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21st Century Research Work on *Drosophila* in India - A Bibliometric Analysis

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Abstract: *Drosophila*, as an alternate to human system in many of the biological concerns across the world, has become one of the important materials of interest. The current study includes the collection of articles published between 2000 to 2024 (July) particularly from Indian authors on *Drosophila* research through online database Web of Science. The collected bibliometric data were further transformed into quantitative data and analysed it by using software tool RStudio-Biblioshiny-Bibliomatrix. The study revealed that a total of 2966 documents published from 2000 to 2024 in 769 journals, books etc., at 4.89% of annual growth rate with 18.98 average citations per document involving 9586 authors from various institutions/University across the nation. The top 10 most relevant institutions/University- BHU, TIFR, JNCASR Bengaluru, IISc, CCMB, University of Mysore, Aligarh Muslim University, University of Delhi, NCBS and IISER- Pune, have published maximum number of articles. The top 5 prominent journals like Journal of Genetics, PLoS One, Current Science, Journal of Biosciences and Scientific Reports were preferred for article publications. The top 10 most cited articles have globally cited more than 350 times. UGC, DST, DBT are the leading funding organizations in India for fly base research. The fly scientists have made tremendous achievements in both the fundamental and applied sciences further contribute to the advancement of core biological knowledge and tackles larger implications for human health and illness. Our study provides a comprehensive and current trend on *Drosophila* research in India and enhances the enthusiasm in young researchers to conduct their research and publish their articles in well indexed and worldwide circulated journals.

Keywords: *Drosophila*, Bibliometric analysis, Model organism, Scientific journals

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Introduction

Drosophila has been used as a model organism for research for almost a century. Its anatomical features, minimal culturing requirements, short lifespan, and genetic manipulations have attracted

the attention from the beginning 1906 with Thomas Hunt Morgan at Columbia University in New York to the publication of the DNA sequence of the complete euchromatic regions of the

chromosomes of *D. melanogaster* in 2000. Many concepts, phenomena, and biological processes have been elucidated with the fruit fly. The extensive knowledge of the genetics of *D. melanogaster* and the long-term experimental experience with this organism together with extensive genetic homology to mammals has made it a unique organism in mutation research and genetic toxicology (Michan *et al.*, 2010).

Biblioinformatics on Global *Drosophila* research from 1900-2008 was given by Michan *et al.* (2010). From the Indian scientific aspects, the usage of *Drosophila* as model organisms began around mid-1950 at Calcutta University, followed by Universities of Punjab, Mysore and TIFR. From mid-1950 to 1970, the scientists from these institutions have used *Drosophila* in genetic studies, cytotaxonomic studies, population studies, polytene chromosome maps of different *Drosophila* species and neuro-physiological approaches. This legacy of *Drosophila* research was started in India by Professor S. P. Ray-Chaudhuri, Prof. A. S. Mukherje, Prof. M. R. Rajasekara Shetty, O. Siddique, Prof. K. S. Gill who were the students of H. J. Muller, C. Stern, and Th. Dobzhansky (Lakhotia, 2021). The Indian *Drosophila* scientists started contributing their knowledge from mid-50s to till date by establishing fly labs at institutions/Universities, encouraging young scientists, publishing research articles in national and international journals, increasing the collaborations with the counterparts of national and international institutions/University and increasing the funding agencies for financial support. This has been witnessed by dominating the research publications in the national and international peer reviewed journals (Lakhotia, 2021).

In the meanwhile, understanding of current scenario in *Drosophila* research from Indian subcontinent has become our priority. As the literature on bibliometric analysis of fly research is scanty, we intended to provide a compiled data on *Drosophila* research to our future generation, the present study on *Drosophila*

research from 2000 to 2024 was conducted. Bibliometrics becomes useful by providing a structured analysis to a large body of information, to infer trends over time, themes researched, identify shifts in the boundaries of the disciplines, to detect the most prolific scholars and institutions, and to present the “big picture” of extant research (Donthu *et al.*, 2021).

The Bibliometric Analysis has been conducted for *Drosophila* research work between the year 2000-2024 (July). The study was conducted by collecting the research articles (Scientific Documents) published by Scientists, Academicians, Researchers from various Universities, Institutions and Colleges of India from Online Based Indexing Database like Web of Science (WoS). Data collection was done by using the keyword ‘*Drosophila* Research in India’. The results obtained were further restricted to publication years 2000-2024.

All records retrieved were systematized in a Database, then the Data sets were validated and normalized and a Quantitative Analysis for each category was done (Michan *et al.*, 2010; Priyamvadah *et al.*, 2013). The data were downloaded in excel file for further analysis. The data were compiled, analyzed and interpreted to know the growth of research publications, productive authors, status of national and international collaboration, focus on the interdisciplinary study and the preference of journals on the taxonomic research. By using software tool R-studio-Bibliometrix-Biblioshiny the collected qualitative data was converted into quantitative data and analysed for further study.

Overview of data analysed:

Table 1 depicts a comprehensive analysis of *Drosophila* research spanning from 2000 to 2024 from India. It examines the growth in publication, key contributors, and collaborative efforts, offering insights into the evolution of this research domain.

Year-wise articles published:

A total of 2966 articles were published between

Table 1: Main information about data

Main information	Result
Timespan	2000:2024
Sources (Journals, Books, etc.)	769
Documents	2966
Annual Growth Rate %	4.89
Document Average Age	8.81
Average citations per doc	18.98
References	63429
Document Contents	
Keywords Plus (ID)	8337
Author's Keywords (DE)	6899
AUTHORS	
Authors	9586
Authors of single-authored docs	72
Authors Collaboration	
Single-authored docs	117
Co-Authors per Doc	5.66
International co-authorships %	30.14
Document Types	
article	2484
article; book chapter	7
article; early access	21
article; proceedings paper	15
article; publication with expression of concern	1
article; retracted publication	5
book review	2
correction	15
editorial material	38
letter	11
meeting abstract	98
news item	1
review	259
review; book chapter	6
review; early access	3

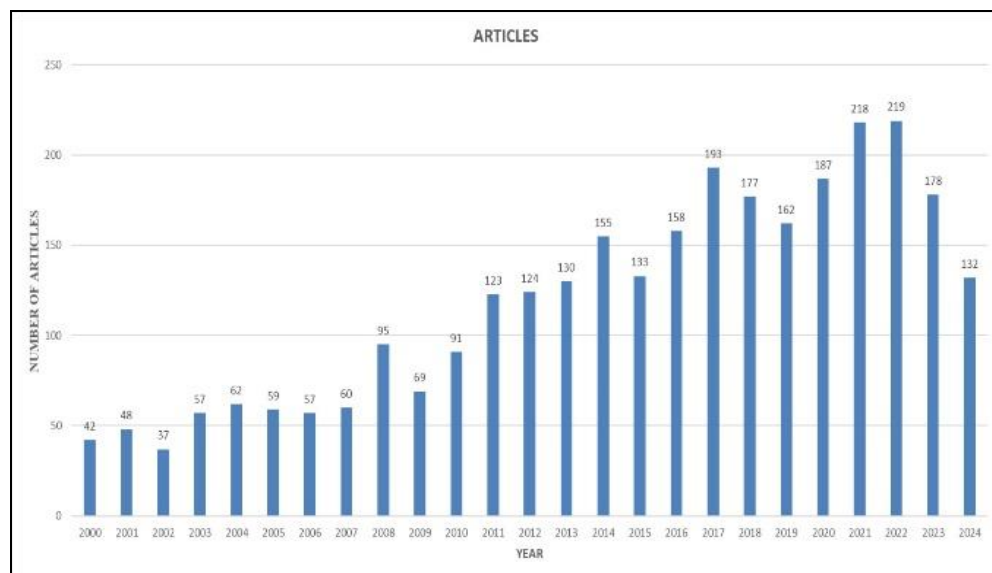


Fig. 1: Graphical representation of year-wise articles published on *Drosophila*.

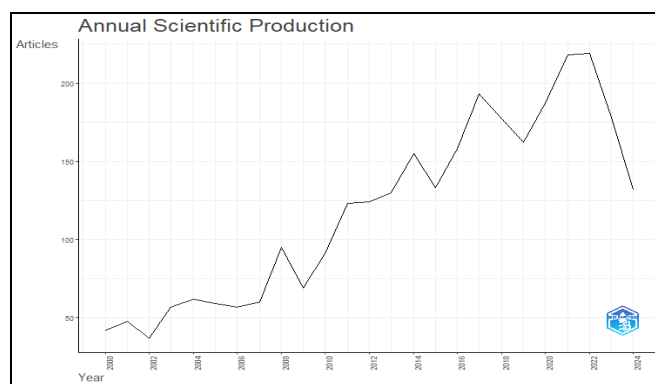


Fig. 2: Highest Annual Scientific Production on *Drosophila* research based on WoS data.

Table 2: Source production over time

Year	Journal of Genetics	PLOS One	Current Science	Journal of Biosciences	Scientific Reports
2000	1	0	7	4	0
2001	5	0	13	10	0
2002	5	0	13	12	0
2003	10	0	17	13	0
2004	20	0	23	18	0
2005	26	0	30	18	0
2006	29	1	33	18	0
2007	33	1	34	22	0
2008	37	2	38	23	0
2009	38	7	38	27	0
2010	44	8	38	27	0
2011	47	14	39	32	2
2012	47	27	40	34	3
2013	50	36	44	37	6
2014	54	48	45	41	8
2015	60	54	48	42	12
2016	67	60	49	46	18
2017	72	65	50	49	28
2018	78	67	51	52	31
2019	80	69	52	54	36
2020	82	69	54	57	42
2021	84	73	63	59	48
2022	87	73	63	60	54
2023	88	75	64	61	55
2024	88	76	65	61	58

2000- 2024. The year 2022 has most production of documents of 219. The less documents were published in the year of 2002 it had only 37 documents (Fig. 1). It was observed that there was an exponential increase in the publications of articles from 2010 to 2024 (July). From 2000-2005, there was recession in the production of articles i.e., about 303 articles. Whereas in the period 2016-2020, there was a high rate of production of documents, a total of 877

documents found. There was an average production of articles in the remaining periods (Fig. 2).

Source of production in terms of Journals:

Among 769 sources (Journals, Books, etc.,) noted during 2000 to 2024 the top five most productive source of research publications on *Drosophila* are shown in Table 2. Most of the Indian research contributors have preferred to publish their

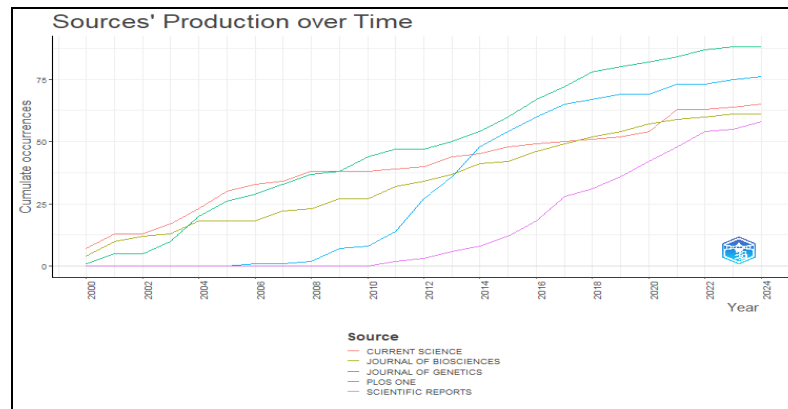


Fig. 3: Graphical representation of sources' production over time.

Table 3: Most productive Indian authors and their number of articles from 2000 –2024 on *Drosophila*

Authors	Affiliation Institution/Universities	Articles
Singh B N	Banaras Hindu University, Varanasi, India	84
Mishra R K	Centre for Cellular & Molecular Biology, Hyderabad, Andhra Pradesh, India	71
Hasan G	National Centre of Biological Science, TIFR, Bangalore, Karnataka, India	63
Sharma V K	Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, Karnataka	63
Chowdhuri D K	Industrial Toxicology Research Centre, Embryo toxicology Sect, Lucknow, Uttar Pradesh, India	60
Vijayraghavan K	Tata Institute of Fundamental Research, Bangalore, Karnataka.	59
Siddique Y H	Aligarh Muslim University, Fac Life Science, Department of Zoology, Section of Genetics, Drosophila Transgenic Lab, Aligarh Uttar Pradesh, India	57
Mishra M	National Institute Technology, Orissa.	54
Parkash R	Maharshi Dayanand University, Department of Genetics, Rohtak, Haryana, India	52
Joshi A	Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, Karnataka	51

articles in these journals. The journals are recognized world wide by research community because of their quality publication and wide circulation. It was observed that 'Journals of Genetics', 'Current Science', and 'Journal of Bioscience' have constantly been preferred by fly researchers between 2000 to 2004 (Fig. 3). From 2010 onwards the other two journals have also increased their publications on *Drosophila* research.

Most relevant Authors:

Among 9586 total number of authors 10 authors with minimum of 50 articles have considered as the most productive contributors in publishing the

research articles on *Drosophila* between 2000 to 2024 (Table 3).

Relevant Affiliation Institutions/Universities:

According to the Web of Science data, the topmost 10 Indian institutes/Universities which published more than 100 articles between 2000-2024 are shown in the Table 4. Banaras Hindu University of Varanasi was the topmost University which work on *Drosophila* in different fields and published 587 articles. It mainly published original articles, reviews, case studies, short notes, and scientific letters from all branches of *Drosophila* Science. The contributions of interdisciplinary nature are highly encouraged for soliciting a wide spectrum

Table 4: Most Relevant Affiliations and their number of publications from 2000-2024

Affiliation Institutions/Universities	Articles
Banaras Hindu University, Varanasi	587
Tata Institute of Fundamental Research,	559
Jawaharlal Nehru Centre for Advanced Science Research, Bengaluru	325
Indian Institute of Science, Bengaluru	225
Centre For Cellular and Molecular Biology, Hyderabad.	212
University Of Mysore, Mysore	189
Aligarh Muslim University, Uttar Pradesh	169
University Of Delhi, Delhi	159
National Centre for Biological Science, Bengaluru.	144
Indian Institute of Science Education and Research, Pune	116

Table 5: Most global cited documents based on WoS data from 2000-2024

Author* & Journal	DOI	Total Citations
Ahamed (2010) Clinica Chimica Acta	10.1016/j.cca.2010.08.016	980
Akerboom (2012) Journal of Neuroscience	10.1523/JNEUROSCI.2601-12.2012	893
Pal-Bhadra (2004) Science	10.1126/science.1092653	551
Rattan (2010) Crop Protection	10.1016/j.cropro.2010.05.008	476
Saw (2017) Nature	10.1038/nature21718	474
Guruharsha (2011) Cell	10.1016/j.cell.2011.08.047	473
Arya (2007) Journal of Biosciences	10.1007/s12038-007-0059-3	414
Katti (2001) Molecular Biology & Evolution	10.1093/oxfordjournals.molbev.a003903	405
Neafsey (2015) Science	10.1126/science.1258522	396
Sadasivam (2013) Nature Reviews Cancer	10.1038/nrc3556	366

*only Indian author names are shown

readership of Banaras Hindu University. Institutions/Universities from Karnataka like JNCASR, IISc, University of Mysore and NCBS were also observed to be among the top 10 most listed affiliations.

Most Global Cited Documents:

Among the total number of 2966 documents published 69 were cited more than 100 times and 24 more than 200 times from 2000 to 2024 (July). Among these the top 10 documents that have cited for the maximum time with a minimum of 350 citations are listed in Table 5.

A review article on model organisms like *Drosophila* and Zebrafish by Ahmed (2010) has the highest total citations with 980, its high total citation count indicates long-term significance and

continued relevance in its field. The second most cited document has 893 times, was published in 2012 by Indian co-author Vivek Jayaram from TIFR with international collaboration of American authors Akerboom. These suggesting their influential or recognized role in their respective research fields.

Corresponding-Authors' Countries:

Figure 4 represents Indian contributors association with National and International authors. India has Published a greater number of articles as both Single Country Publications and Multiple Country Publications. Among 2447 articles, a maximum of 2019 publications have Indian Contributors as corresponding author with article percentage of 82.50 and MCP of 428 with

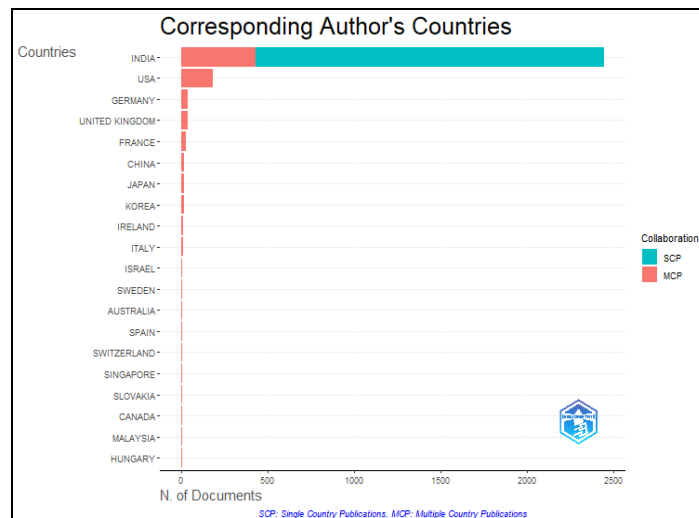


Fig. 4: Corresponding Author's Country and number of Articles (SCP, MCP).

Table 6: List of Countries and their Collaboration with India on *Drosophila* research from 2000-2024

Country	Collaboration	Country	Collaboration	Country	Collaboration
Australia	27	Ireland	34	Saudi Arabia	35
Canada	41	Japan	48	Israel	30
China	47	Sweden	24	Italy	34
France	78	Switzerland	53	United Kingdom	126
Germany	129	Spain	30	USA	451

17.49%. Indian contributors have the greatest number of collaborations with USA, Germany, United Kingdom, France, China, Japan, and Korea. This implies India has a major international collaboration in their research efforts.

Foreign Countries and their collaboration with India:

According to WoS data the Indian contributors of various affiliated institutions/University have an impressive collaboration with scientists from various institutions of about 83 countries across the world. The topmost countries with more than 30 times collaboration with Indian fly researchers are listed in Table 6. Among these USA, United Kingdom and Germany have maximum time collaboration with Indian scientists, this high number underscores India's robust research environment and substantial output. In stark contrast, several countries, including Algeria, Jordan, Sudan, Ecuador, Lithuania, Morocco, Tajikistan etc., each have only one time

collaboration with Indian authors. This minimal output indicates very limited engagement or activity in the research field covered by the dataset. Overall, the data highlights a concentration of research activity in a few leading countries, with India being the most prominent (Table 6, Fig. 5).

Nature of Work:

Nature of work indicates the research work on specific topic. The nature of work in *Drosophila* research involves several specific activities and focuses due to the unique characteristics of this organism. *Drosophila* has been used in various studies like Genetics, Cell Biology, Developmental Biology, Neurosciences and Neurology, Biochemistry and Molecular Biology, Biophysics etc. Based on WoS data fly researchers have conducted experiments on nearly 155 various areas of science between 2000 to 2024. Among these Science and Technology - other Topics (277), Genetics and Heredity (248), Biochemistry

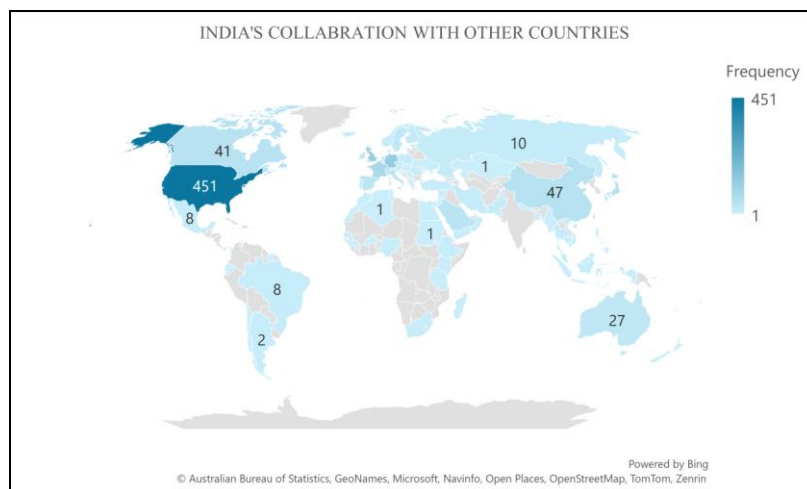


Fig. 5: India's collaboration with other countries on *Drosophila* research between 2000-2024.

Table 7: Nature of work

Nature of work	Total number
Science & Technology - Other Topics	277
Genetics & Heredity	248
Biochemistry & Molecular Biology	148
Life Sciences & Biomedicine - Other Topics	148
Cell Biology	147
Developmental Biology	140
Neurosciences & Neurology	129
Entomology	76
Life Sciences & Biomedicine - Other Topics; Physiology	75
Biochemistry & Molecular Biology; Biophysics	61

and Molecular Biology (148) areas have a greater number of research (Table 7).

Funding Organizations:

Among 2996 research publications on *Drosophila* of which 1490 were funded by 30 Funding Organizations across India from 2000-2024. The top 18 funding agencies which provided financial support to more than 10 research projects are listed in Table 8. It has been observed that the "University Grants Commission", New Delhi under Government of India has funded to 357 researchers in their scientific research, this is the Highest Funding Organization, and "Department of Science and Technology, Government of India" has funded for 321 researchers, the second most Funding Organization in India.

Drosophila is one of the important model

organisms preferred by most of the scientists from worldwide for their experiments on vital fields of biological science. It makes sense to know the current trend of research areas, scientists, institutions/Universities, funding organizations involved in fly research. Lakhotia (2021) has recorded seven Decades of Fly Research in India: From Modest Beginning to Vibrant Community. The author has recognised the researchers from various Universities/Institutions from India engaging on *Drosophila* research from 1950 to 2015. This is further evidenced from our present study that a total of 2966 documents published from 2000 to 2024 in 769 journals, books etc., at 4.89% of annual growth rate with 18.98 average citations per document involving 9586 authors from various institutions/University across the nation. From the total number of documents,

Table 8: Funding organizations of *Drosophila* research in India during 2000-2024

S. No.	Funding organization	Total No.
1	University Grant Commission (UGC),NET, JRF, SRF, New Delhi	357
2	Department of Science and Technology, Govt. of India	321
3	Department of Biotechnology (DBT), Govt. India [BT/BI/04/026/93]	307
4	Science and Engineering Research Board (SERB), Govt. of India	167
5	Wellcome Trust Funding Source: Medline and Department of Biotechnology(DBT), Govt. of India	152
6	Ministry of Science and Technology, Delhi, India	95
7	Indian Council of Medical Research (ICMR), India (Senior Research Fellowship) [45/53/2018-Nan/BMS]	90
8	TIFR, DAE, Govt. of India	78
9	Indian Institute of Science Education and Research(IISER) Govt. of India	68
10	Council for Scientific and Industrial Research (CSIR), Govt. of India	58
11	Department of Atomic Energy, Govt. of India.	58
12	Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India	50
13	National Centre for Biological Sciences	39
14	Department of Atomic Energy, Government of India [RTI 4006]; Wellcome Trust DBT India Alliance [IA/S/14/2/501540]	27
15	NIDA NIH HHS [R01 DA015495, DA15495] Funding Source: Medline	23
16	University of Delhi	19
17	ICAR-Indian Agricultural Research Institute, New Delhi	18
18	Defence Research & Development Organisation (DRDO) of India [ERIP/ER/0102086/M/01]	11

83.75% (2484) includes the articles alone and 8.73% of review articles, and the remaining include proceedings, letters, etc., types of documents on *Drosophila* science. Our present results are in congruence with the findings of Michan *et al.* (2010).

Production is related to scientific findings disclosure, acknowledgment, and intellectual property. Published articles reflect a country's science products (ideas), and scientific research is essential to stimulate and share information worldwide (Ghenot *et al.*, 2016). The factor that contributing to the extensive research with *Drosophila* might be due to the free flow of materials and ideas among its researchers in Indian subcontinent (Prignent and Rajpuroit, 2007). A total of 9586 authors involved in *Drosophila* article publications in that 72 authors are scripted the articles as single author, 117 are collaborated with single authored documents and 30.14% of the authors have co-authorship with international/national collaborators. It implies that the *Drosophila* science in India is much more established by its pioneers from mid-1950s which provided a strong platform to Indian fly researchers to take up the research work

(Lakhotia, 2021).

Among the top 10 authors, Singh B.N. of Banaras Hindu University, Varanasi has emerged as a prominent contributor with 84 articles in the span of 24 years. As a link between the pioneers of fly research in India and the newly emerging fly scientists, leading from the front Prof. Singh B.N. along with Lakhotia uphold the *Drosophila* research in India. Singh B. N. was found to be 24th most productive researcher among the top 34 fly researchers at the global level (Michan *et al.*, 2010). According to the present WoS information the top 10 most relevant institutions/University like- Banaras Hindu University, Varanasi with 587, TIFR-559, JNCASR Bengaluru-325, IISc, Bengaluru-225, CCMB, Hyderabad -212, University of Mysore-189, Aligarh Muslim University, UP-169, University of Delhi-159, NCBS, Bengaluru-144 and IISER, Pune-116, respectively have encouraged fly research in India. Among these BHU Varanasi, CCMB Hyderabad, IISc Bengaluru, TIFR and JNCASR Bengaluru institutions have constantly supporting their fly researchers in exploring and publishing articles on fly science.

Prominent journals:

Based on the present WoS database analysis, among 769 sources of publications the top 10 most prominent journals were preferred frequently by *Drosophila* researchers in publishing their articles. Our study observed that the preference for these journals by researchers constantly increased from 2000 to 2024, it might be due to the worldwide circulation of these journals and encouragement given to young researchers to publish good quality research work in their journals. Further, these journals are indexed in most of the databases- Web of Science, PubMed, Scopus, SciSpace etc. Our results are in agreement with the previous works of Gheno *et al.* (2016) and Priyamvadh *et al.* (2013).

Citations:

The citation impact is a measurement of scientific publications usability. It also emphasize paying homage to pioneers, giving credit to related work, identifying methodology, offering background reading, validating data, substantiating claims, analyzing previous work, informing researchers of forthcoming work, rectifying ones' own work, rectifying the work of others, identifying the original publications in which an idea or concept is discussed, identifying original publications that describe concepts or eponym terms, disputing work or idea of others, and disputing the primacy of others' claims (Gheno *et al.*, 2016). Based on the present WoS database analysis it is observed that the maximum number of *Drosophila* research articles cited in 2010 for 91 articles with 48.15 Mean Total Citation (Mean TC) per article and 3.21 as Mean TC per year.

Collaboration:

Co-authorship action arises from affinities and common goals to be reached. Collaboration levels can be recognized as "Intra" or "Inter." Intra includes national collaboration established among individuals of the same group, department, institution, sector, or nation. Inter includes international collaboration, with the same characteristics of national collaboration. Based on the present WoS database analysis, Indian

contributors have maximum collaboration with USA of 451 times. Being one of the developed countries of the world, USA lies in the topmost scientific countries with respect to *Drosophila* research (Michan *et al.*, 2010). It is further observed that the Indian fly researchers have collaborated many times with the fellow scientists of India rather than with the counterparts from institutions/universities of foreign countries.

Funding organizations:

Financial aid for any kind of scientific research will boost up the enthusiasm in scientist community as well as the quality of the research in turn to uphold the nations' scientific level at the global scenario. In India, the Central and State Governmental organizations (UGC, DST, DBT, SERB, KSCSTE, KBITS etc.) and some of the private organizations (Periyar University, Bharathiar University Coimbatore, Sathyabama Institute of Science and Technology, Chennai etc.) are supporting our *Drosophila* scientist community in producing high quality of research. Based on our WoS database analysis UGC, DST, DBT are the leading funding organizations in India for fly base research. This implies that the Indian Government is supporting their scientists and growth of science at the global level (Lakhotia, 2021).

Nature of work:

Based on the present bibliometric analysis a new trend of research field is emerging in the *Drosophila* science. Our fly contributors are exploring their scientific knowledge from the area of advanced technology – a rapidly growing and new emerging science field at national and global level and further they are using *Drosophila* as model organism in other disciplines of science like Biochemistry and Biophysics, Life Science and Biomedicines, Pharmacology and Pharmacy, Oncology, Computer Science, Agriculture along with Genetics and Heredity, Developmental Biology, Cell Biology, Neurosciences etc. This implies that our researchers are emerging with new ideas according to the changes in the scenario at the global level. Our output is in congruent with

the findings of Michan *et al.* (2010) and Lakhotia (2021).

Conclusion

In India the scientific environment on *Drosophila* research has emerged into a vibrant subject that encompasses a broad variety of disciplines including genetics, neurology, developmental biology, evolutionary science, new trending areas like analytical studies and also includes Applied and Artificial Intelligence etc. Researchers from India have used the adaptable *Drosophila* model to investigate important biological concerns. As a result, they have made significant contributions to the understanding of topics such as genetic control, neurodegeneration, developmental processes, and evolutionary dynamics etc. India has established itself as a significant contributor to the field of *Drosophila* research on a worldwide scale due to the efforts of scientists of BHU, University of Delhi, IISERs, NCBS, and JNCASR. They have made tremendous achievements in both the fundamental and applied sciences which not only contributes to the advancement of core biological knowledge but also tackles larger implications for human health and illness (Lakhotia and Ranganath, 2021). Considering that *Drosophila* use has substantially increased in scientific research, the current report can serve as a basis for resetting public policies for the development of new scientific centres of *Drosophila* research and/or for providing fund in improvements on the existing ones.

Ethical Statement

This is a review article hence no Ethical Approval needed.

Author Contributions

Each author has contributed equally to the study's planning, analysis, writing, and editing. All authors have read and agreed to the published version of the manuscript.

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Conflict of Interest

The authors declare no conflicts of interest.

References

- Donthu N, Kumar S, Mukherji D, Pandey N and Weng Marc L. (2021) How to conduct a bibliometric analysis: An overview and guidelines. *J Business Res.* 133: 285-296.
- Gheno EM, Rosemberg DB, Souza DO and Calabro L. (2016) Zebra fish in Brazilian science: Scientific production, impact and collaboration. *Zebrafish* 3(3): 217-225.
- Lakhotia SC. (2021) Seven decades of fly research in India- From modest beginning to vibrant community. In: *Experiments with Drosophila for Biology Courses.* (eds.) Lakhotia S.C. and Ranganath H.A., Indian Academy of Sciences, Bengaluru, India, 587-608.
- Lakhotia SC and Ranganath HA. (2021) *Experiments with Drosophila for Biology Courses.* Indian Academy of Sciences, Bengaluru, India. https://bdsc.indiana.edu/pdf/Experiments_with_Drosophila_for_Biology_Courses.pdf
- Michán L, Castañeda Sortibrán A, Rodríguez-Arnaiz R and Ayala FJ. (2010) Global *Drosophila* research: A bibliometric analysis. *Drosophila Information Service* 93: 232-241.
- Pathak M and Bharati KA. (2014) Botanical Survey of India (1971-2010). A Scientometric analysis. *Curr Sci.* 106(7): 964-971.
- Prigent S and Rajpurohit S. (2007) Genome, evolution, *Drosophila* and beyond: the new dimensions. *Fly* 1(5): 297-302.
- Priyamvadah K, Gopalakrishnan M and Yatish P. (2013) Mapping of Zebrafish research: A global outlook. *Zebrafish* 10(4): 510-514.
- Triguerio NSS, Canedo A, Braga DLS, Luchiart AC and Rocha TL. (2020) Zebrafish as an emerging model system in the global south: Two decades of research in Brazil *Zebrafish* 17(6): 412-425.