES/SEMINAR ATTENDED: (04)

1. International Webinar on “Role of Science and Technology to Combat Covid-19”- July 2020, Hans Raj Mahila Maha Vidyalaya Jalandhar, Punjab, India.
2. International Webinar on “Production of Radionuclides and their applications in Medical Imaging & Therapy”- June 2020, Department of Chemistry, Choudhary Bansi Lal University, Bhiwani, Haryana, India.
3. International Seminar on “Recent Advances in Chemical & Biological Sciences”- Feb. 2017, Department of Chemistry, MMEC, MM University, Mullana, Haryana, India.
4. International Symposium on “Molecular Aspects of Brain Aging and Neurological Disorders and Annual Meeting of Society for Neurochemistry”- Nov. 2008, Department of Biotechnology, Guru Nanak Dev University, Amritsar, Punjab, India.

#### PAPERS PRESENTED IN NATIONAL CONFERENCES: (12)

1. A Green Approach for Synthesis of Iron Oxide Nanoparticles using Flower Extract of Rhododendron Arboretum and its Characterization. “National Conference on Materials & Devices (NCMD-2020) ”- December 2020, Department of Physics, Teerthankar Mahaveer University, Moradabad, Uttar Pradesh.
2. Women Empowerment in Digital India. “National Conference on Women Empowerment & Gender equality in Digital India”- November 2017, MM College of Pharmacy, M. M. U., Mullana (Ambala), Haryana.
3. Chromium Oxide Nanoparticles and Characterizations. “National Symposium on Advances in Chemical Sciences”- March 2017, Department of Chemistry, Guru Nanak Dev University, Amritsar, Punjab.
4. A Review on Synthesis and Characterization of ZnO Nanoparticles. “National Conference on Recent Advances in Chemical Sciences”- November 2016, Department of Chemistry, M. M. U., Mullana (Ambala), Haryana.
5. An introduction to Biomolecule Directed Nanomaterials. “National Conference on Biofuels & Bioenergy”- June 2015, Department of Chemistry, CoES, University of Petroleum & Energy Studies, Dehradun, Uttarakhand.
6. Synthesis, Characterization & Catalytic Activity of ZnO NPs. “Recent Advances in Chemical and Environmental Sciences” – Jan. 2015, Department of Chemistry, Multani Mal Modi College, Patiala, Punjab.
7. Photochemical Study and Antibacterial Activities of Bark Extract of *Bauhinia Variegata*. “National Conference on Recent Trends in Chemical & Environmental Sciences” – Feb. 2014, Department of Chemistry, Arni University, Kathgarh (Indora), Kangra, Himachal Pradesh.
8. A Simple and Effective Method of the Synthesis of Nano-sized ZnFe<sub>2</sub>O<sub>4</sub> Particles. “Recent Advances in Chemical and Environmental Sciences” – Jan. 2013, Department of Chemistry, Multani Mal Modi College, Patiala, Punjab.
9. Protein Films of Zein Conjugated Gold Nanoparticles: A Synthetic Route from Bioconjugated Nanoparticles to Biodegradable Protein Films. “National Symposium on Chemistry in 21<sup>st</sup> Century” – Dec. 2011, Department of Chemistry, Guru Nanak Dev University, Amritsar, Punjab.

10. Preparation and Comparison of Lead Selenide and Cadmium Selenide Nanoparticles by Using Bovine Serum Albumin as Capping Agent. "National Seminar on Applications of Nanoscience and Nanotechnology" – Dec. 2010, BBK DAV College for women, Amritsar, Punjab.
11. Biom mineralization of BSA-Chalcogenide Bioconjugate Nano- and Microcrystals. "Professor Ram Chand Paul VI National Annual Symposium on Emerging Areas in Chemical Sciences" – March, 2010, Department of Chemistry & Centre of Advanced Studies in Chemistry, Panjab University, Chandigarh.
12. Aqueous Phase Bovine Serum Albumin Controlled Synthesis and Characterization of BSA Chalcogenide Bioconjugate Nano and Microcrystals. "National Conference on Nanomaterials: Synthesis & Applications" – Feb. 2009, Department of Chemistry, DAV PG College, Jalandhar, Punjab.

#### NATIONAL CONFERENCES / WORKSHOPS ATTENDED: (14)

1. Webinar on "Intellectual Property Rights (IPR) & Ethics", October 2020, Department of Zoology, S.S.M. College Dinanagar, Punjab.
2. Webinar on "Quality Assessment of Online Education During Covid-19 Pandemic", September 2020, Pt. L.M.S. Govt. P.G. College, Rishikesh, Dehradun, Uttarakhand.
3. Webinar on "Catalysis for Environmental Remediation (CER-2020)", June 2020, Department of Chemistry, Sardar Vallabhbhai Patel Arts & Science College, Ainpur, Tal. Raver, Dist. Jalgaon Maharashtra.
4. Webinar on "Basic Author Workshop Research Article Writing & Reference Managing using Mendeley", June 2020, Faculty of Science, Annamalai University in collaboration with Elsevier, Tamil Nadu.
5. Webinar on "Smart Materials for Future Applications", June 2020, Department of Physics, Teerthankar Mahaveer University, Moradabad, Uttar Pradesh.
6. Webinar on "Anti-carcinogenic effect of selected Medicinal plants against ovarian cancer", June 2020, DAV College Jalandhar, Punjab.
7. Online Conference on "Environmental Pollutants and Cancer", May 2020, School of Life Sciences, Central University of Himachal Pradesh.
8. Webinar on "Genome-wide changes under microgravity", May 2020, School of Life Sciences, Central University of Himachal Pradesh.
9. One Day Workshop "Advances in Computer Aided Drug Design & Discovery", August 2016, M. M. College of Pharmacy & Department of Chemistry, M. M. U. Mullana, Haryana.
10. Mendeley for Researchers, February 2016, Department of Chemistry, M. M. U., Mullana, Haryana.
11. Annual Convention of Chemists 2014, December 2014, Kurukshetra University, Kurukshetra, Haryana.
12. Safety in Chemistry Laboratory, November 2014, Department of Chemistry, M. M. U., Mullana, Haryana.
13. One Day Seminar "AAS Instrumentation and Unique Patented Technologies", April 2013, Perkin Elmer & M. M. College of Pharmacy, Mullana, Haryana.
14. One Day Workshop "Analytical Techniques for Research in Pharmacy", December 2012, M. M. College of Pharmacy, M. M. U. Mullana, Haryana.

## Professional Contributions

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1. Life Member of Him Science Congress Association (HSCA), India.
2. Quality Control Officer in Ranbaxy Lab. Limited, Ropar, Punjab (July, 2005- April, 2008), India.
3. Industrial Training 1 month in Dr. Reddy's Lab. Limited, Hyderabad, Andhra Pradesh (June, 2004), India.

## Teaching

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1. Physical Chemistry-II (CCS 523).
2. Advance Characterisation Techniques (CCS 558).
3. Inorganic Chemistry-II (CCS 521).
4. Physical Chemistry-I (CCS 513).
5. Advance Analytical Techniques (CCS 514).

## Doctoral Thesis Supervision

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1. Ms. Renu Bala: Innovative Synthetic Methods of Metal Oxide Nanoparticles, Their Characterization and Applications.

## University Administration

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1. Coordinator, Industrial Visit Committee and Students Training Evaluation Committee, Dept. of Chemistry, MM(DU), Mullana.
2. Organizer, Quiz Competition in Dept. of Chemistry, MM(DU), Mullana.
3. Member, Organizing Committee of National Conference in Dept. of Chemistry, 2016, MM(DU), Mullana.
4. Coordinator, Placement Committee, Dept. of Chemistry, MM(DU), Mullana.
5. Coordinator of NET coaching classes of M.Sc. Chemistry, MM(DU), Mullana.
6. Member of International Youth Festival Universumm 2015, 2016 & 2018, MM(DU), Mullana.

## Publications (31)

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1. Biom mineralization of BSA-Chalcogenide Bioconjugate Nano- and Microcrystals. M. S. Bakshi, **Vivek Sheel Jaswal**, G. Kaur, T. W. Simpson, P. K. Banipal, T. S. Banipal, F. Possmayer, N. O. Petersen, *Journal of Physical Chemistry C*, **2009**, 113, 9121-9127. (Impact Factor 4.177)
2. Solution Phase Interactions Controlled Ordered Arrangement of Gold Nanoparticles in Dried State. M. S. Bakshi, **Vivek Sheel Jaswal**, F. Possmayer, N. O. Petersen, *Journal of Nanoscience and Nanotechnology*, **2010**, 10, 1747-1756. (Impact Factor 1.354)
3. Bovine Serum Albumin Driven Interfacial Growth of Selenium–Gold/Silver Hybrid Nanomaterials. **Vivek Sheel Jaswal**, P. K. Banipal, A. Kaura, M. S. Bakshi, *Journal of Nanoscience and Nanotechnology*, **2011**, 11, 3824-3833. (Impact Factor 1.354)
4. Mossbauer Studies on Thermal Decomposition of Rubidium bis(citrate)ferrate(III) Precursor Prepared by Precursor Method. M. Gupta, M. Gupta, **Vivek Sheel Jaswal**, B. S. Randhawa, *Journal of Analytical and Applied Pyrolysis*, **2013**, 104, 73-76. (Impact Factor 6.437)
5. Synthesis, Characterization and Magnetic Studies of  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> nanoparticles. A. K. Arora, M. Sharma, **Vivek Sheel Jaswal**, P. Kumar, *Journal of Nanotechnology*, **2014**, Article ID 474909, 7 pages.
6. Synthesis and Characterization of Chromium Oxide Nanoparticles. **Vivek Sheel Jaswal**, A. K. Arora, J. Singh, M. Kinger, V. D. Gupta, *Oriental Journal of Chemistry*, **2014**, 30(2), 559-566.
7. Reaction of various heteroaryl hydrazines with 3-cinnamoyl-4-hydroxy-6- methylpyran-2-ones: Synthesis of some novel pyrazolines and their iodine(III) mediated conversion to corresponding pyrazoles. M. Kinger, V. D. Gupta, J. Singh, A. K. Arora, **Vivek Sheel Jaswal**, *Asian Journal of Chemistry*, **2014**, 26(23), 8084-8086.
8. Synthesis and Characterization of ZnO Nanoparticles. A. K. Arora, S. Devi, **Vivek Sheel Jaswal**, J. Singh, M. Kinger, V. D. Gupta, *Oriental Journal of Chemistry*, **2014**, 30(04), 1671-1679.
9. Activated *Arachis hypogea* With Enhanced Multi Metal Sorption Capacity from Synthetic and Electroplating Industrial Wastewater: Batch and Column Mode. J. Singh, A. Ali, V. D. Gupta, A. K. Arora, M. Kinger, **Vivek Sheel Jaswal**, *Current Trends in Biotechnology and Chemical Research*, **2014**, 4 (02), 79-90.
10. Desalination of Cd<sup>2+</sup> and Pb<sup>2+</sup> from Paint Industrial Wastewater by *Aspergillus niger* Decomposed Citrus limetta Peel Powder. J. Singh, A. Ali, **Vivek Sheel Jaswal** V. Prakash, *International Journal of Environmental Science and Technology*, **2015**, 12, 2523-2532. (Impact Factor 3.519)
11. Synthesis and Antiviral Activities of 2, 3- disubstituted Quanzoline Derivatives. V. D. Gupta, J. Singh, M. Kinger, A. K. Arora, **Vivek Sheel Jaswal**, *Asian Journal of Chemistry*, **2015**, 27(12), 4379-4382.
12. Nanomaterials – An Introduction. **Vivek Sheel Jaswal**, A. K. Arora, *Integrated Research Advances*, **2016**, 3(1), 21-22.
13. Chemical Evolution and Origin of Life: A Review. A. K. Arora, **Vivek Sheel Jaswal**, K. Singh, R. Singh, *Chemical Biology Letters*, **2016**, 3(1), 9-17.
14. Applications of Metal/Mixed Metal Oxides as Photocatalyst: A Review. A. K. Arora, **Vivek Sheel Jaswal**, K. Singh, R. Singh, *Oriental Journal of Chemistry*, **2016**, 32(4), 2035-2042.
15. Metal/Mixed Metal Oxides and Their Applications as Adsorbents: A Review. A. K. Arora, **Vivek Sheel Jaswal**, K. Singh, R. Singh, *International Journal of Chemical Sciences*, **2017**, 14(4), 3215-3227.
16. Metal/Mixed Metal Oxides and their Applications as Catalyst: A Review. A. K. Arora, **Vivek Sheel Jaswal**, R. Bala, *Asian Journal of Research in Chemistry*, **2018**, 11(6), 893-899.
17. Phosphodiesterase 4 (PDE4) Inhibition of 4,5,6,7- tetrahydro-1H – 1, 2 – diaxepin – 7- one Derivative Using Physicochemical Parameters. S. Kumar, V. Gupta, B. Shaik, V. K. Agrawal, **Vivek Sheel Jaswal** and A. Chaudhary, *Current Trends in Biotechnology and Chemical Research*, **2018**, 8(1&2), 28-36.
18. Synthesis of ZnO Nano Particles Using Natural and Synthetic Methods and Their Applications: Review. **Vivek Sheel Jaswal**, *Current Trends in Biotechnology and Chemical Research*, **2018**, 8(1 & 2) 42-46.

19. Ferulic Acid: A Promising Therapeutic Phytochemical and Recent Patents Advances. A. Chaudhary, **Vivek Sheel Jaswal**, S. Chaudhary, A. Sharma, V. Beniwal, H. S. Tuli, *Recent Patent on Inflammation and Allergy Drug Discovery*, **2019**, 13 (2), 115-123.
20. Zein film functionalized with gold nanoparticles and the factors affecting its mechanical properties. M. A. P. Yoosaf, A. Jayaprakash, S. Ghosh, **Vivek Sheel Jaswal**, K. Singh, S. Mandal, M. Shahid, M. Yadav, S. Das, P. Kumar, *RSC Advances*, **2019**, 9 (43) 25184 - 25188. (Impact Factor 4.036)
21. Psoralen: A Biologically important coumarin with emerging applications. A. Thakur, R. Sharma, **Vivek Sheel Jaswal**, E. Nepovimova, A. Chaudhary, K. Kuca, *Mini Reviews in Medicinal Chemistry*, **2020**, 20(18), 1838-1845. (Impact Factor 3.737)
22. Quantum Parameters Based Study of Some Heterocycles Using DFT Method: A Comparative Theoretical Study. P. Rathi, R. Khanna, **Vivek Sheel Jaswal**, *Journal of the Chinese Chemical Society*, **2020**, 67(2), 213-217. (Impact Factor 1.753)
23. Synthesis and Biochemical Characterization of Iron Oxide Nanoparticles. R. Bala, A. Dixit, B. Pareek, J. Singh, A. Chaudhary, S. Arora, D. Singh, M. Gupta, **Vivek Sheel Jaswal\***, *Annals of Biology*, **2021**, 37 (2), 148-152.
24. An Analysis of Green Synthesis of Manganese Oxide Nanoparticles Including Applications and Prospects as Anticancer Activity (MTT, ROS & MMP). A. Dixit, R. Bala, B. Pareek, A. Chaudhary, S. Arora, D. Singh, **Vivek Sheel Jaswal\***, *International Journal of Botany Studies*, **2021**, 6 (5), 1452-1456.
25. Green Synthesis and of Cadmium Oxide Nanoparticles with Various Plant Extracts and Their Use as an Anticancer Agent. A. Dixit, R. Bala, B. Pareek, A. Chaudhary, S. Arora, D. Singh, **Vivek Sheel Jaswal\***, *Biointerface Research in Applied Chemistry*, **2022**, 13(1), 1-13.
26. Green Synthesis and Characterization of CuO NPs using Different Plants Extracts and Their Anticancer Activity. R. Bala, A. Dixit, B. Pareek, A. Chaudhary, S. Arora, D. Singh, **Vivek Sheel Jaswal\***, *Biointerface Research in Applied Chemistry*, **2022** (Accepted).
27. A synthesis, characterization and biological function of copper, nickel and iron nano-oxides with various plant extract. R. Bala, A. Dixit, B. Pareek, **Vivek Sheel Jaswal**, A. Chaudhary, V. Singh, and V. Sharma, *AIP Conference Proceedings 2393*, 020009, **2022**. (Impact Factor 0.4)
28. Metal nanoparticles in cancer: from synthesis and metabolism to cellular interactions. H. S. Tuli, R. Joshi, G. Kaur, V. K. Garg, K. Sak, M. Varol, J. Kaur, S. A. Alharbi, T. A. Alahmadi, D. Aggarwal, K. Dhama, **Vivek Sheel Jaswal**, S. Mittal, G. Sethi, *Journal of Nanostructure in Chemistry*, **2022**. (Impact Factor 8.000)
29. Mechanistic and analytical understanding of biological immobilization of chromium metal ions from waste-sites. D. Talukdar, T. Jasrotia, A. Umar, R. Kumar, R. Kumar, A. A. M. Alkhanjaf, A. A. Ibrahim, T. K. Mukherjee, **Vivek Sheel Jaswal**, M. S. Akhtar, *Journal of Environmental Chemical Engineering*, 10, 107498, **2022**. (Impact Factor 7.968)
30. In-vitro Cytotoxicity of Nickel Oxide Nanoparticles Against L-6 Cell-lines: MMP, MTT and ROS Studies. R. Bala, B. Pareek, A. Umar, S. Arora, D. Singh, A. Chaudhary, A. A. M. Alkhanjaf, A. A. Almadiy, H. Algadi, R. Kumar, **Vivek Sheel Jaswal\***, S. Baskoutas, *Environmental Research*, 215 (1), 114257, **2022**. (Impact Factor 8.431)
31. A Sustainable Approach to The Degradation of Dyes by Fungal Species Isolated from Industrial Wastewaters: Performance, Parametric Optimization, Kinetics and Degradation Mechanism. R. Gul, P. Sharma, R. Kumar, A. Umar, A. A. Ibrahim, M. A. M. Alhamami, **Vivek Sheel Jaswal**, A. Dixit, M. Kumar, S. Baskoutas, *Environmental Research*, **2022** (Accepted). (Impact Factor 8.431)

### Book Chapters (3)

1. "Analytical Techniques for the Identification and Quantification of Flavonoids" in book "Current Aspects of Flavonoids : Their Role in Cancer Treatment" (Editor : Hardeep Singh Tuli), Chapter 2, Springer Nature **2019**, ISBN 978-981-13-5873-9, 9-22.
2. "ZnO Nanoparticles with Promising Anti-microbial and Antiproliferation Synergistic Properties" CAC Vol 84: Analysis, Fate and Toxicity of Engineered Nanomaterials in Plants, Chapter 9, Elsevier **2019**, ISSN 0166-526X, 251-258.
3. "Synthesis, Characterization, and Application of Metal Oxide Nanoparticles" in Nanotherapeutics in Cancer: Materials, Diagnostics and Clinical Applications, Chapter 2, Jenny Stanford Publishing Pvt. Ltd., **2022**, ISBN 978-981-4968-41-6, 23-39.