



International Journal of Humanities & Social Science Studies (IJHSSS)

A Peer-Reviewed Bi-monthly Bi-lingual Research Journal

ISSN: 2349-6959 (Online), ISSN: 2349-6711 (Print)

Impact Factor: 6.8

Volume-XI, Issue-VI, November 2025, Page No. 192-201

Published by Scholar Publications, Sribhumi, Assam, India, 788711

Website: <http://www.ijhsss.com>

DOI: [10.29032/ijhsss.vol.11.issue.06W.172](https://doi.org/10.29032/ijhsss.vol.11.issue.06W.172)



Citation Analysis of Ph.D. Theses on Chemistry Completed at The University of Burdwan during 2015-2024

Paltu Das

Independent Research Scholar, Kolkata, West Bengal, India

Received: 06.10.2025; Accepted: 23.10.2025; Available online: 30.11.2025

©2025 The Author(s). Published by Scholar Publication. This is an open access article under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>)

Abstract

This study presents an overall citation analysis of 60 Chemistry Doctoral Theses submitted to The University of Burdwan during the period from 2015-2024 using the Shodhganga database of INFLIBNET. The study investigates the distribution of theses across years, patterns of supervision, productivity pattern among supervisors, subject areas, citation style and citation patterns.

Keywords: Citation Analysis, Doctoral Theses, Chemistry Research, The University of Burdwan, Supervision Patterns, Authorship Patterns.

1. Introduction:

The field of Chemistry has been a cornerstone of scientific advancement, contributing significantly to technological, medical, and environmental innovations. Doctoral research, particularly in the form of Ph.D. theses, represents a critical component of knowledge creation within this discipline. The University of Burdwan, a prominent academic institution in India, has been a hub for advanced research in Chemistry, producing a substantial number of doctoral theses over the years. Understanding the trends, patterns, and impact of these theses provides valuable insights into the research landscape, guiding future academic and institutional strategies.

2. The University of Burdwan:

Burdwan University started on 15th June, 1960, with Sukumar Sen, an ICS, as its first Vice-chancellor. It was after the abolition of the *Zamindari* system in the fifties that Uday Chand Mahtab, the last representative of the Burdwan Raj, showed his magnanimity in leaving almost his entire property of Burdwan at the disposal of the state government. This, coupled with the initiative of the then Chief Minister of West Bengal, Dr. Bidhan Chandra Roy, facilitated the establishment of this university. Presently, the administrative works are mostly done at *Rajbati* (the palace of Barddhamana Maharaja) campus; on the other hand, academic activities center around the *Golapbag* campus mainly. At the initial phase, only the humanities section began to function. After a year, mainstreams of science faculties were included. The starting motto, that this university should have a science-technology bias, in view of the growing needs of industrialisation just around, later found justification when Medical College and Regional Engineering College, Durgapur took shape. There are now about 22 post-graduate departments in various disciplines. With regard to further expansions, mention may be made of the engineering college, named as University

Institute of Technology, which has recently been established under the direct control of this University with the approval from All India Council for Technical Education (AICTE). Academically, Burdwan University is feeding and nourishing more than 100 colleges. Its territorial jurisdiction extends over five districts - Burdwan, Hooghly (excluding Serampore Subdivision), Bankura, Birbhum and Purulia. These constitute the greater part of Radh Bengal, the cradle of ancient civilisation of India. The imprints of the past are strewn all over the Radh Bengal. The university is now in a position to offer courses on diverse disciplines. These include physical education, B.Ed., foreign languages, computer applications, population education, etc. There are also an Adult Continuing Education Center and the Academic Staff College. The university has a museum and art gallery at Rajbati that displays even the pottery of prehistoric age. The university has its Distance Education wing imparting post-graduate education in different subjects as well as in some professional courses at Under-graduate level. With social responsibilities in mind, the university actively patronised the construction of a Science Centre and a Planetarium, named as Meghnad Saha Planetarium. The University has established a Rural Technology Centre in the name of Shri Binoy Krishna Choudhury, the ex-minister of the Government of West Bengal, to impart vocational training and to create scope of self-employment for the rural youth. There are plans for building up of a center of creative art also (The University of Burdwan, n.d.).

3. Review of Literature:

Thanuskodi (2012) conducted a study entitled "Citation analysis of doctoral research in botany submitted to Annamalai University" and examined 19,735 citations from 84 botany Ph.D. theses at Annamalai University (1990–2010).

Thamaraiselvi et al. (2016) conducted a study under the title "Citation analysis of doctoral theses of library and information science submitted to the Alagappa University with special references of shodhganga website" and examined 674 citations from six Library and Information Science Ph.D. theses submitted to Alagappa University (2011–2015).

Abba et al. (2019) conducted a study under the title "Citation analysis of doctoral theses in library and information science submitted to University of Maiduguri, Nigeria" and analyzed 1,828 citations from 14 Library and Information Science Ph.D. theses at the University of Maiduguri (2014–2018).

Das and Deka (2020) conducted a study under the title "Citation analysis of doctoral theses in library and information science submitted to Manipur University during 1989–2017" and examined 2,725 citations from 27 Library and Information Science Ph.D. theses at Manipur University (1989–2017).

Shukla and Bhatt (2022) conducted a study under the title "Citation analysis of doctoral theses in the field of commerce and financial studies awarded by University of Delhi: A study" and examined 1869 journal citations from Commerce and Financial Studies doctoral theses at the University of Delhi, sourced from Shodhganga.

Naveen (2023) conducted a study under the title "Citation analysis of references appended in doctoral theses in library & information science submitted to shodhganga" and analyzed 1,399 citations from 10 LIS doctoral theses submitted to Shodhganga in 2020.

Das and Deka (2023) conducted a study under the title "Citation analysis of library and information science doctoral theses submitted to North-Eastern Hill University, Meghalaya" and examined 2,693 citations from 20 LIS doctoral theses submitted to North-Eastern Hill University (1994–2018) via Shodhganga.

4. Objectives:

- i) To analyze the distribution of doctoral theses in Chemistry submitted at The University of Burdwan from 2015 to 2024.
- ii) To examine the supervision patterns of the theses.
- iii) To evaluate the productivity of supervisors by ranking them based on the number of theses they guided.
- iv) To categorize the theses by subject areas within Chemistry to identify the most and least explored research fields.
- v) To investigate the citation styles used in the theses.
- vi) To assess the citation patterns, including the average number of citations per thesis and the distribution of citations across different bibliographic forms.
- vii) To analyze the authorship patterns of citations, focusing on the number of authors per cited work.
- viii) To study the chronological distribution of citations.

5. Methodology:

The scope of this research work is to analyze the citations Ph.D. theses on Chemistry Completed at The University of Burdwan (2015-2024). Data for this research study are collected from Sodhganga database of INFLIBNET. A total of 60 bibliographic data of Ph.D. theses in Chemistry pertaining to the period 2015 to 2024 are collected for the present study. To complete this research work, several related literatures were searched and reviewed to get a proper picture of the study. Finally, all the collected data have been recorded separately, summarized, tabulated and analyzed to fulfill the objectives of the study.

6. Data Analysis:

Table-1: Year-Wise Distribution of Theses

Sl. No.	Year	No. of Theses
1	2015	4
2	2016	9
3	2017	9
4	2018	8
5	2019	6
6	2020	4
7	2021	7
8	2022	2
9	2023	10
10	2024	1
Total		60

Table-1 presents the number of theses submitted each year from 2015 to 2024. A total of **60 theses** were submitted during this ten-year period. The highest number theses were

submitted in 2023(10 theses) followed by 2016(9 theses) and 2017(9 theses). The year 2024 had the lowest number of theses (1thesis).

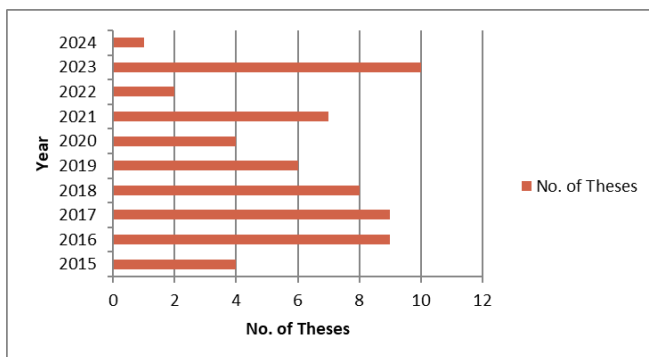


Fig. 1: Year-Wise Distribution of Theses

Table-2: Supervising Pattern of Theses

Supervisor pattern	No. of theses	Percentage
Single Supervisor	55	91.67
Joint Supervisor	5	8.33
Total	60	100

Table-2 presents the supervising pattern of 60 theses, categorized by the type of supervision (single or joint). A majority of theses (55 out of 60, i.e., 91.67%) were completed under the guidance of a single supervisor. Only 5 theses (8.33%) were guided by joint supervisors.

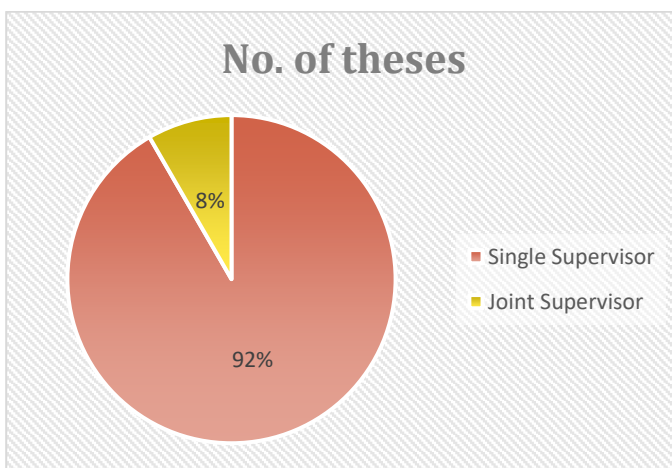


Fig. 2: Supervising Pattern of Theses

Table-3: Productivity of Supervisor

Sl.No.	Name of Supervisor	No. of Theses	Rank
1	A.K. Ghosh	2	VI
2	Amalendu Sinhababu	2	VI
3	Bholanath Mandal	3	V
4	Bidyut Saha	7	II
5	Bimalendu Ray	5	III
6	Biswajit Chakraborty	1	VII

7	B.K. Ghosh	1	VII
8	Debasis Bandyopadhyay	1	VII
9	Debasis Das	9	I
10	Inul Ansary	2	VI
11	Moni Baskey Sen	4	IV
12	Pradyot K Ghoshal	1	VII
13	Pabitra Chattopadhyay	9	I
14	Rajarshi Ghosh	5	III
15	Sayani Roy	2	VI
16	Subrata Laskar	1	VII
17	Sukalyan Basu	2	VI
18	Sumanta Bhattacharya	2	VI
19	Tanmoy Das	3	V
20	Ujjwal Mandal	1	VII

Table-3 presents the productivity of supervisors based on the number of theses they have guided. Dr. Debasis Das and Dr. Pabitra Chattopadhyay were the most productive supervisors, each having supervised 9 theses, earning them Rank I. Dr. Bidyut Saha was in Rank II with 7 theses, followed by Dr. Bimalendu Ray and Dr. Rajarshi Ghosh, each with 5 theses (Rank III).

Table-4: Subject-wise Categorization of Theses

Subject Area	Number of Theses
Organic Chemistry	7
Inorganic Chemistry	18
Physical Chemistry	9
Analytical Chemistry	7
Biochemistry	1
Natural Product Chemistry	7
Environmental Chemistry	3
Materials Chemistry	2
Supramolecular Chemistry	3
Nanoscience	2
Photophysical Chemistry	1
Total	60

Table-4 presents the subject-wise categorization of 60 theses. Among all the subjects, inorganic chemistry has the highest number of theses with a total of 18, indicating it is the most focused area of research. Physical Chemistry comes next with 9 theses, followed by Organic Chemistry, Analytical Chemistry and Natural Product Chemistry, each having 7 theses. On the other hand, a few areas such as Biochemistry and Photophysical Chemistry are the least explored, with only 1 thesis each.

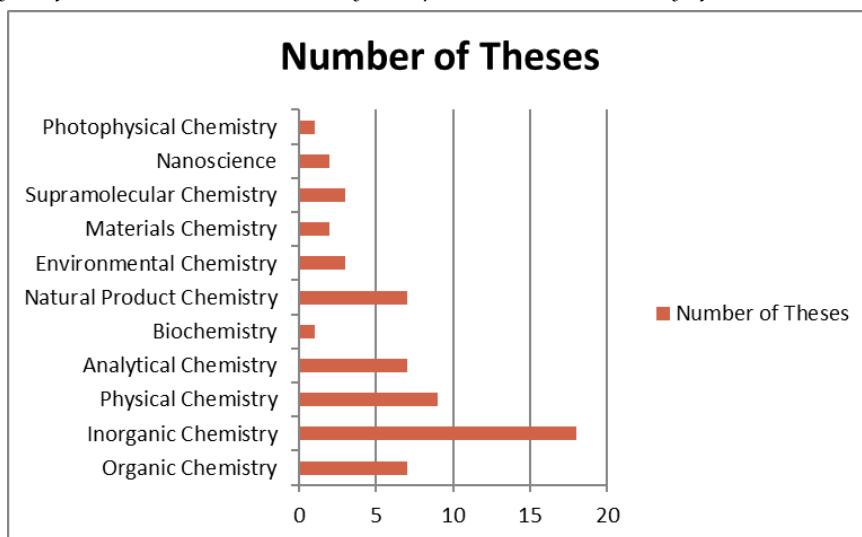


Fig. 3: Subject-wise Categorization of Theses

Table-5: Citation Style Used in Theses

Citation Style	No. of Theses
ACS (American Chemical Society)	37
RSC (Royal Society of Chemistry)	17
APA (American Psychological Association)	6
Total	60

Table-5 presents citation style used in theses. The data reveals that American Chemical Society (ACS) is used in 62% of the theses (37 out of 60). Royal Society of Chemistry (RSC) is used in 28% of the theses (17 out of 60). On the other hand, American Psychological Association (APA) is used in 10% of the theses (6 out of 60).

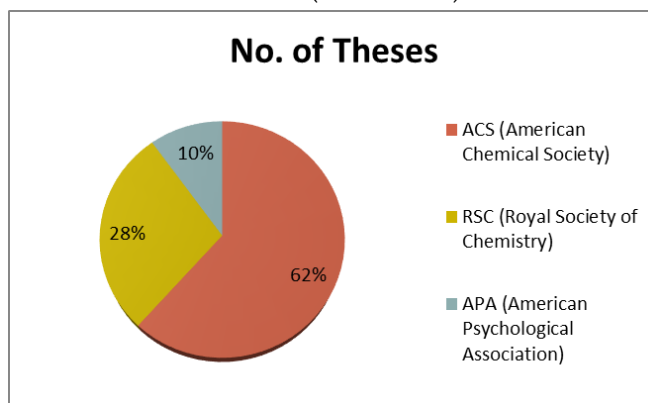


Fig. 4: Citation Style Used in Theses

Table-6: Average of Citations

No. of Theses	Total citations	Average
60	19336	322.27

The average number of citations of the theses of chemistry is shown in table-6. The total number of citations counted in this study is 19336.

Table-7: Distribution of Citations in Bibliographic Forms

Sl.No.	Bibliographic Form	No. of Citations	Percentage	Rank
1	Journal Articles	17677	91.42	I
2	Books/Book Chapters	1205	6.23	II
3	Conference proceedings	59	0.31	V
4	Theses/Dissertations	10	0.05	VII
5	Web Resources	247	1.28	III
6	Reports	25	0.13	VI
7	Others	113	0.58	IV

Table-7 presents the distribution of citations in bibliographic forms. The research shows that majority of the materials used were journal papers 17677 (91.42%), followed by books and books chapters 1205 (6.23%), conference proceedings 59 (0.31%) etc.

**Fig. 5: Distribution of Citations in Bibliographic Forms****Table-8: Authorship Pattern of the Citations**

Sl. No.	Authorship Pattern	No. of Citations	Percentage	Rank
1	One	1625	8.40	IV
2	Two	3303	17.08	II
3	Three	3270	16.91	III
4	More than three	10744	55.56	I
5	Corporate	394	2.04	V

Table-8 presents the authorship pattern of citations, categorized by the number of authors. The data reveals that the majority of citations, 55.56%, have more than three authors, ranking first. This is followed by two authors with 17.08% of citations, ranking second. Three authors account for 16.91% of citations, ranking third. Single-author citations make up 8.40% of the total, ranking fourth. Corporate authorship has the lowest percentage, at 2.04%, ranking fifth.

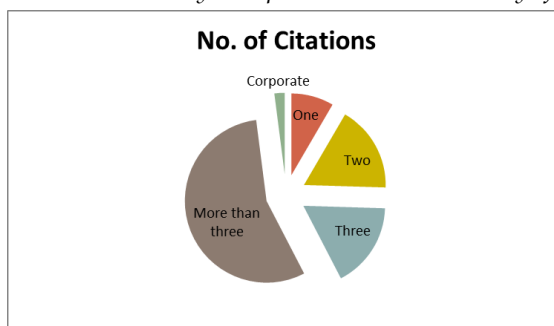


Fig. 6: Authorship Pattern of the Citations

Table-9: Chronological Distribution of Citations

Sl. No.	Year	No. of Citations	Percentage
1	2015	1700	8.79
2	2016	3027	15.65
3	2017	2667	13.79
4	2018	1903	9.84
5	2019	1670	8.64
6	2020	1909	9.87
7	2021	2158	11.16
8	2022	577	2.98
9	2023	3281	16.97
10	2024	444	2.30

Table-9 presents a chronological distribution of citations from 2015 to 2024, showing the number of citations and their corresponding percentages for each year. The year 2023 shows the highest number of citations with 3281, accounting for 16.97% of the total citations. 2016 is the second highest with 3027 citations, accounting for 15.65% of the total. The year 2022 has the lowest number of citations with only 577, representing 2.98% of the total citations. The year 2024 is also very low, with 444 citations, representing only 2.30% of the total.

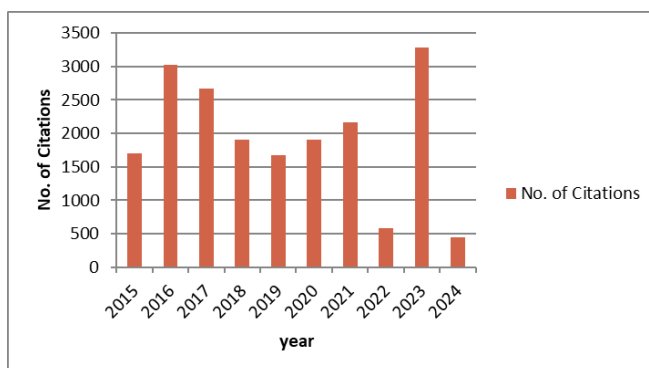


Fig. 7: Chronological Distribution of Citations

7. Findings:

- i) Maximum number (10) of theses were submitted in 2023, thereafter 2016 & 2017 (9 numbers in each year), and 2018(8).
- ii) A majority of theses, 55 out of 60 (91.67%), were completed under the guidance of a single supervisor. Only 5 theses (8.33%) were guided by joint supervisors.

iii) Dr. Debasis Das and Dr. Pabitra Chattopadhyay supervised the most doctoral works in Chemistry, with 9, thereafter by Dr. Bidyut Saha, who has supervised 7 scholars.

iv) Inorganic chemistry has the highest number of theses with a total of 18, indicating it is the most focused area of research. Physical Chemistry comes next with 9 theses, followed by Organic Chemistry, Analytical Chemistry and Natural Product Chemistry, each having 7 theses. On the other hand, a few areas such as Biochemistry and Photophysical Chemistry are the least explored, with only 1 thesis each.

v) In 62% (37) of the theses, ACS style was used. RSC was the second most popular citation style, used in 28% (17) of the theses. APA was used relatively less frequently (6).

vi) Each Chemistry thesis has an average of 322.27 citations.

vii) Maximum documents used for citation were Journal articles 17677 (91.42%), followed by Books and Books chapters 1205 (6.23%), Web resources 247 (1.28%) etc.

viii) More than three authored papers consist of the highest percentage (55.56) of total 19366 citations.

ix) The year 2023 (16.97%) is the most productive year of citation followed by 2016 (15.65%) is at second position and 2017 (13.79%) is at third position.

8. Conclusion:

This citation analysis of 60 doctoral theses in Chemistry completed at The University of Burdwan from 2015 to 2024 provides a comprehensive overview of the research landscape within the institution's Chemistry department.

References:

1. Abba, T., Boda, T. A., & Aliyu, Y. (2019). Citation analysis of doctoral theses in library and information science submitted to University of Maiduguri, Nigeria. *Library Philosophy and Practice (E-Journal)*, 2293. Retrieved June 20, 2025
<https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=5707&context=libphilpr>
2. Das, J. M., & Deka, D. (2023). Citation analysis of library and information science doctoral theses submitted to North-Eastern Hill University, Meghalaya. *Journal of Indian Library Association*, 59(4), 24–39. Retrieved June 20, 2025
https://www.researchgate.net/publication/379449517_CITATION_ANALYSIS_OF_LIBRARY_AND_INFORMATION_SCIENCE_DOCTORAL_THESSES_SUBMITTED_TO_NORTH-EASTERN_HILL_UNIVERSITY_MEGHALAYA
3. Das, J. M., & Deka, D. (2020). Citation analysis of doctoral theses in library and information science submitted to Manipur University during 1989-2017. *Library Philosophy and Practice (E-Journal)*, 4590. Retrieved June 20, 2025
<https://core.ac.uk/download/361834361.pdf>
4. Naveen, N. (2023). Citation analysis of references appended in doctoral theses in library & information science submitted to shodhganga. *Indian Journal of Library and Information Science*, 17(1), 25–31. Retrieved June 20, 2025
<https://doi.org/10.21088/ijlis.0973.9548.17123.3>
5. Shukla, A., & Bhatt, R. K. (2022). Citation analysis of doctoral theses in the field of commerce and financial studies awarded by University of Delhi: A study. *Library Herald*, 60(2), 153–176. Retrieved June 20, 2025
<https://doi.org/10.5958/0976-2469.2022.00024.0>

6. Thamaraiselvi, M., Manthiramoorthi, M., & Manikandan, A. (2016). Citation analysis of doctoral theses of library and information science submitted to the Alagappa University with special references of shodhganga website. *ScieXplore: International Journal of Research in Science*, 3(1), 41. Retrieved June 20, 2025 <https://doi.org/10.15613/sijrs/2016/v3i1/136473>
7. Thanuskodi, S. (2012). Citation analysis of doctoral research in botany submitted to Annamalai University. *International Journal of Library Science*, 1(1), 8-12. Retrieved June 20, 2025 <https://doi.org/10.5923/j.library.20120101.02>
8. The University of Burdwan (n.d.). History of Burdwan University. Retrieved November 18, 2025 <https://www.buruniv.ac.in/Demo/Template.php?menu=AboutUs&submenu=History>