TABLE V YEAR WISE AUTHORSHIP PATTERN

Year	Single	Two	Three	Four	Five	Above five	Total
2006	4	8	9	5	6	10	42
2007	4	7	4	10	6	8	39
2008	18	6	13	11	13	11	72
2009	10	4	7	16	7	25	69
2010	16	9	10	11	5	23	74
2011	12	4	5	11	12	36	80
2012	11	5	4	5	11	22	58
2013	8	5	12	11	19	32	87
2014	9	9	20	16	20	51	125
2015	10	15	11	17	11	42	106
Total	102	72	95	113	110	260	752
%	13.56	9.57	12.63	15.03	14.63	34.58	100
TA	102	144	285	452	550	1905	3438
%	2.96	4.19	8.29	13.16	15.99	55.41	100

TABLE VI EXPONENTIAL GROWTH RATE

S. No.	Year	Publication	Exponential Growth Rate
1	2006	42	
2	2007	39	0.92
3	2008	72	1.84
4	2009	69	0.95
5	2010	74	1.07
6	2011	80	1.08
7	2012	58	0.72
8	2013	87	1.5
9	2014	125	1.43
10	2015	106	0.84
Total		752	10.35

Table VII shows the extent of research contributions affiliation year wise. These sectors were tabulated in five distinct categories for the convenience of the study as University, College, Research Institutions, Technology and Laboratories. The highest contributions of 250 (34%)were from 250(34%) Research institutions. One fourth of the articles 186(24.74%) were published Universities followed one fifth of the articles 149(20%) from Laboratories. 117 (16%) of the articles were from College. The study also found that a very less number of articles 50 (7%) were published from the Technological Department. Maximum number of contributions was from the Research Institutions was being one third of the articles published in the year the year 2010 and 2015. One fourth of the articles published in 2008, 2009, 2011, and 2013. A very less number of articles of 10 published in the year 2007.

TABLE VII YEAR WISE AND INSTITUTION WISE DISTRIBUTION OF ARTICLES

Institution	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total	%
University	15	18	28	22	14	23	11	20	20	15	186	24.73
College	4	1	6	8	12	10	14	13	25	24	117	15.56
Research Institution	13	10	24	26	33	29	17	25	40	33	250	33.24
Technology	2	1	3	1	5	3	3	8	15	9	50	6.65
Laboratories	8	9	11	12	10	15	13	21	25	25	149	19.82
Total	42	39	72	69	74	80	58	87	125	106	752	100

TABLE VIII YEAR WISE DISTRIBUTION OF GEOGRAPHICAL AREA

Institution	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total	%
India	15	14	19	28	26	25	20	28	43	37	255	33.91
Foreign	27	25	53	41	48	55	38	59	82	69	497	66.09
Total	42	39	72	69	74	80	58	87	125	106	752	100

Table VIII clearly explains the geographical wise distribution of articles year wise during the study period. The findings reveal that in the 752 articles. Seven out of ten were published by foreign authors. Three articles out of ten were published by Indian authors. It is found that more number of articles contributions from foreign authors. In

2104 out of 125 publications 82 were from foreign authors and the remaining were rest of 43 from Indian authors.

TABLE IX COUNTRY WISE DISTRIBUTION OF ARTICLES

S.No	Country	Total	%
1	China	219	29.12
2	India	117	15.55
3	USA	57	7.58
4	UK	21	2.79
5	Iran	17	2.26
6	Tunisia	14	1.86
7	Brazil	12	1.6
8	Italy	12	1.6
9	Japan	12	1.6
10	Korea	9	1.19
11	Mexico	8	1.1
12	Turkey	8	1.1
13	Thailand	6	0.79
14	Argentina	6	0.79
15	France	5	0.66
16	Fine land	5	0.66
17	Spain	5	0.66
18	Russia	5	0.66
19	Malaysia	5	0.66
20	London	4	0.53
21	Kernel	4	0.53
22	Jammu	4	0.53
23	Portugal	4	0.53
24	Greece	4	0.53
25	Poland	4	0.53
26	Germany	4	0.53
27	Beijing	3	0.40
28	Australia	3	0.40
29	Sweden	3	0.40
30	South Africa	3	0.40
31	Maringa	3	0.40
32	Belgium	2	0.27
33	Serbia	2	0.27
34	Macedonia	2	0.27
35	Rah at	2	0.27
36	Sax	2	0.27
37	California	2	0.27
38	Jordan	1	0.13
39	Ethiopia	1	0.13
40	Lithonia	1	0.13
41	Estonia	1	0.13
42	Pakistan	1	0.13
43	Cambridge	1	0.13
44	Romania	1	0.13
45	Zealand	1	0.13
46	Jorhat	1	0.13
47	Cyprus	1	0.13
48	Oxford	1	0.13
49	Egypt	1	0.13
50	Nether Land	1	0.13
51	New Zealand	1	0.13
52	others	140	18.62
Total		**752**	**100**

It is found that a total number of 752 articles were published during the period of 2006-2015. During the analysis it has been observed that most of the articles are prepared / contributed by joint authors from different places. From the analysis it has been observed that the highest numbers of contributors are from china with 219 and the percentage is 29.12%, and is followed by india117 (15.55%),USA, UK, Iran, Germany, Korea, are the countries which are in third, fourth, fifth, sixth, seventh, position in the list respectively.

Table X clearly shows the documents type. These sectors have been categorized in 21 types based on the research period. Out of 752 publications 324 are from the research articles and 293 from research note, 55 from review articles and 18 from journal of genetics online research. A very few contribution was from book review with 6, Perspective, author index, view point, special feature, author correction, hypothesis, research commentary. Two publications out of ten in the year 2014 and followed by 106 in 2015. A very less number of contributions of 39 in the year 2007.

Table XI shows the Pattern of Co-Authorship being measured by Co-Authorship Index, which is obtained by calculating proportionately the publications by single, two authors and multi authored papers. CAI is determined with the following formula suggested by Garg & Padhi (2001) [11]. Here,

$$CAI = \frac{\frac{Nij}{Nio}}{\frac{Noj}{Noo}} * 100$$

Nij = Number of publications for the particular authorship pattern in the particular block
Nio = Total output in the particular block
Noj = Total output for the particular authorship pattern

Noo = Total output CAI = 100 reflects the number of publications corresponds to the world average, CAI > 100 reflects publications higher than the world average and CAI < 100 reflects the publications lower than the world average within a co-authorship pattern. In order to calculate the co-authorship pattern in India, the study period was ten years, i.e. 2006 –2015. Table reveals that the CAI increased for double authors from above five 260 in first output to 72 in second lowest. On the other hand, it is decreased for single and multi authors.

TABLE X YEAR WISE FORMS OF DOCUMENTS

Document type/ Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total	%
Research article	13	23	37	30	27	31	22	36	57	48	324	43.1
Research Note	22	12	27	27	23	38	23	34	52	35	293	38.96
Review article	-	-	-	8	13	2	6	7	7	12	55	7.31
Book Review	1	-	1	-	1	2	-	1	-	-	6	0.8
Commentary on J.Genet Classic	3	-	-	1	-	-	-	-	-	-	4	0.53
J.Genet Classic	2	-	-	1	-	-	-	-	-	-	3	0.4
Perspective	1	-	1	1	1	1	-	1	2	1	9	1.19
Preface	-	-	2	1	1	-	-	-	-	-	4	0.53
Journal of Genetics online Research	-	-	-	-	3	3	3	3	3	3	18	2.4
Editorial	-	1	2	-	1	-	-	-	1	1	6	0.8
Research Commentary	-	-	-	-	-	1	-	-	2	1	4	0.53
Hypothesis	-	-	-	-	1	-	-	-	-	1	2	0.26
Erratum	-	-	1	-	-	-	-	1	-	4	6	0.8
Author Correction	-	-	-	-	1	2	1	-	-	-	4	0.53
Epplogue	-	-	-	-	1	-	-	-	-	-	1	0.13
Special feature	-	1	1	-	-	-	-	-	-	-	2	0.3
General Editorial on publication ethics	-	-	-	-	-	-	-	1	1	-	2	0.3
View Point	-	1	-	-	-	-	1	1	-	-	3	0.4
Subject index		1	-	-	-	-	1	1	-	-	2	0.3
Author Index	-	-	-	-	-	-	1	1	-	-	2	0.3
Obituary	-	-	-	-	1	-	-	-	-	-	1	0.13
Total	42	39	72	69	74	80	58	87	125	106	752	100

TABLE XI PATTERN OF CO-AUTHORSHIP

Year	Single		Double		Three		Four		Five		Above Five		Total
	No	CAI	No	CAI	No	CAI	No	CAI	No	CAI	No	CAI	
2006	4	70	8	199	9	169	5	79	6	97	10	68	42
2007	4	75	7	187	4	81	10	170	6	105	8	59	39
2008	18	184	6	87	13	142	11	101	13	123	11	44	72
2009	10	106	4	60	7	80	16	154	7	69	25	104	69
2010	16	159	9	127	10	106	11	98	5	46	23	89	74
2011	12	110	4	52	5	49	11	91	12	102	36	130	80
2012	11	139	5	90	4	54	5	57	11	129	22	109	58
2013	8	67	5	60	12	109	11	84	19	149	32	106	87
2014	9	53	9	75	20	126	16	85	20	109	51	117	125
2015	10	69	15	147	11	82	17	106	11	70	42	114	106
Total	102		72		95		113		110		260		752

Table XII explains the page wise distribution of publications. The length categorized 8 types with 5 pages based on the research period. It is found that more number of contributions was from 1-5 pages 344, followed by 289 from 6-10 pages, 90 from 11-15 pages 16 from 16-20 pages. A very less number of contribution 8, 2, 3 the pages 21-25, 26-30 and 36-40. No contribution in 31-35 pages. The study found that one articles out of two published 1-5 pages. Table XIII shows the citation range distribution of publications. Citation is nothing but a reference. It is found that One fourth of the articles were published with 1-10 citations. Around 214 (29%) articles were published with 11-20 citations. 129 (17.15%) articles were published with 21-30 citations followed by 79 articles (10.51%) with 31-40 citations, 58 articles were (7.71%) published with 41-50 citations. 35 articles were published with 51-60 citations. 53 articles were published with more than 60 citations. It is also found that a Maximum number of articles 214 published with 11-20 citations. And a very lesser number of articles 16 published with above 80 pages. Ever Less a

number of citations (1-10) using the articles published with 183 (24.33%) articles. Maximum number of citations (71-80) using the articles publications only 16 (2013%).

TABLE XII PAGE WISE DISTRIBUTION OF ARTICLES

No. of Pages	Year										Total	%
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
1-5	26	17	36	28	33	43	28	36	53	44	344	45.74
6-10	14	18	25	31	28	30	19	34	45	45	289	38.43
11-15	2	4	9	6	10	6	9	12	17	15	90	11.96
16-20			2	2	2	1	1	2	5	1	16	2.14
21-25				2			1		4	1	8	1.07
26-30					1			1			2	0.27
31-35												
36-40								2	1		3	0.39
Total	42	39	72	69	74	80	58	87	125	106	752	100

TABLE XIII DISTRIBUTION OF YEAR WISE CITATIONS

No of Citations	Year										Total	%
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
1-10	7	5	9	4	14	30	21	30	35	28	183	24.33
11-20	13	8	19	24	28	25	15	26	28	28	214	28.46
21-30	11	9	17	13	12	12	6	11	19	19	129	17.15
31-40	6	5	11	12	6	7	4	5	13	10	79	10.51
41-50	3	8	7	8	3	2	4	5	10	8	58	7.71
21-60	2	3	2	3	3	1	3	4	9	5	35	4.65
61-70			4	1	2	2	2	2	3	3	19	2.53
71-80		1	2	1	1	1	3	1	4	2	16	2.13
Above 80			1	3	5			3	4	3	19	2.53
Total	42	39	72	69	74	80	58	87	125	106	752	100

TABLE XIV TIME SERIES ANALYSIS DISTRIBUTION OF ARTICLES

Year	No. of Publication	X	X^2	XY
2006	42	-4	-16	168
2007	39	-3	-9	117
2008	72	-2	-4	144
2009	69	-1	-1	69
2010	74	0	0	0
2011	80	1	1	80
2012	58	2	4	116
2013	87	3	9	261
2014	125	4	16	500
2015	106	5	25	530
Total	752		85	1985

Table XIV shows that the Straight line equation is applied to arrive at the estimates for future growth under the time series analysis.

Straight line equation $Y_c = a + bX$; Since $\Sigma x = 0$

$a = \Sigma Y / N = 752 / 10 = 75.2$

$b = \Sigma Y / \Sigma x^2 = 1985 / 85 = 23.35$

Estimated literature in 2020 is when X= 2020 - 2010 = 10

$= 75.2 + 23.35 \times 10 = 75.2 + 235$

$= 310.2$

Estimated literature in 2025 is when X 2025 – 2010= 15

$= 75.2 + 23.35 \times 15 = 75.2 + 350.25$

$= 425.45$

The predicted value of literature output for the year 2020 is 310.2 and the predicted literature output for the year 2025 is 425.45.

VIII. FINDINGS

The following are the major findings of the present investigation on Reflections of Scholarly Communication of Journal of Genetics from 2006-2015: A Bibliometric Study. The findings of the year wise distribution of these reveal the following facts

1. The total out of 752 scientific papers, the highest number of 125 (16.63%) articles were published in the year 2014 with three issues and followed by 106(14.09%) articles in 2015 with 4 issues. It is noticed that a very less number of articles were published 39 (5.19%), 42 (5.59%) respectively in the year 2007 and 2006. It is clearly noticed that more number of articles

were published in the month of August issue and a very less number of articles were published in April issue.

2. The study period witnessed the overall relative growth rate mean 1.2 and doubling time mean 0.66 during the study period 2006-2015.
3. It is found that DC range started from 0.90 and ended with 0.91. The DC range then slightly increased and decreased. 0.92 is the highest DC value in 2014. Followed by 0.91 in 2015, 0.90 from 2006 and 2013 and a very less number in the year 0.75. The overall Degree of Collaboration is 0.86 during the study period.
4. Maximum number of articles above five 260(34.58%) were published by two authors. Followed by four authors that contributed only 113 (15.03%). Followed by the five authors which contributed 110 (14.63%), followed by the single authors had contributed 102 (13.56%), followed by the three authors had contributed 95 (12.63%)
5. The highest growth rate 1.84 was found in the year 2008 with 25 publications and the lowest exponential growth rate published was 0.72 in 2012. The exponential growth rate from 0.92 to 0.84. It is also found that the overall exponential growth rate is 10.35.
6. The highest contribution was from 250(34%) Research institutions. One fourth of the articles 186 (24.74%) were published in Universities followed by one fifth of the articles 149(20%) from Laboratories. 117 (16%) of the articles were from College. The study found that very lesser number of articles 50 (7%) were published from the Technological Department.
7. Seven articles out of ten were published by foreign authors. Three articles out Ten were published by Indian authors. It found that more number of articles contributions were from foreign authors.
8. Most of the research articles were contributed by China and ranked first and followed by India (117, 15.55%) in the second place, the third place is by USA with 57 (7.58%) and the least number i.e. only one research paper is contributed by 22 countries.
9. Out of 752 publications 324 were from the research articles and 293 were from research note, 55 were from review articles and 18 were from journal of genetics online research. A very few from book review 6, Perspective, author index, view point, special feature, author correction, hypothesis, research commentary. Two publications out of ten in the year 2014 and followed by 106 from 2015. A very less number of contributions 39 in the year 2007.
10. It is found that the more number of contribution was from 0-5 pages followed 289 from 6-10 pages, 90 from 11-15 pages 16 from 16-20 pages. A very less number of contribution 8, 2, 3 the pages 21-25, 26-30 and 36-40. No contribution was there in 31-35 pages. The study found that one articles out of two published 1-5 pages.
11. The average length of articles on Journal of Genetics for the year 2006-2010 was analysed. The results revealed that the frequency value 752 at overall total and then frequency Fd^1 value 9925 and then frequency Fd^2 value 178125 and length of articles calculated 79.17.
12. Around 214 (29%) articles were published with 11-20 citations. 129 (17.15%) articles were published with 21-30 citations followed by 79 articles (10.51%) with 31-40 citations, 58 articles (7.71%) published with 41-50 citations. 35 articles published with 51-60 citations. And 53 articles published with more than 60 citations. It was found that Maximum number of articles 214 published with 11-20 citations. And a very lesser number of articles 16 published with above 80 pages. Ever Less or number of citations (1-10) using the articles published with 183 (24.33%) articles. Maximum of citations (71-80) using the articles publications only 16 (2013%)
13. It was observed that the distribution of year wise Collaboration Coefficient (CC) and the value the collaboration coefficient (CC) was calculated as 0.78

IX. CONCLUSION

Bibliometrics analysis is one of the quantitative and qualitative analyses in the field of Library and Information Science. In the knowledge world, publication analysis plays a vital role in the scholarly communications. Bibliometrics are used to measure various activities, mainly by producing books, Journals articles, which are indexed in various databases. For the present study, the literature output of the Journal of Genetics which is published by Indian Academic Science (IAS) is chosen for analysis. As far as the researcher is concerned, this is the first study in the Journal of Genetics for the period between 2006 and 2015. From the analysis, it is found that the country – wise distribution was measured and the most of the research articles were contributed by China and only 15.55 percent of the literature output were published by India and it required that Indian scientists must publish their research papers for the growth and development of the Indian literature output.

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