International Journal of Research in Library Science (IJRLS)

ISSN: 2455-104X

DOI: 10.26761/IJRLS.11.4.2025.1998

Volume 11, Issue 4 (October-December) 2025, Page: 282-290, Paper ID: IJRLS-1998

Bibliometric Analysis on Identifying 'Crop Diseases' Using Dimensions Database

Dr. Chikkamanju[1]; Dr. G. Kiran Kumar[2]; Poornachandra P Naik[3]

Assistant Librarian and Head, Department of Library, College of Agriculture, Hanumanamatti (UAS, Dharwad), Karnataka[1]; Assistant Librarian and Head Department of Library, College of Agriculture, Vijayapura (UAS, Dharwad), Karnataka[2]; Librarian, Kendriya Vidyalaya, Koliwada, Karnataka, India[3]

chikkamanjumys@gmail.com; kiranmyslibphd@gmail.com; poornachandranaik@gmail.com

ABSTRACT

This research investigation carried out the impact of current research progress in the papers published from 2016 to 2025 in the open access UGC-Journalist Group articles. This study searches the word "Crop Diseases" in the title, abstract, keywords, and text of the article from Dimensions.ai. Bibliometric analysis that turned up 2500 articles between the years of 2016 and 2025. The number of publications steadily increased over the years, with the highest rate of increase during the year 2025, which has the highest number of contributors, 19209 citations, and 527 (21.08%) publications. Overall, China, the USA, and India produced 1256, 331, and 185 articles, respectively. journal of Frontiers in Plant Science with 3572 citations Sharada P. et al., 2016. Jun Liu ranks first with 19 publications, receiving 1,756 citations and an average of 92.42 citations per article. authors participated in co-authorship by nation. 77 out of 105 nations satisfy the requirement by having at least three papers.

KEYWORDS: Crop Diseases, Dimensions.ai, Scientometrics, Bibliometrics, Citations, VOSViewer.

1. INTRODUCTION

Bibliometrics is one of the widely used methods or metric studies that aids in assessing the qualities of subjectsand the type of citations in diverse formats and fields of study. Bibliometrics, also known as scientometrics, is the quantitative assessment of scientific publications through the use of mathematical and statistical techniques. It was first used by Pritchard in 1969. Additionally, Suebsombut et al. (2017) contend that bibliometric research is a technique for the quantitative and visual examination of the relationships between scientific publications. The accelerated advancement of crop diseases research and publications necessitates the assessment and mapping of research with the goal of raising the caliber of upcoming publications (MohdRazali et al., 2022). Therefore, it is important to conduct a bibliometric analysis of crop diseases.

Many thousands of years ago, agriculture contributed to the domestication of most of the food crops and animals used today. One of the most important worldwide problems facing humanity today is food insecurity, which is a

major cause of plant diseases. In every nation, the agricultural sector accounts for the majority of economic growth (Beckman, J. & etal.2021) More precisely, each pest and disease scenario has unique patterns that can be used to pinpoint issues. Crop disease detection requires staff and expertise. The likelihood of additional crop damage may be reduced by early and precise illness identification and diagnosis Therefore, by reducing the quality of food supply, crop disease and pest infections in agriculture may have an impact on the world economy. Epidemics and endemics cannot be stopped by prophylactic medications. Successful crop protection system and crop diseases diagnostics can assist prevent losses in production quality. Determining the many types of crop disease is crucial and regarded as an acute issue. Making better decisions about agricultural output may be enabled with early crop disease recognition. The stems, fruits, leaves, or flowers of infected crops typically have obvious stains or spots (Chaki, J., &Ghosh, D. 2024).

2. OBJECTIVES OF THE STUDY

The main objectives of the study are:

1. To understand the year wise distribution of contributions and citations of publications.
2. To determine the top journal-cited articles.
3. Most prolific author wise distribution of publications.
4. To know the most active organizations' wise contributions of publications.
5. To determine country-wise contributions of publications.
6. Journals wise contributions of publications.

3. METHODOLOGY

The bibliometric data were collected from the Dimensions database on 16 October 2025. The keyword "Crop Diseases" (case insensitive) was used in the title field to search and retrieve relevant literature, limited to journal publications from 2016 to 2025. All retrieved references were stored in EndNote X9. The records were then analyzed using VOSviewer version 1.6.20, which yielded a total of 2,500 articles. Since this study focuses specifically on the field of crop diseases, the discipline category was restricted accordingly for research purposes. The literature was further filtered using UGC Journal List Group-II, Open Access, and Article-type criteria, resulting in 2,500 valid entries. Microsoft Excel and the Dimensions database were used to analyze, interpret, and tabulate the collected data. For this study, all data were systematically retrieved, stored, reviewed, analyzed, and tabulated.

4. DATA ANALYSIS

4.1 Year-Wise Distribution of Contributions and citations of Publications

The Table-1 presents the year-wise contributions and corresponding publication citations for the period 2016–2025. As shown in Table 1, the highest number of publications was recorded in 2024, with 543 contributions (21.72%) and 17,933 citations. This is followed by 2025 with 527 publications (21.08%) and 19,209 citations, and 2023 with 503 publications (20.12%) and 14,000 citations. In 2022, there were 276 publications (11.04%) with 3,355 citations, while 2021 recorded 188 publications (7.52%) with 1,774 citations. The year 2020 contributed 142 publications (5.68%) with 1,401 citations, 2019 had 98 publications (3.92%) with 886 citations, and 2018 had 86 publications (3.44%) with 923 citations. Additionally, 2017 produced 72 publications (2.88%) with 773 citations, and 2016 recorded the lowest output with 65 publications (2.60%) and 705 citations.

Table-1: Year-Wise Distribution of Contributions and Citations of Publications

Year	TP	TC	%TP	CPP
2016	65	705	2.6	10.85
2017	72	773	2.88	10.74
2018	86	923	3.44	10.73
2019	98	886	3.92	9.04
2020	142	1401	5.68	9.87
2021	188	1774	7.52	9.44
2022	276	3355	11.04	12.16
2023	503	14000	20.12	27.83
2024	543	17933	21.72	33.03
2025	527	19209	21.08	36.45
Note: TP – Total Publications; TC – Total Citations; CPP – Citations Per Publications				

4.2 Top Ten Journal Cited Articles

The Table-2 presents year-wise citations, journals, and titles corresponding to publication citations for the period 2016–2025. As shown in Table-2, the highest number of citations was recorded in 2016, with 3,572 citations contributed by Frontiers in Plant Science, ranking first. This is followed by 2021, which recorded 1,943 citations from the International Journal of Environmental Research and Public Health, ranking second. In 2018, the journal Science contributed 1,308 citations, placing it in third rank. In 2023, Nature Reviews Microbiology received 844 citations, securing fourth rank. In 2021, Plant Methods recorded 800 citations, ranking fifth. The journal Plants contributed 675 citations in 2019, placing it sixth. In 2017, Annual Review of Phytopathology received 660 citations, ranking seventh, while Frontiers in Plant Science recorded 656 citations in the same year, ranking eighth. In 2021, the journals Sensors and Proceedings of the National Academy of Sciences of the United States of America received 625 and 624 citations, ranking ninth and tenth, respectively.

Table-2: Top Ten Journal Cited Articles

Rank	Source Title	Title	Year	TC	Authors
1	Frontiers in Plant Science	Using Deep Learning for Image-Based Plant Disease Detection	2016	3572	Sharada P. et al.,2016
2	International Journal of Environmental Research and Public Health	Agriculture Development, Pesticide Application and Its Impact on the Environment	2021	1943	Muyesaier et al., 2021
3	Science	Worldwide emergence of resistance to antifungal drugs challenges human health and food security	2018	1308	Matthew C et al., 2018

4	Nature Reviews Microbiology	Climate change impacts on plant pathogens, food security and paths forward	2023	844	Brajesh K. et al., 2023
5	Plant Methods	Plant diseases and pests detection based on deep learning: a review	2021	800	Jun et al., 2021
6	Plants	Plant Disease Detection and Classification by Deep Learning	2019	675	Muhammad Hammad et al., 2019
7	Annual Review of Phytopathology	Function, Discovery, and Exploitation of Plant Pattern Recognition Receptors for Broad-Spectrum Disease Resistance	2017	660	Freddy et al., 2017
8	Frontiers in Plant Science	Deep Learning for Image-Based Cassava Disease Detection	2017	656	Amanda et al., 2017
9	Sensors	Machine Learning in Agriculture: A Comprehensive Updated Review	2021	625	Lefteris et al., 2021
10	Proceedings of the National Academy of Sciences of the United States of America	The persistent threat of emerging plant disease pandemics to global food security	2021	624	Jean B. et al., 2021

4.3 Most Prolific Author Wise distribution of Publications

The Table-3 presents the most prolific authors and their publication contributions from 2016 to 2025. Jun Liu ranks first with 19 publications, receiving 1,756 citations and an average of 92.42 citations per article. This is followed by XuyuanGao in second place with 19 publications, 41 citations, and an average of 2.16 citations per article. Xuewei Wang ranks third with 18 publications, 1,741 citations, and an average of 96.72 citations per article. Bin Li occupies the fourth position with 17 publications, 1,835 citations, and an average of 107.94 citations per article. Yan Li ranks fifth with 15 publications, 175 citations, and an average of 11.67 citations per article. Two authors—Xuewen Gao and Bingtliang Xu—each contributed 14 publications, receiving 559 and 490 citations respectively, with average citation rates of 43% and 37.69%, placing them in the eighth and ninth ranks. Additionally, Quraban Ali, Huijun Wu, and Shuwu Zhang each produced 13 publications, collectively holding the ninth and tenth ranks.

Table-3: Top Ten Most Prolific Author Wise Distribution of Publications

Rank	Author	TP	TC	CPP
1	Jun Liu	19	1756	92.42
2	XuyuanGao	19	41	2.16
3	Xuewei Wang	18	1741	96.72
4	Bin Li	17	1835	107.94
5	Yan Li	15	175	11.67

6	XuewenGao	14	725	51.79
7	BingliangXu	14	329	23.50
8	Qurban Ali	13	559	43.00
9	Huijun Wu	13	490	37.69
10	Shuwu Zhang	13	328	25.23
Note: TP – Total Publications; TC – Total Citations; CPP – Citations Per Publications				

4.4 Organizations Wise Contributions of Publications

The publications and citations were published by several organizations. Nanjing Agricultural University has 3201 citations and 126 published publications; Huazhong Agricultural University has 1470 citations and 66 publications; Gansu Agricultural University has 913 citations and 65 publications; the Ministry of Agriculture and Rural Affairs has 999 citations and 58 publications; the Institute of Plant Protection has 856 citations and 56 publications; and South China Agricultural University has 773 citations and 39 publications.

Table-4: Organizations wise contributions of Publications

Rank	Organizations	TP	TC	CPP
1	Nanjing Agricultural University	126	3201	25.40
2	Huazhong Agricultural University	66	1470	22.27
3	Gansu Agricultural University	65	913	14.05
4	Ministry Of Agriculture And Rural Affairs	58	999	17.22
5	Institute Of Plant Protection	56	856	15.29
6	China Agricultural University	52	619	11.90
7	Guangxi Academy Of Agricultural Science	49	390	7.96
8	Chinese Academy Of Agricultural Sciences	40	521	13.03
9	Zhejiang University	40	2046	51.15
10	South China Agricultural University	39	773	19.82
Note: TP – Total Publications; TC – Total citations; CPP – Citations Per Publications				

4.5 Country Wise Contributions of Publications

The Table-5 indicates that with the 1,256 publications and 27,225 citations, China is ranked first among the top ten most productive nations in the Dimensions database for published articles. The United States comes in second with 15,289 citations and 331 articles. India has produced 185 papers with 4,670 citations, compared to 139 publications and 8,014 citations in the UK. France recorded 70 papers with 3,149 citations, and Australia contributed 108 publications with 6,087 citations.

Table-5. Country Wise Contributions of Publications

Rank	Country	TP	TC	CPP
1	China	1256	27225	21.68
2	United States	331	15289	46.19
3	India	185	4670	25.24
4	United Kingdom	139	8014	57.65
5	Australia	108	6087	56.36
6	South Korea	103	2604	25.28
7	Pakistan	101	2889	28.60
8	Saudi Arabia	98	3155	32.19
9	Germany	73	1687	23.11
10	France	70	3149	44.99

Note: TP – Total Publications; TC – Total Citations;
CPP – Citations Per Publications

4.6. Co-authorship by Countries

The Figure-1 shows different authors participated in co-authorship by nation. 77 out of 105 nations satisfy the requirement by having at least three papers. With 27225 citations and 1256 documents overall, China is clearly the most influential nation on this subject, as Figure-1 illustrates. The United States, with 15289 citations and 331 published documents, and India, with 4670 citations and 185 publications, come next.

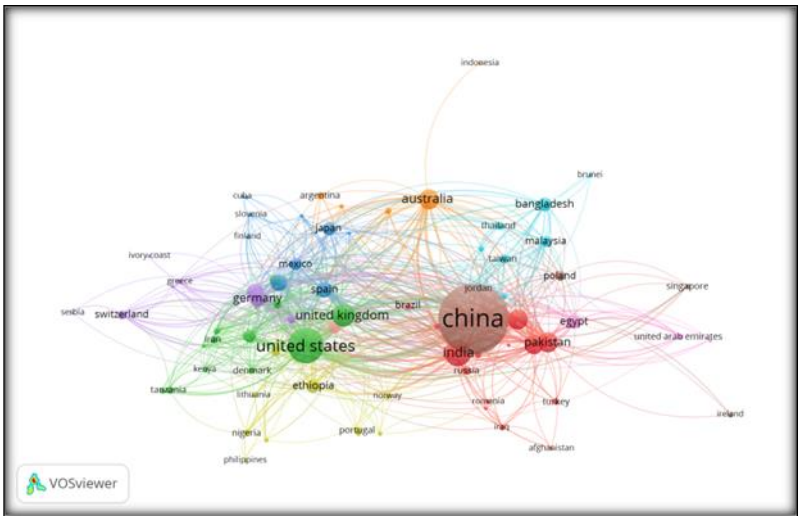


Figure-1: Co-authorship by Countries

4.7 Journals Wise Contributions of Publications

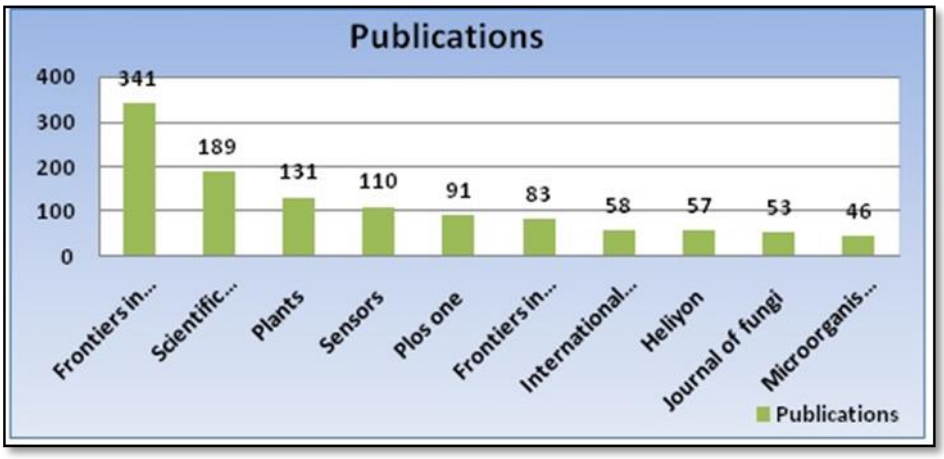
The Table-6 shows that the Journal of Frontiers in Plant Science, with 11066 citations, an impact factor of 4.8, and 341 publications, is in the top 10 journals that publish on crop diseases, according to Table 6. Scientific reports, with 3118 citations and 189 publications, impact factor 3.9, is next. Plants has 131 articles, 2381 citations, and an impact

factor of 4.0. Microorganisms has 1080 citations with 46 publications and an impact score of 4.2, while Sensors has 5118 citations with 110 publications and an impact factor of 3.5 in relation to published works.

Table-6: Journals Wise Contributions of Publications

Rank	Journals	TP	TC	CPP	Impact factor
1	Frontiers in plant science	341	11066	32.45	4.8
2	Scientific reports	189	3118	16.50	3.9
3	Plants	131	2381	18.18	4.0
4	Sensors	110	5118	46.53	3.5
5	Plos one	91	1306	14.35	2.6
6	Frontiers in microbiology	83	2832	34.12	4.5
7	International journal of molecular sciences	58	986	17.00	4.9
8	Heliyon	57	787	13.81	3.6
9	Journal of fungi	53	475	8.96	4.0
10	Microorganisms	46	1080	23.48	4.2
Note: TP – Total Publications; TC – Total Citations; CPP – Citations Per Publications					

Figure-2: Journals Wise Contributions of Publications



RESULTS AND DISCUSSION

It highlights some facts, conclusions, study results, every year the total number of publications varies, and the number of publications ascended year that are as follows after analyzing the publications data obtained from dimensions database for the years 2016 to 2025.The highest number of publications was recorded in 2024, with 543 contributions (21.72%) and 17,933 citations. This is followed by 2025 with 527 publications (21.08%) and 19,209 citations. The highest number of citations was recorded in 2016, with 3,572 citations contributed by Frontiers in Plant Science, ranking first. Presents the most prolific authors and their publication contributions from 2016 to 2025. Jun Liu ranks first with 19 publications, receiving 1,756 citations and an average of 92.42 citations per article. Nanjing Agricultural University has 3201 citations and 126 published publications, Huazhong Agricultural

University has 1470 citations and 66 publications, with 1,256 publications and 27,225 citations, China is ranked first among the top ten most productive nations in the Dimensions database for published articles. The United States comes in second with 15,289 citations and 331 articles.The Journal of Frontiers in Plant Science, with 11066 citations, an impact factor of 4.8, and 341 publications, is in the top ten journals that publish on crop diseases.

CONCLUSION

To conduct a bibliometric analysis and identify gaps in research on crop diseases is the main objective of this study. To achieve our objective, we conducted a quantitative bibliometric analysis using 2,500 papers sourced from the Using the Dimensions database. To the best of our knowledge, no comprehensive quantitative bibliometric studies have been published. Using the Dimensions database, this bibliometric study evaluates the state of the field and new advancements in crop disease research. which also offers statistical insights into the most important writers and top research institutes in this area (three of the top affiliations ten are from India).Journals rank highest among the primary global source types utilized for references, and it also examines the kinds of publications published.

One of the advantages of Open-source tools is that their codes can be studied and modified in a constantly changing scientific field such as the bibliometric analysis. Therefore, further applications of Open-source software is inevitable in bibliometric analysis. Furthermore, this is an ongoing research exploring an Open-source software and its roles in the field of information studies.

REFERENCES

[1] Alsharif, A. H., Salleh, N. O. R. Z. M. D., &Baharun, R. O. H. A. I. Z. A. T. (2020). Bibliometric analysis. *Journal of Theoretical and Applied Information Technology*, 98(15), 2948-2962.

[2] Beckman, J., & Countryman, A. M. (2021). The importance of agriculture in the economy: impacts from COVID-19. *American journal of agricultural economics*, *103*(5), 1595-1611.

[3] Bhat, R. S. (2023). Bibliometric profile of global research on millets. *Journal of Farm Sciences*, *36*(01), 119-121.

[4] Chaki, J., &Ghosh, D. (2024). Deep Learning in Leaf Disease Detection (2014–2024): A Visualization-Based Bibliometric Analysis. IEEE Access.

[5] Dimensions. (2025, May 26). *Dimensions AI: The most advanced scientific research database*. https://www.dimensions.ai/

[6] Derviş, H. (2019). Bibliometric analysis using bibliometrix an R package. *Journal of Scientometric Research*, 8(3), 156-160.

[7] Djeki, E., Dégila, J., Bondiombouy, C., &Alhassan, M. H. (2022).E-learning bibliometric analysis from 2015 to 2020. *Journal of Computers in Education*, 9(4), 727-754.

[8] Ellegaard, O., &Wallin, J. A. (2015). The bibliometric analysis of scholarly production: How great is the impact? *Scientometrics*, 105(3), 1809-1831.

[9] Fabeela, P &Abdul Azees, P. (2025b). Millet Research Trends: A bibliometric analysis of global perspectives and emerging themes. *International Journal for Multidisciplinary Research*, 7(4). Retrieved from https://doi.org/10.36948/ijfmr.2025.v07i04.53945

[10] Kumar, S., Patil, R. R., Kumawat, V., Rai, Y., Krishnan, N., & Singh, S. K. (2021)*A Bibliometric Analysis of Plant Disease Classification with Artificial Intelligence using Convolutional Neural Network*. DigitalCommons@University of Nebraska - Lincoln. Retrieved from https://digitalcommons.unl.edu/libphilprac/5777

[11] Mehmood, K., Bao, Y., Mushtaq, S., Saifullah, Khan, M. A., Siddique, N., ...& Ahmad, S. (2022). Perspectives from remote sensing to investigate the COVID-19 pandemic: A future-oriented approach. *Frontiers in Public Health*, *10*, 938811.

[12] Merigó, J. M., & Yang, J. B. (2017).A bibliometric analysis of operations research and management science. *Omega*, 73, 37-48.

[13] Pritchard, A. (1969). Statistical bibliography or bibliometrics. *Journal of documentation*, *25*, 348.

Raghavendran, C., Rao, R. B., Basha, S. M., &Chigurupati, T. M. (2023).Bibliometric analysis on identifying plant, crop diseases using machine learning and deep learning. *Advances in Transdisciplinary Engineering*. Retrieved from https://doi.org/10.3233/atde221245

[14] Suebsombut, P., Sekhari, A., Sureepong, P., Ueasangkomsate, P., &Bouras, A. (2017, March). The using of bibliometric analysis to classify trends and future directions on "smart farm".In *2017 international conference on digital arts, media and technology (ICDAMT)* (pp. 136-141).IEEE.

[15] Suriya, S., Preetha, G., Sadhana, V., Balakrishnan, N., Sheela, J., Madhanram, G., Ashish, A., &Showkat, S. A. (2025). An in-depth study of the exotic whiteflies in India's coconut ecosystems: A bibliometric analysis and approaches to their management. *Plant Science Today*. Retrieved from https://doi.org/10.14719/pst.7358

[16] Wang, L., Zhang, G., Wang, Z., Liu, J., Shang, J., & Liang, L. (2019).Bibliometric analysis of remote sensing research trend in crop growth monitoring: A case study in China. *Remote Sensing*, 11(7), 809.