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## **WILLINGNESS AND PREFERENCE OF PUBLICATION IN OPEN ACCESS JOURNALS: A STUDY OF INDIAN SCIENTIFIC COMMUNITY**

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**Abstract:-**The present study was conducted to identify the preferences and willingness of life scientists on open access publishing of their scholarly research output. The scientific community publishes their long years of research work by utilising 'tax payers' money in scholarly publications for many professional as well as personal reasons. Notable among them are gaining credibility among peers (name, fame and increased citations), winning research grants, promotion and so on. The study was taken up through collection of data from scientists of various institutes and life science subjects using a questionnaire set for the purpose. There were instances where 100% respondents said they would want their work to reach maximum audience (readers) without any cost and copyright restrictions. The details are discussed in depth in the article.

**Keywords:**Open access and Open access journals for science communication, scholarly communication, and cost-free access to science, Publishing willingness, Scientist's preference on OA.

### **INTRODUCTION**

Knowledge is created and disseminated through both formal and informal ways within the scholarly communication system. Formal scholarly communication, or scholarly publishing, is the process, through which newly discovered knowledge is refined, certified, distributed and preserved through the peer review process for researchers, professors, students and the public. It usually takes the form of published journal articles, conference proceedings or monographs, reports and so on. Informal methods, on the other hand, include visiting conferences, using discussion groups, distributing preprints, and general networking to find out what is happening in a particular discipline or area of interest to the particular individual or group.

The proliferation of Open Access (OA) has emerged as a phenomenon to remove the barriers to enable smooth flow of scholarly communication. Open Access Journals (OAJ) are scholarly periodical publications that make full text of the articles they publish universally and freely available via the Internet. In this new model of scholarly communication, the costs of publication are recovered not from traditional means of subscription fees, but from publication fees paid by authors out of their research grants or from other own sources. The first open access peer-reviewed journal, the monthly PLoS Biology, was issued online in October 2003 by the Public Library of Science (PLoS), a nonprofit organization of scientists and physicians (Barbara Cohen, 2005).

The main motivation for most authors to publish in an open access journals is increased visibility and ultimately a citation advantage (Suber, 2006). Researcher citations of articles in a hybrid open access journals have shown that open access journal articles are cited more frequently or than non-open access articles (Antelman 2004).

### NEED FOR THE STUDY

Producing a research paper may require years of work and require a lot of money, however publishers, who will often do little more than copy edit articles ready for publication, that they become the copyright holders and can generate good revenue by utilizing tax payers funded research output. This has caused a lot of dissatisfaction among the core scientific community and also paved a way for OA, hence a new phenomenon has emerged among scientists. The open access movement gained the momentum, as a result few of the unsatisfied and rebellion scientists who have resigned their services as editors of popular scientific yet commercial journals (Sarah Blatchford, 2013) and joined the OA movement.

In this connection, the authors have conducted a study to determine the life science researcher's view in terms of preference and willingness on publishing their work in commercial as well as open access journals.

### SCOPE AND LIMITATION OF THE STUDY

The scope of this study confined to five major research institutions in Bangalore, Karnataka State, India. They are:

- Indian Institute of Science (IISc)
- National Centre for Biological Sciences (NCBS)
- Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)
- Indian Institute of Horticultural Research (IIHR) and
- University of Agricultural Sciences (UAS).

Present study covers Life Sciences disciplines such as Biochemistry, Biotechnology, Botany, Microbiology, Sericulture and Zoology only. Further, it is limited to find out the use and awareness of Open Access Journals among the life scientists. This study is limited to the above said five institutions and is limited to the six life sciences subjects mentioned above.

### OBJECTIVES OF THE STUDY

1. To find the willingness of authors to pay for publication in OA
2. To find the author preference of publication in commercial journals
3. To find the author preference of publication in open access journals
4. To find the author adherence to the spirit behind OA (to provide access to the readers at free of cost)
5. To find out the reasons for scientists to publish their work

### METHODOLOGY AND STATISTICAL TOOLS USED

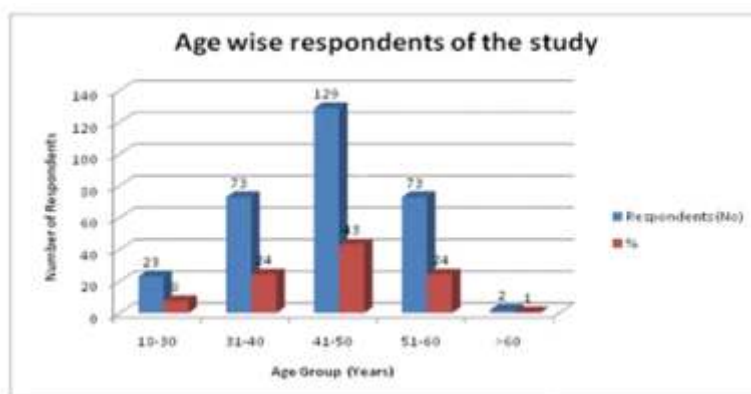
The investigators have used multiple data gathering research methods, such as Questionnaires, Citation Study and Web log analysis. Necessary statistical tools such as Mean; Standard Deviation (SD); and Correlation Analysis have been used for tabulation and interpretation of the data.

The researchers have collected the literature in the field of open access (OA) in general, open access publishing and OA journals in particular. Consulted several primary and secondary sources of information for a review of literature pertaining to open access and open access journals (OAJ). The sources consulted for this purpose are the Library and Information Science Abstracts (LISA) from 1969 to date; Library and Information Science and Technology Abstracts (LISTA); Electronic Management Research Library Database (EMERALD); EBSCO database; Annual Reviews in Science and Technology (ARIST) volumes from 1969 to date; Science Direct; Vidyanidhi; Shodhganga; Google scholar; Google books and other various sources available in Internet. The investigator has also scanned many printed national and international journals and books related to the study.

### DATA ANALYSIS

The collected data were compiled and analyzed using the SPSS 16.0 (2007) for Windows

statistical software. All the information could not be analyzed quantitatively; some of the responses to the open-ended questions consisted of lengthy descriptions, in such cases to retain the respondents' own views, qualitative content analysis was employed for data obtained from responses to open-ended questions and interviews, by categorizing the content and similar paraphrases were bundled and summarized. There were over 400 questionnaires distributed to the scholars in life sciences only and could get 300 filled questionnaires. The details are as follows;

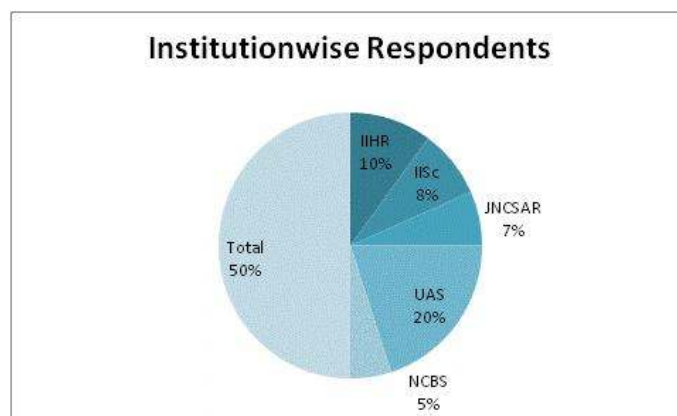


**Table 1: Gender wise respondents**

Gender	# Respondents	%
Male	204	68
Female	96	32
Total	300	100

**Table 2: Qualification of the respondents**

Qualification	# Respondents	%
Graduate	1	0.3
Post Graduate	1	0.3
Pursuing Ph.D.	53	17.7
Doctorate	168	56.0
Post Doctorate	77	25.7
Total	300	100

**Table 3: Institution wise respondents****Table 4: Distribution of respondents from different institutes and subjects**

	Agriculture	Biochemistry	Biology	Biotechnology	Botany	Horticulture	Microbiology	Zoology	Total
IIHR	3	14	7	14	3	8	5	6	60
IISc	4	8	10	11	2	4	4	7	50
JNCsAR	3	7	3	9	2	3	6	7	40
UAS	22	25	20	19	8	2	9	15	120
NCBS	3	3	7	6			4	7	30
Total	35	57	47	59	15	17	28	42	300

There was significant correlation between rural and urban scientists who published in open access. More of urban scientists (12%) published articles in open access compared to rural (4.9%). Also rural scientists (95.1%) who did not published in open access were more compared to urban scientists (88%). No correlation was observed different qualified scientists, research and teaching faculty who published in open access journals.

#### PREFERENCE OF PUBLICATION IN OPEN ACCESS JOURNALS

**Table 5: Preference of publication in open access journals: Institution wise**

Institute	Yes	No	Total
IIHR	2 (3.30%)	58 (96.70%)	60
IISc	-	50 (100.00%)	50
JNCSAR	-	40 (100.00%)	40
UAS	3 (2.50%)	117 (97.50%)	120
NCBS	1 (3.30%)	29 (96.70%)	30
<b>Total</b>	<b>6 (2.00%)</b>	<b>294 (98.00%)</b>	<b>300</b>
<b>Mean</b>	<b>2 (1.80%)</b>	<b>58.8 (98.20%)</b>	
<b>S.D. +/-</b>	<b>1 (1.70%)</b>	<b>34.3 (1.70%)</b>	
<b>Chi Square</b>	<b>276.48</b>		
<b>Sig</b>	<b>0</b>		

The table 5 denotes that, Information on preference of publication by scientists in open access journals is presented in above table. Hundred per cent scientists from IISc and JNCSAR did not prefer to publish in open access. Scientists who preferred to publish were on par in NCBS (3.3%), IIHR (3.3%) and UAS (2.5%). Scientists who did not prefer to publish in open access journals were ranging from 96.7% in NCBS and IIHR to 100% from IISc and JNCSAR.

**Table 5 a: Preference of publication in open access journals: Subject wise**

Subject	Yes	No	Total
Agriculture	-	35 (100.00%)	35
Biochemistry	1 (1.80%)	56 (98.20%)	57
Biology	1 (2.10%)	46 (97.90%)	47
Biotechnology	1 (1.70%)	58 (98.30%)	59
Botany	1 (6.70%)	14 (93.30%)	15
Horticulture	-	17 (100.00%)	17
Microbiology	-	28 (100.00%)	28
Zoology	2 (4.80%)	40 (95.20%)	42
<b>Total</b>	<b>6 (2.00%)</b>	<b>294 (98.00%)</b>	<b>300</b>
<b>Mean</b>	<b>1.2 (2.10%)</b>	<b>36.8 (97.90%)</b>	
<b>S.D. +/-</b>	<b>0.4 (2.40%)</b>	<b>16.5 (2.40%)</b>	
<b>Chi Square</b>	<b>276.48</b>		
<b>Sig</b>	<b>0</b>		

From different subjects as shown in table 5a, highest percentage of scientists (6.7%) from botany preferred to publish in open access followed by 4.8% from zoology, 2.1% from biology and 1.7% from biotechnology. 100% scientists from agriculture, horticulture and microbiology did not prefer to publish in open access followed by 98.3% from biotechnology, 98.2% from biochemistry, 97.9% from biology, 95.2% from zoology and 93.3% from botany.

## PREFERENCE OF PUBLICATION IN COMMERCIAL JOURNALS

Table 6: Preference of publication in commercial journals

Institute	Yes	No	Total
IIHR	22 (36.70%)	38 (63.30%)	60
IISc	13 (26.00%)	37 (74.00%)	50
JNC SAR	15 (37.50%)	25 (62.50%)	40
UAS	34 (28.30%)	86 (71.70%)	120
NCBS	21 (70.00%)	9 (30.00%)	30
<b>Total</b>	<b>105 (35.00%)</b>	<b>195 (65.00%)</b>	<b>300</b>
<b>Mean</b>	<b>21 (39.70%)</b>	<b>39 (60.30%)</b>	
<b>S.D. +/-</b>	<b>8.2 (17.70%)</b>	<b>28.8 (17.70%)</b>	
Subject wise	Yes	No	Total
Agriculture	16 (45.70%)	19 (54.30%)	35
Biochemistry	23 (40.40%)	34 (59.60%)	57
Biology	6 (12.80%)	41 (87.20%)	47
Biotechnology	24 (40.70%)	35 (59.30%)	59
Botany	4 (26.70%)	11 (73.30%)	15
Horticulture	9 (52.90%)	8 (47.10%)	17
Microbiology	8 (28.60%)	20 (71.40%)	28
Zoology	15 (35.70%)	27 (64.30%)	42
<b>Total</b>	<b>105 (35.00%)</b>	<b>195 (65.00%)</b>	<b>300</b>
<b>Mean</b>	<b>13.1 (35.40%)</b>	<b>24.4 (64.60%)</b>	
<b>S.D. +/-</b>	<b>7.6 (12.50%)</b>	<b>11.9 (12.50%)</b>	
Chi Square	27		
Sig	0		

Table 6 shows information on preference of publication by scientists in commercial journals. Considerably highest number of scientists from NCBS (70%) preferred to publish in commercial journals followed by scientists of JNC SAR (37.5%), IIHR (36.7%), UAS (28.3%) and IISc (26%). Scientists who did not prefer to publish in commercial journals in various institutes were on par and were ranging from 62.5% in JNC SAR to 74% in IISc and NCBS scientists were considerably the least (30%).

Among the scientists from various life science subjects, the highest were horticulturists (52.9%) followed by agriculture scientists (45.7%), biotechnologists (40.7%), biochemists (40.4%), zoologists (35.7%), microbiologists (28.6%), botanists (26.7%) and biologists (12.8%) preferred to publish in commercial journals. Scientists who did not prefer to publish in commercial journals ranged from 87.2% biologists to 47.1% horticulturists. 73.3% botanists followed by 71.4% microbiologists, 64.3% zoologists, 59.6% biochemists, 59.3% biotechnologists and 54.3% agriculture scientists also preferred not to publish in commercial journals.

**Table 7: The spirit of OA is access to the readers at free of cost: Institutional wise**

Institute	Very Important	Important	Not very Important	Not at all important	Total
IIHR	37 (61.70%)	23 (38.30%)	-	-	60
IISc	38 (76.00%)	11 (22.00%)	1 (2.00%)	-	50
JNC SAR	20 (50.00%)	14 (35.00%)	6 (15.00%)	-	40
UAS	68 (56.70%)	50 (41.70%)	1 (0.80%)	1 (0.80%)	120
NCBS	11 (36.70%)	19 (63.30%)	-	-	30
Total	174 (58.00%)	117 (39.00%)	8 (2.70%)	1 (0.30%)	300
Mean	34.8 (56.20%)	23.4 (40.10%)	2.7 (3.60%)	1 (0.20%)	
S.D. +/-	21.8 (14.50%)	15.6 (15.00%)	2.9 (6.40%)		
Chi Square	287.067				
Sig	0.000				

The results indicated in table 7 that, IISc scientists (76%) felt the spirit of open access to provide free access to end users as very important followed by other scientists 61.7 percent from IIHR, 56.7 percent from UAS, 50% from JNC SAR and 36.7 percent from NCBS. 63.3 percent NCBS scientists felt that the spirit to provide free access is important followed by 41.7 percent scientists of UAS, 38.3 percent from IIHR, 35 percent from JNC SAR and 22 percent from IISc scientists. Only 3.6 percent scientists from various organization felt that this spirit of open access is not very important and only one scientist (0.8%) from UAS opined that this is not at all important.

**Table 7 a: The spirit of OA is access to the readers at free of cost: Subject wise**

Subject	Very Important	Important	Not very Important	Not at all important	Total
Agriculture	21 (60.00%)	14 (40.00%)	-	-	35
Biochemistry	33 (57.90%)	22 (38.60%)	2 (3.50%)	-	57
Biology	33 (70.20%)	14 (29.80%)	(0.00%)	-	47
Biotechnology	28 (47.50%)	30 (50.80%)	1 (1.70%)	-	59
Botany	9 (60.00%)	6 (40.00%)	-	-	15
Horticulture	10 (58.80%)	5 (29.40%)	1 (5.90%)	1 (5.90%)	17
Microbiology	19 (67.90%)	9 (32.10%)	-	-	28
Zoology	21 (50.00%)	17 (40.50%)	4 (9.50%)	-	42
Total	174 (58.00%)	117 (39.00%)	8 (2.70%)	1 (0.30%)	300
Mean	21.8 (59.00%)	14.6 (37.70%)	2 (2.60%)	1 (0.70%)	
S.D. +/-	9.3 (7.80%)	8.4 (7.10%)	1.4 (3.50%)	(2.10%)	
Chi Square	287.067				
Sig	0.000				

Data is presented in Table 4.53a shows that, among the scientists of various subjects, biologists (70.2%) felt that access at free of cost is very important followed by others 67.9 percent microbiologists, 60 percent botanists and agriculture scientists, 58.8 percent horticulturists, 57.9 percent biochemists, 50 percent zoologists and 47.5 percent biotechnologists. Scientists who felt that this spirit of open access is important were 50.8 percent biotechnologists followed by 40.5 percent zoologists, 40 percent agriculture scientists and botanists, 38.6 percent biochemists, 32.1 percent

microbiologists, 29.4 percent horticulturists and 29.8% biologists. Only 2.6 percent scientists felt that this spirit is not very important and only one scientist felt that this is not at all important (5.9% horticulturists).

#### Author Perceive wider readership due to free of cost

**Table 8: Authors Perceive wider readership due to free of cost: Institution wise**

Institute	Very Important	Important	Not very Important	Not at all important	Total
IIHR	13 (21.70%)	47 (78.30%)	-	-	60
IISc	14 (28.00%)	35 (70.00%)	1 (2.00%)	-	50
JNC SAR	4 (10.00%)	30 (75.00%)	5 (12.50%)	1 (2.50%)	40
UAS	21 (17.50%)	94 (78.30%)	4 (3.30%)	1 (0.80%)	120
NCBS	9 (30.00%)	21 (70.00%)	-	-	30
Total	61 (20.30%)	227 (75.70%)	10 (3.30%)	2 (0.70%)	300
Mean	12.2 (21.40%)	0 (74.30%)	0 (3.60%)	0 (0.70%)	
S.D. +/-	6.3 (8.10%)	0 (4.20%)	0 (5.20%)	0 (1.10%)	

The data shown in the table 8 discuss, as the open access journals are free of cost, 30% scientists from NCBS followed by other scientists 28 percent IISc, 21.7 percent from IIHR, 17.5 percent from UAS and 10 percent from JNC SAR felt that perceiving wider readership is very important. 78.3 percent UAS and IIHR scientists followed by 75 percent JNC SAR, 70 percent NCBS and IISc opined that wider readership is important as open access journal is free of cost. 12.5 percent JNC SAR scientists followed by 3.3 percent UAS scientists and 2 percent IISc opined that wider readership due to free cost of open access journals is not very important. Only two scientists one each from JNC SAR (2.5%) and UAS (0.8%) felt not at all important.

**Table 8 a. Authors Perceive wider readership due to free of cost: Subject wise**

Subject	Very Important	Important	Not very Important	Not at all important	Total
Agriculture	8 (22.90%)	27 (77.10%)	-	-	35
Biochemistry	13 (22.80%)	41 (71.90%)	3 (5.30%)	-	57
Biology	10 (21.30%)	36 (76.60%)	1 (2.10%)	-	47
Biotechnology	8 (13.60%)	50 (84.70%)	-	1 (1.70%)	59
Botany	5 (33.30%)	10 (66.70%)	-	(0.00%)	15
Horticulture	2 (11.80%)	13 (76.50%)	1 (5.90%)	1 (5.90%)	17
Microbiology	4 (14.30%)	24 (85.70%)	-	-	28
Zoology	11 (26.20%)	26 (61.90%)	5 (11.90%)	-	42
Total	61 (20.30%)	27 (77.10%)	10 (3.30%)	2 (0.70%)	300
Mean	7.6 (20.80%)	41 (71.90%)	2.5 (3.10%)	1 (0.90%)	
S.D. +/-	3.7 (7.30%)	36 (76.60%)	1.9 (4.30%)	0 (2.10%)	
Chi Square	438.053				
Sig	0.000				

Table 8a shows that, 33.3 percent botanists followed by 26.2 percent zoologists, 22.9 percent agriculture scientists, 22.8 percent biochemists, 21.3 percent biologists, 14.3 percent microbiologists, 13.6 percent biotechnologists and 11.8 percent horticulturists opined that due to free cost of open access, wider readership is very important. Among the scientist who felt that wider readership is important due to free access of open journals, microbiologists were considerably



highest (85.7%) followed by 84.7 percent biotechnologists, 77.1 percent agriculture scientists, 76.6 percent biologists, 76.5 percent horticulturists, 71.9 percent biochemists, 66.7 percent botanists and 61.9 percent zoologists. On an average, only 3.1 percent scientists felt wider readership is not very important and 0.9 percent scientists felt not at all important.

### BRAND VALUE IS IMPORTANT THAN FREE OR SUBSCRIBED

**Table 9: Brand value is important than free or subscribed: Institution wise**

Institute	Very Important	Important	Not very Important	Not at all important	Total
IIHR	7 (11.70%)	42 (70.00%)	11 (18.30%)	-	60
IISc	2 (4.00%)	27 (54.00%)	21 (42.00%)	-	50
JNC SAR	2 (5.00%)	29 (72.50%)	9 (22.50%)	-	40
UAS	5 (4.20%)	95 (79.20%)	19 (15.80%)	1 (0.80%)	120
NCBS	3 (10.00%)	22 (73.30%)	5 (16.70%)	(0.00%)	30
Total	19 (6.30%)	215 (71.70%)	65 (21.70%)	1 (0.30%)	300
Mean	3.8 (7.00%)	0 (69.80%)	0 (23.10%)	0 (0.20%)	
S.D. +/-	2.2 (3.60%)	0 (9.40%)	0 (10.90%)	0 (0.40%)	
Chi Square	377.493				
Sig	0.000				
MEF	75				

From the table 9 we shall find that, among the scientists who felt that brand value is very important than free or subscribed, IIHR scientists were first (11.7%) followed by 10 percent NCBS, 5 percent JNC SAR, 4.2 percent UAS and 4.0 percent IISc. Scientists who felt brand value is very important from various subjects were 8.5 percent biologists, 7.1 percent zoologists and microbiologists, 7.0 percent biochemists, 6.7 percent botanists, 5.7 percent agriculture scientists and 5.1 percent biotechnologists. 79.2 percent scientists from UAS were considerably highest to feel that brand value is important followed by 73.3 percent from NCBS, 72.5 percent from JNC SAR, 70 percent from IIHR and 54 percent from IISc.

**Table 9 a. Brand value is important than free or subscribed subject wise**

Subject	Very Important	Important	Not very Important	Not at all important	Total
Agriculture	2 (5.70%)	23 (65.70%)	10 (28.60%)	(0.00%)	35
Biochemistry	4 (7.00%)	42 (73.70%)	11 (19.30%)	(0.00%)	57
Biology	4 (8.50%)	35 (74.50%)	8 (17.00%)	(0.00%)	47
Biotechnology	3 (5.10%)	47 (79.70%)	9 (15.30%)	(0.00%)	59
Botany	1 (6.70%)	11 (73.30%)	3 (20.00%)	(0.00%)	15
Horticulture	(0.00%)	7 (41.20%)	9 (52.90%)	1 (5.90%)	17
Microbiology	2 (7.10%)	20 (71.40%)	6 (21.40%)	(0.00%)	28
Zoology	3 (7.10%)	30 (71.40%)	9 (21.40%)	(0.00%)	42
Total	19 (6.30%)	215 (71.70%)	65 (21.70%)	1 (0.30%)	300
Mean	2.7 (5.90%)	26.9 (68.90%)	8.1 (24.50%)	1 (0.70%)	
S.D. +/-	1.1 (2.60%)	14.2 (11.80%)	2.5 (12.10%)	(2.10%)	
Chi Square	377.493				
Sig	0.000				
MEF	75				

Data in table 9a shows that, among the various subjects, 79.7 percent scientists from biotechnology followed by 74.5 percent biologists, 73.7 percent biochemists, 73.3 percent botanists, 71.4 percent from zoology and microbiology and lastly 41.2 percent horticulturists to opine that brand value is important than free or subscribed.

Among the scientists from various institutes, 42 percent IISc scientists followed by 22.5 percent from JNC SAR, 18.3 percent from IIHR, 16.7 percent from NCBS and 15.8 percent UAS felt that brand value is not very important. 52.9 percent horticulture scientists followed by 28.6 percent agriculture scientists, 21.4 percent zoologists and microbiologists, 20 percent botanists, 19.3 percent biochemists, 17 percent biologists and 15.3 percent biotechnologists felt that brand value is not very important than free or subscribed.

From various institutes, one scientist from UAS, on an average, 0.2 percent scientists and one scientist from horticulture subject, on an average, 0.7 percent scientists felt that brand value is not at all important.

## HIGH IMPACT FACTOR

**Table 10: High Impact Factor: Institution wise**

Institute	Very Important	Important	Not very Important	Not at all important	Total
IIHR	7 (11.70%)	47 (78.30%)	6 (10.00%)	-	60
IISc	15 (30.00%)	32 (64.00%)	3 (6.00%)	-	50
JNC SAR	1 (2.50%)	34 (85.00%)	5 (12.50%)	-	40
UAS	16 (13.30%)	101 (84.20%)	2 (1.70%)	1 (0.80%)	120
NCBS	2 (6.70%)	26 (86.70%)	2 (6.70%)	-	30
Total	41 (13.70%)	240 (80.00%)	18 (6.00%)	1 (0.30%)	300
Mean	8.2 (12.80%)	0 (79.60%)	0 (7.40%)	0 (0.20%)	
S.D. +/-	7 (10.50%)	0 (9.30%)	0 (4.10%)	0 (0.40%)	
Chi Square	494.747				
Sig	0.000				
MEF	75				

Data in the table 10 shows that, 30 percent scientists from IISc followed by 13.3 percent UAS, 11.7 percent IIHR, 6.7 percent NCBS and 2.5 percent JNC SAR scientists felt that high impact factor of open access is very important for publication. 86.7 percent NCBS scientists followed by 85 percent JNC SAR, 84.2 percent UAS, 78.3 percent IIHR and 64 percent IISc scientist felt that high impact factor is important. 12.5 percent scientists from JNC SAR followed by 10 percent IIHR, 6.7 percent NCBS, 6 percent IISc and 1.7 percent UAS scientists opined that high impact factor is not very important. 0.2 percent scientists on an average opined that high impact factor is not at all important.

**Table 10 a. High Impact Factor: Subject wise**

Subject	Very Important	Important	Not very Important	Not at all important	Total
Agriculture	7 (20.00%)	28 (80.00%)	(0.00%)	(0.00%)	35
Biochemistry	7 (12.30%)	42 (73.70%)	8 (14.00%)	(0.00%)	57
Biology	6 (12.80%)	40 (85.10%)	1 (2.10%)	(0.00%)	47
Biotechnology	7 (11.90%)	51 (86.40%)	1 (1.70%)	(0.00%)	59
Botany	3 (20.00%)	12 (80.00%)	(0.00%)	(0.00%)	15
Horticulture	3 (17.60%)	12 (70.60%)	1 (5.90%)	1 (5.90%)	17
Microbiology	1 (3.60%)	27 (96.40%)	(0.00%)	(0.00%)	28
Zoology	7 (16.70%)	28 (66.70%)	7 (16.70%)	(0.00%)	42
Total	41 (13.70%)	240 (80.00%)	18 (6.00%)	1 (0.30%)	300
Mean	5.1 (14.30%)	30 (79.90%)	3.6 (5.10%)	1 (0.70%)	
S.D. +/-	2.4 (5.50%)	13.9 (9.60%)	3.6 (6.70%)	(2.10%)	
Chi Square	494.747				
Sig	0.000				
MEF	75				

Table 10a shows that, among the various subjects 20 percent scientists from agriculture and botany followed by 17.6 percent horticulturists, 16.7 percent zoologists, 12.8 percent biologists, 12.3 percent biochemists, 11.9 percent biotechnologists and 3.6 percent microbiologists felt that high impact factor of open access is very important. 96.4 percent microbiologists followed by 86.4 percent biotechnologists, 85.1 percent biologists, 80 percent agriculture and botany scientists, 73.7 percent biochemists, 70.6 percent horticulturists and 66.7 percent zoologists opined that high impact factor is important for publication in open access. Eight scientists (14%) from biochemistry followed by 7 zoologists (16.7%), one each from biologists (2.1%), biotechnologists (1.7%) and horticulture (5.9%) had opinion that high impact factor is not very important for publication in open access. One from horticulture (5.9%) and on an average 0.7 percent scientists from various subjects had the opinion that high impact factor is not at all important for publication in open access.

## DISCUSSION

Based on the data analysis there was a significant difference found between scientists who preferred and did not prefer to publish in commercial journals. 65% scientists did not prefer to publish in commercial journals and only 35% scientists preferred to publish in commercial journals. 98% Scientists did not prefer to publish in open access and significantly higher compared to those 2.0% scientists who preferred to publish in open access. This could be attributed to the reason that most of the commercial journals to increase circulation, ask for subscription, which is too high for any individual scientists. Open access journals are new to the country and scientists have no clarity about the integrity of open access journals. Hence, more than 60% scientists were not ready to publish in both. As some scientists had preferred to publish in open access and there is a significant difference between the categories of scientists and their opinions. Similar opinions were published by Schroter, S., & Tite, L (2006) too.

## CONCLUSION

1. Scientists have always thought of publishing their work, which would reach wider audience irrespective of any hindrances
2. Of course, there is always an element of personal satisfaction by publishing in places where more users can access it for their work
3. Citation and brand value are always deciding factors for any scientists to publish their work irrespective of commercial or OA journals
4. India and its life science community, in comparison with the world rate of understanding on OA, still below par
5. More awareness needs to be created on available funding bodies, which also have a special concern

for OA publishing.

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