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Biobibliometric portrait of V L Kalyane, a stellar biobibliometrician

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V L Kalyane is one of the pioneers of biobibliometric studies in India. This study presents scientometric analysis of 120 papers of Kalyane published during 1973-2009 with 338 co-authors. He has to his credit, 20 single-authored and 100 multi-authored papers. His studies covered 17 renowned scientists, 9 Nobel laureates and one philosopher. His highest productivity is about 7 papers per year during 1993-1997 when his age was between 39-43 years and second highest productivity is about 6 papers per year during 2003-2007 when his age was between 49-53 years. The highest productivity coefficient is 1.0 during 1978-81, 1996, 1999-2003 and 2005-2009. Kalyane had 50 collaborators of which Vijay Kumar, E R Prakasan, B S Kademani, Anil Sagar and Anil Kumar were the most active or core collaborators. He used 65 communication channels to disseminate the results of his research of which *Malaysian Journal of Library and Information Sciences* (11 papers) tops of the list followed by *Annals of Library and Information Studies* (7 papers), *Scientometrics* (6 papers), *SRELS Journal of Information Management* (6 papers) and http:/eprints.rclis.org/archive/(open access archives) (6 papers). The publication concentration is 30.77 and publication density 1.85. The most frequently used keywords are scientometric portrait (25) followed by Nobel laureates (10).

Keywords: Bibliometrics; Biobibliometrics; Scientometrics; Information scientists; Information generators; Library science; Biologists; V L Kalyane; Bhabha Atomic Research Centre; Nobel laureates; Scientists

Introduction

Biobibliometric analysis on an individual scientist indicates 'a unit of information generation'[1] which may prove to be of great value to the concerned scientist, and is likely to increase the visibility of a good scientist, who is otherwise less known[2]. Biobibliometric study is the study of an individual author or a scientist or a set of authors/scientists with contributions generated throughout his/her life[2,3]. This kind of study is called 'biographical bibliometrics', 'scientometric portrait' or 'biobibliometrics'.

A search through bibliometric literature reveals that most of such studies have been carried out on individual in the fields - sciences, literature, medical sciences, arts (actress), and so on. There seems to be only one study on a film actress[4]. It may also be noted that a large number of studies in this area have been conducted by V L Kalyane and B S Kademani jointly[5-39]. Their biobibliometric studies have covered 17 renowned scientists: R Chidambaram, P K Iyengar, K S Krishnan, Vikram Ambalal Sarabhai, M S Swaminathan, P M Bhargava , L L Narayana, C S Venkata Ram, U R Murty, Vinodini Reddy, T S West, K Ramah, Tibor Braun, C R Bhatia, Ranjit Kumar Mitra, Ram Gopal Rastogi, H J Bhabha**;** 9 Nobel laureates: S Chandrasekhar, Dorothy Crowfoot Hodgkin, C V Raman, Harold W Kroto, A H Zewail, Barbara McClintock, Pierre-Gilles. de Gennes, Wolfgang Ketterle, H Hartwell; and one philosopher: Anil Gupta. The first biobibliometric study on a film actress - Suchitra Sen, was carried out by Koley and Sen[4-39]. V L Kalyane can be considered as one of the pioneers and a prolific Indian biobibliometrician. To

our knowledge this is the first biobibliometric study of a biobibliometrician.

Biographical sketch

Venkatrao Lakshmanrao Kalyane[40] (V L Kalyane) was born on 1st June 1955 at Talwada (Maratha) in Bidar district of Karnataka state, India and started his research career in 1973. His research interests were mainly in scientometrics, bibliometrics, biobibliometrics, and other areas of library and information science.

Kalyane completed bachelors and masters degrees in science as well as in library and information science. He also studied applied botany, journalism, mass communication, and education. A glimpse of his academic career is presented below:

(i) B.Sc., B.Lib.Sc, and M.Sc. (Modern Biology) from Marathwada University, Aurangabad

(ii) P. G. Diploma in Applied Botany (DIIT), Equivalent to M. Phil., Indian Institute of Technology, Kharagpur

(iii) B.Ed. and M.Ed., Annamalai University, Annamalainagar

(iv) P. G. Diploma in Journalism and Mass Communication. Institute for Social Sciences and Research, Vellore

(v) P. G. Diploma in Higher Education. Indira Gandhi National Open University, New Delhi

(vi) Master of Library and Information Science (MLISc), Indira Gandhi National Open University, New Delhi.

Professional activities

Kalyane was closely associated with Scientific Information Resource Division, Knowledge Management Group, Bhabha Atomic Research Centre, Trombay, Mumbai as a Scientific Officer as well as Publication Officer from September, 1993. Earlier, he was also engaged at different institutes and organizations such as Sugarcane Breeding Institute, Coimbatore as field/farm/lab technician (19 April 1983 to 11 August 1989); National Research Centre for Sorghum, Rajendranagar Hyderabad as Technical Secretary to the Director (14 August 1989 to 11 June 1990); Directorate of Oilseeds Research, Rajendranagar, Hyderabad as Junior Scientific Officer (12 June 1990 to 30 August 1993).

From September 1993 onwards, he was mostly engaged in bringing out *BARC Newsletter* (Monthly) and *Nuclear News Digest* (Bi-monthly, Monthly). He also prepared technical reports (external, internal, divisional, progress, restricted or confidential), books, booklets, folders, pamphlets, etc. of Bhabha Atomic Research Centre, Mumbai as well as research projects. It is notable that he was involved in as many as eleven research projects with special reference to jute, sugarcane and sorghum for several institutions and organizations such as Jute Agricultural Research Institute, Barrackpore; Sugarcane Breeding Institute, Coimbatore, and National Research Centre for Sorghum, Rajendranagar, Hyderabad. Kalyane has been the compiler, editor, proofreader and publisher of as many as twenty-nine publications [Appendix 1].

He started a self-financed voluntary non-governmental organization (NGO) called Turning Point Centre in 1993 to promote popularization of science for school children; to pursue research in information science, scientometrics, and sociology of science; etc. He gave importance to community services by creating awareness about special days such as World Anti-Drugs Day (26 June 1996), World Population Day (11 July 1996), Tree Plantation Day (14 July 1996), International Youth Day (9 August 1996), Anti-Drugs Rally (2 October 1996) and International Day for Biological Diversity (29 December 1998).

To celebrate centenary of the discovery of natural radioactivity in thorium and discovery of polonium and radium, a series of lectures was delivered by him during 1998 in schools, YWCA, Indian Women Scientists' Association, youth clubs, social organizations, etc.

Membership

Kalyane was an Honorary Member of the Advisory Editorial Board of *Indian Journal of Information, Library & Society* and Chief Editor, *BOSLA Infoline*, the newsletter of Bombay Science Librarians' Association.

As far as the membership of associations are concerned, he was life member of United Writers' Association (Chennai); Science Writers' Association (New Delhi); Indian Library Association (New

Delhi); Society for Information Science (New Delhi); Bombay Science Librarians' Association (Mumbai); Hindi Vigyan Sahitya Parishad, Bhabha Atomic Research Centre, (Mumbai). Besides, he has been a referee for many journals.

Kalyane – the essayist

Kalyane wrote essays and received awards for some of them[40]. He wrote an essay on "*Growing Energy Shortages in the Developing Countries in Eighties: Problems and Prospects"* for which he received the NIF-Sir Shri Ram 1980 International Essay Competition Award from the Vice President of India on 30th April 1981. Smt. Indira Gandhi, then Prime Minister of India invited all award winners including Kalyane to a meeting for discussion on Energy, at her residence.

He was also awarded Certificate of Merit on 30th November 1988 on *Pandit Jawaharlal Nehru Birth Centenary Celebration,* Institute Level Essay Writing Competition at Sugarcane Breeding Institute, Coimbatore.

Scope

Kalyane's 120 works are being studied. His works are available in different forms of documents such as journal articles, technical reports, conference papers, festschrift at national and international levels.

Objectives of the study

- To examine year-wise distribution of authorship pattern;
- To find the position of Kalyane as main and co-author;
- To study correlation coefficient between main author and co-author;
- To show publication pattern, productivity life (age) and papers in communication channel.

Methodology

The authors could not obtain an up-to-date and complete list of V L Kalyane's publications from a single source. A chronological list of his publications during 1973-2004 was collected from the CV of V L Kalyane[40, 41]. Some other publications published in several channels of communication from 2004-2009 were downloaded from Google scholar and other sources through internet and compiled them in a single list chronologically. All data were scanned from online sources. The data were recorded in MS-Word and MS-Excel for generating various indicators. For authorship count, full credit was given to each author regardless of his position as a main author or a co-author.

Results and discussions

Author productivity

Kalyane published 120 papers during 1973-2009. He has to his credit 20 single-authored and 100 multi-authored papers. Out of multi-authored papers, he has produced 39 (32.50%) as 1st author, 41 (34.16%) as 2nd author, 7 (5.83%) each as 3rd and 4th author, 2 (1.67%) each as 5th, 6th and 8th author. He has published 59 (49.17%) papers as main author (MA) and 61 (50.83%) papers as co-author (CA). He published six or more papers as first author in 1994, 1995, and 1999 at the age of 22, 23 and 26 respectively. Table 1 shows that his first paper was published in 1973 when he was 19. He had no publications during 1974-76, 1979, 1983-84, 1988 and 2007. The peak productivity was in 2004 with 14 papers at the age of 50, when his productivity age (PA) was 32. He produced 9 papers each in 1994 (PA 22 years), 1996 (PA 24 years) and 2003 (PA 31 years); 8 papers each in 1995 and 2001; 7 papers in 1998 (age 44, PA 26 years); 6 papers in 2002 (age 48, PA 30 years); and 5 papers each in 1993 and 1997.

In the first quinquennium of his active career (Table 2), his productivity was 0.4 papers per year which gradually increased up to fifth quinquennium. In the fifth quinquennium 1993-1997 of his life (age 39-43) his productivity jumped to 7.2 and peaked. In the next quinquennium the productivity declined and dropped to 4.8. In the seventh quinquennium, it slightly went up to 6 and in the two years of eighth quinquennium came down to 4. In the fifth quinquennium, when productivity peaked, Kalyane was the primary author in as many as 25 papers.

Kalyane's maximum single-authored papers were 17 and produced during the period 1982-1995. Most of the collaboration was found during 1991-2004. During 1978-81, 1996, 1999-2003 and 2005-2009 all his papers were collaborative papers and hence,

Table 1—Year- and age-wise publication productivity of V L Kalyane

Year	Position in byline of authors								Pubn.		TP	CT	DC	CA	PPA
	Single Auth.	1st Auth.	2nd Auth.	3rd Auth.	4th Auth.	5th Auth.	6th Auth.	8th Auth.	MA	CA					
1973	1								1		1	1	0.00	19	1
1977	1								1		1	2	0.00	23	5
1978		1	1						1	1	2	4	1.00	24	6
1980			1							1	1	5	1.00	26	8
1981		1							1		1	6	1.00	27	9
1982	1	1							2		2	8	0.50	28	10
1985	1			1					1	1	2	10	0.50	31	13
1986	2								2		2	12	0.00	32	14
1987	1								1		1	13	0.00	33	15
1989	1								1		1	14	0.00	35	17
1990	1								1		1	15	0.00	36	18
1991	1	2	1						3	1	4	19	0.50	37	19
1992	1	2							3		3	22	0.66	38	20
1993	1	4							5		5	27	0.80	39	21
1994	1	5	3						6	3	9	36	0.88	40	22
1995	2	5	1						7	1	8	44	0.75	41	23
1996		3	6						3	6	9	53	1.00	42	24
1997	1	3	1						4	1	5	58	0.80	43	25
1998	3	3	1						6	1	7	65	0.57	44	26
1999		1	1						1	1	2	67	1.00	45	27
2000			1							1	1	68	1.00	46	28
2001		3	4	1					3	5	8	76	1.00	47	29
2002		2	4						2	4	6	82	1.00	48	30
2003		2	3		1	2	1		2	7	9	91	1.00	49	31
2004	1	1	7		3		1	1	2	12	14	105	0.92	50	32
2005			1	2				1		4	4	109	1.00	51	33
2006			1	1	1					3	3	112	1.00	52	34
2008			2	1	1					4	4	116	1.00	54	35
2009			2	1	1					4	4	120	1.00	55	36
Total	20	39	41	7	7	2	2	2	59	61	120		0.51		
%	16.67	32.50	34.16	5.83	5.83	1.67	1.67	1.67	49.17	50.83					
CP	16.67	49.17	83.33	89.16	94.99	96.66	98.33	100.00							

Auth. – Author, CA= Co-author, CAG= Chronological age, CP = Cumulative %, CT=Cumulative total. DC = Degree of collaboration=MAP/TP, MA= Main author, MAP = Multiple authorship papers, PPA = Publication productivity age, Pubn. – Publication, TP = Total number of papers.

collaboration coefficient was one. He published single-authored papers during 1973, 1977 and 1986-90. The 50 percentile productivity life was 26 while chronological age was 44. The entire productive life of the scientist spans 36 years. The overall productivity coefficient is 0.51 (Table 1).

Authorship pattern

Table 3 represents authorship pattern. The author contributed 20 papers without any collaboration during his productive career of 36 years. The rest 100 papers are produced in collaboration. Out of them, 48 were two-authored, 20 three-authored, 9 five-

Table 2—Quinquennium-wise-productivity of Kalyane

Quinquennium	Age (years)	No. of Publications	Productivity per year	Percentage
1973-1977	19-23	02	0.4	1.67
1978-1982	24-28	06	1.2	5.00
1983-1987	29-33	05	1.0	4.16
1988-1992	34-38	09	1.8	7.50
1993-1997	39-43	36	7.2	30.00
1998-2002	44-48	24	4.8	20.00
2003-2007	49-53	30	6.0	25.00
2008-2009	54-55	08	4.0	6.76
Total		120		100.00

Table 3—Authorship pattern

Authorship	Single	Two	Three	Four	Five	Six	Seven	Nine	Total
Non-collaborative	20	-	-	-	-	-			20
Collaborative	-	48	20	15	09	03	03	02	100

Table 4—Time span of authorship pattern

No. of authors	Single auth.	Two auth.	Three auth.	Four auth.	Five auth.	Six auth.	Seven auth.	Nine auth
No. of papers	20	48	20	15	09	03	03	02
Time span	1973-2004	1978-2004	1985-2009	2001-2009	2003-2009	1983-2004	2003-04	2004-05
Time span in years	32	27	25	09	07	22	02	02

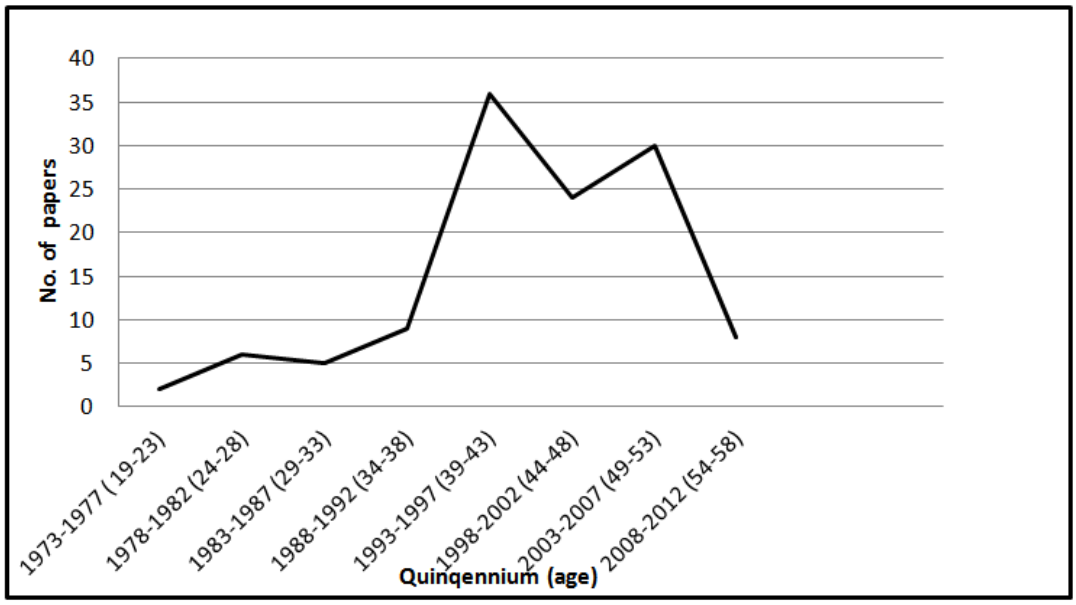

Fig. 1—Publication productivity of V L Kalyane as per age

authored, 3 each six-and seven-authored and only two was ninth-authored.

Table 4 presents the authorship pattern with the time span of collaboration. Two-author collaboration has resulted in the largest number of papers, i.e. 48 with the time span of 27 years. Three-authored papers totaling 20 was published in a time span of 25 years. It is surprising to note that 15 four-authored papers were published just in a time span of 9 years, whereas 3 six-authored papers were published in a long time span of 22 years.

Authorship status in byline of authors

Table 5 represents Kalyane's position in the byline of authors in his collaborative papers. He appeared as first author only in 39 cases. That means that he had generously given the credit of first authorship to his numerous collaborators. He occupied second position in as many as 41 papers, third and fourth position in 7 papers each, and fifth, sixth and eighth position in two papers each.

Table 5 shows that Kalyane was the first author in 34 two-authored papers, in 3 three-authored papers, in 2 six to nine authored papers. Thus, out of the 100 papers with collaborators, he is the first author in 39 papers which indicates his leadership in the domain of his subject.

Collaboration in research team

Kalyane collaborated with 50 researchers till 2009.

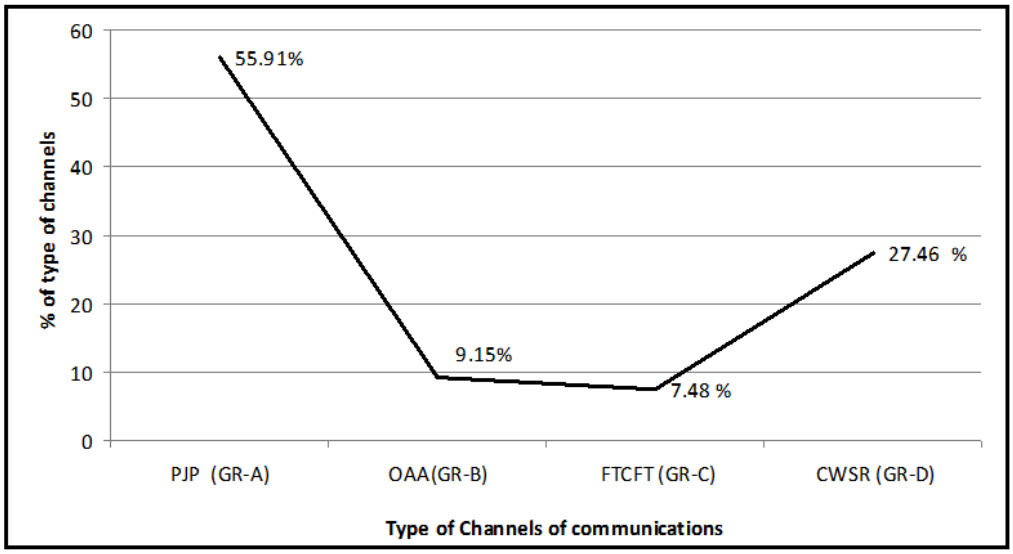

Fig. 2—Percentage of papers published in various types of publications

PJP= Print Journal, OAA = Open Access Archives, FTCFT= Festschrift, CWSR= Conferences, workshops, seminars, reports, GR=Group. Publication concentration = Percentage of number of source channels having 50% publications and total number of channels used [i.e. (20/65) x %]. Publication density=Number of publications per channels [i.e. 120/65].

Table 5—Position of Kalyane in the byline of authors

Authorship patterns	Position in the byline of authors							Total
	1st position	2nd position	3rd position	4th position	5th position	6th position	8th position	
Two-authored	34	14	-	-	-	-	-	48
Three-authored	03	15	02	-	-	-	-	20
Four-authored	-	10	04	01	-	-	-	15
Five-authored	-	01	01	06	01	-	-	09
Six-authored	02	01	-	-	-	-	-	03
Seven-authored	-	-	-	-	01	02	-	03
Nine--authored	-	-	-	-	-	-	02	02
Total	39	41	07	07	02	02	02	100

Table 6—V L Kalyane and his collaborators

Serial No	Authors	Positions in byline of authors																	Papers			Period	
		Single	Two		Three			Four				Five					Six to Nine		Main author	Co-authors	Total authors	FYP	LYP
			I	I I	I	I I	III	I	I I	III	IV	I	II	III	IV	V	I	C A					
1	Kalyane, V L	20	34	14	3	15	2	-	10	4	1	-	1	1	6	1	2	6	59	61	120	1973	2009
2	Kumar, Vijai						11			5	9			1		4	1	7	1	37	38	2000	2009
3	Prakasan, E R		2		1	1		2	2	5	1	4		1			4	4	13	14	27	2001	2009
4	Kademani B S		5	3	10			1						3			1	-	17	6	23	1994	2005
5	Sagar, Anil							1	1			1	4				-	8	2	13	15	2003	2009
6	Kumar, Anil		1					1						3	1			8	2	12	14	2003	2009
7	Mohan, Lalit										1							8		9	9	2003	2005
8	Swarna, T				2			6	1										8	1	9	2001	2008
9	Kalyane S V			7			1													8	8	1991	1996
10	Sen B K			5			1													6	6	1995	2004
11	Kadam, S N			5																5	5	1998	2002
12	Deokattey. S							2				1							3		3	2001	2003
13	Devarai,R *S*		1	2															1	2	3	1994	1995
14	Kademani A B						3													3	3	1994	1996
15	Munnolli, S S		1	1			1												1	2	3	1994	2003
16	Mallikarjun,											1	2						1	2	3	2003	2004
20	Jange, Suresh						1									2				3	3	1999	2004
21	Koganuramath M M											2	1						2	1	3	2003	2004
17	Chatterji A K			2																2	2	1978	1981
18	Gaddagimath, R B		1	1															1	1	2	1991	1991
19	Gaderao, C R																			2	2	2004	2005
22	Kundu, B C		1	1															1	1	2	1978	1982
23	Chand, Phool										2									2	2	2001	2001
24	Samanta, R K			2																2	2	1993	1995
25	Singh, Sanjay K																	2		2	2	2003	2004
26	Surwase, Ganesh																	2		2	2	2004	2005
27	Upadhye R P							1										1	1	1	2	2003	2004
28	Vidyasagar M R			2																2	2	1992	1995
29-51	Others with one authorship each		2	3	4	4	1	1	1	2			1		2	1		1	7	16	23	-	-
	Total (1-51)	20	48	48	20	20	21	15	15	16	14	9	9	9	9	8	8	47	120	218	338		

He worked with four distinct groups in his productive career. The first group of active collaborators of Kalyane includes Vijay Kumar, E R Prakasan, B S Kademani, Anil Sagar and Anil Kumar. This group produced largest number of papers. Kalyane produced as many as 38 papers in collaboration with Vijay Kumar, the head of the Division. Vijay Kumar had one paper as main author and 37 papers as co-author during 2000-2009. E R Prakasan, second ranked collaborator, published 27 papers in collaboration with Kalyane, out of which he was the main author in 13 papers and co-author in 14 papers. The third ranked collaborator, B S Kademani, had 23 papers. Among them 17 papers as main author and 6 papers as co-author during 1994-2005. The second group of five collaborators had papers in the range of five to

Table 7--Distribution of publications

Sl. no.	Channels of communication	Country	Papers	%	CT %	Period FYP	Period PYP
Group A	**Print journals (55.91%)**						
1	*Malaysian Journal of Library and Information Sciences*	Malaysia	11	9.19	9.19	1996	2009
2	*Annals of Library and Information Studies (Annals of Library Science and Documentation)*	India	07	5.85		1991	2008
3	*Scientometrics*		06	5.01		1995	2009
4	*SRELS Journal of Information Management (Library Science with a slant to Documentation and Information Studies)*	India	06	5.01	25.06	1993	2002
5	*Indian Journal of Information, Library and Society*	India	04	3.34		1994	1996
6	Journal of Information Sciences		04	3.34	31.74	1993	1996
7	*Dentistry Today*	India	03	2.51		1997	1997
8	*Indepth - Navi Mumbai*	India	03	2.51		1998	1998
9	*KELPRO Bulletin*	India	03	2.51		1997	2001
10	*ILA Bulletin*	India	02	1.67		1995	2001
11	*International Journal of Nuclear Knowledge Management*	Switzerland	02	1.67		2004	2008
12	*JISSI: The International Journal of Scientometrics and Informetrics*	India	02	1.67		1996	1996
13	*Biology Education*	India	02	1.67	45.95	1991	1992
14	*Bharatiya Sugar*	India	01	0.83		1993	1993
15	*History of Agriculture*	India	01	0.83		1991	1991
16	*Communicator*	India	01	0.83		1993	1993
17	*Indian Journal of Genetics & Plant Breeding*	India	01	0.83		1981	1981
18	*International Information, Communication and Education*	India	01	0.83		1994	1994
19	*International Journal of Tropical Agriculture*	India	01	0.83		1986	1986
20	*JOM: A publication of the Minerals, Metals & Materials Society*	USA	01	0.83		2003	2003
21	*Lucknow Librarian*	India	01	0.83		1995	1995
22	*Science Courier*	India	01	0.83		1993	1993
23	*Tharamathi*	India	01	0.83		1987	1987
24	*Udaya*	India	01	0.83		1973	1973
25	*University News*	India	01	0.83	55.91	1992	1992
Group B	**Open access Archives (9.15%)**						
26	http:/eprints.rclis.org/archive/	Web	06	5.00	60.91	2004	2006
27	http://arxiv.org/abs/physics/...(LANLe-print)	Web	01	0.83		2003	2003
28	http://eprints.rclis.org/8383/1/Text.pdf	Web	01	0.83		2009	2009
29	http://www.inflibnet.ac.in/caliber2009PDF/49.pdf	Web	01	0.83		2009	2009
30	http:/tibor-braun.fw.hu(Open access Archieves)	Web	01	0.83		2002	2002
31	http://cogprints.org/4272/1/Final-21-04-05_new.pdf	Web	01	0.83	65.06	2005	2005
Group C	**Festschrift (7.48%)**						
32	*New Vistas in Library and Information Science…*	India	02	1.67	66.73	1995	1995
33	*Dr. P.S.G. Kumar Festschrift, Library and Information Profession in India: Reflections and Redemptions.*	India	01	0.83		2004	2004
34	*Knowledge Societies and Libraries: Papers in Honour of Prof. A.A.N. Raju*	India	01	0.83		2004	2004

Table 7--Distribution of publications

Contd—

Sl. no.	Channels of communication	Country	Papers	%	CT %	Period FYP	Period PYP
35	*Library and Information Studies in Retrospect and Prospect:Essays in honour of Prof. D. R. Kalia*	India	01	0.83		2002	2002
36	*New Horizons in Library and Information Science: Dr. Velaga Venkatappaiah Festschrif*	India	01	0.83		1994	1994
37	*Perspectives on Knowledge Management*	USA	01	0.83		2008	2008
38	*Public Library Systems: Services and Networking,*	India	01	0.83		1997	1997
39	*INSPEC database analysis for knowledge management records*	India	01	0.83	72.54	2006	2006
Group D	**Conferences, workshops, seminars, reports, etc (27.46%)**						
40	*Proceedings of BOSLA One Day Seminar on Resource Management, Deonar, Mumbai*	India	03	2.51	75.05	2003	2003
41	*National Seminar on Progress in Bibliometric Indicators,* Annamalai University.	India	02	1.67		1996	1996
42	*LIBCON-94, National Conference on Bibliometrics, Informetrics and Scientometrics, Bangalore*	India	02	1.67		1994	1994
43	*Proceedings of 69th Indian Science Congress, Part III, Botany.*	India	02	1.67		1982	1982
44	*Workshop on Productivity and Impact of Research: Scientometric/Bibliometric Measures and Influencing Factors Hyderabad.*	India	02	1.67		1991	1991
45	*XXIII IASLIC National Conference on Content Management in India in Digital Environment, Thiruvananthapuram,*	India	02	1.67	83.4	2001	2001
46	*International Workshop on Webometrics, Informetrics and Scientometrics, New Delhi…*	India	01	0.83		2004	2004
47	*49th FID Conference and Congress (INSDOC, New Delhi)*	India	01	0.83		1998	1998
48	*International Conference on Nuclear Knowledge Management: Strategies, Saclay, France.*	France	01	0.83		2004	2004
49	*International Workshop on " History of Science : Implications for Science Education" , Mumbai*	India	01	0.83		1999	1999
50	*XXIV All India Conference of IASLIC*	India	01	0.83		2003	2003
51	*National Symposium on Plant and Animal Genetic Resources, New Delhi.*	India	01	0.83		1978	1978
52	*MLAI-98 National Convention of Medical Library Association of India*	India	01	0.83		1998	1998
53	*National Conference on "Putting Knowledge to Work: Best Practices in Librarianship"*	India	01	0.83		2009	2009
54	*National Symposium on Biological Transformation of Organic Phosphorus and Other Nutrients in Soil, Technical,*	India	01	0.83		1980	1980
55	*Proc. of the 5th State Level Conference on Qualitative Services in Academic Libraries*	India	01	0.83		2005	2005
56	*Proceedings of 65th Indian Science Congress, Part III, Botany*	India	01	0.83		1978	1978
57	*Proceedings of 72nd Indian Science Congress, Part III, Agricultural Sciences*	India	01	0.83		1985	1985
58	*Proceedings of 73rd Indian Science Congress, Part III, Physiology and Biochemistry*	India	01	0.83		1986	1986
59	*Proceedings of Summer Institute on Energy from Sun, Wind and Biogas*	India	01	0.83		1997	1997

Table 7--Distribution of publications

Contd—

Sl. no.	Channels of communication	Country	Papers	%	CT %	Period FYP	Period PYP
60	*Technical Report(BARC/2001/E/022), Bhabha Atomic Research Centre*	India	01	0.83		2001	2001
61	*22nd Annual Convention & Conference, IIT Madras, Chennai.*	India	01	0.83		2004	2004
62	*Tenth meeting of Sugarcane Research and Development Workers' of Tamil Nadu*	India	01	0.83		1985	1985
63	*The 4th International Conference of Asian Digital Libraries, Bangalore*	India	01	0.83		2001	2001
64	*Third National Convention of ISWA on What is Wrong with Indian Science, Souvenir*	India	01	0.83		1995	1995
65	*Workshop on Information Technology and Agricultural Information Network.*	India	01	0.83	100	1989	1989
Total			120	100			

nine. The third group of 17 collaborators had papers in the range of two to three papers and the last group of 23 collaborators had one paper each. The total authorship credit for 51 authors count 338 and each collaborating author has been given one authorship credit for each paper. Kalyane has to his credit 35.50% of total authorship.

Type of publications

Kalyane's 120 papers were published in four types of publications: Print Journals (55.91%), Open Access Archives (9.15%), Festschrift (7.48%) and Conferences, workshops, seminars, reports, etc (27.46%). Open access archives include only online publications i.e. papers published on web sites (Table 7).

Leading publications in which he communicated his papers are: *Malaysian Journal of Library and Information Science* (N=11), *Annals of Library and Information Studies (N=7), SRELS Journal of Information Management (N=6)* and *Scientometrics* (N=6); http:/eprints.rclis.org/archive/..(open access Archives) (N=6), *New Vistas in Library and Information Science.. (*festschrift) (N=2); *Proceedings of BOSLA One day Seminar on Resource Management, Deonar, Mumbai (N=3).*

Most of the top ranking journals pertain to library and information science (LIS). Among the journals, two LIS journals published four papers each; three LIS journals published three papers each and last group of two LIS journals published two papers each. Besides a group of five channels in group D published two papers each in different conferences, workshops, seminars, etc held within the country and abroad.

Majority of his papers appeared in Indian publications. Some papers have appeared in the journals and publications belonging to Malaysia, Switzerland, USA, and France.

It should be mentioned that beyond library science, Kalyane has also published papers on different topics relating to chemistry and allied sciences, social sciences, biology, dentistry, science, religion, computer science, agricultural sciences, etc.

The publication density i.e. average paper per publication was found to be 1.85 whereas 50% of the contribution (i.e. 60) has been published in 20 publications, and thereby publication concentration is 30.77.

Most cited publications

A list of papers that have been cited 50 or more times as is given in Table 8. However, it is interesting to note that from a literature review on self- citing authors[42], Kalyane is placed first as a self-citing author during 2002-2012 in *Annals of Library and Information Studies* as he cited himself 78 times. Next to him are B K Sen (58 times) and B S Kademani (52 times).

Keywords

Table 9 ranks frequency of keywords used in the titles of publications by Kalyane. The keyword Scientometric portrait (N=25) ranks first indicating his concentration on the topic. This is followed by

Table 8--List of papers cited by 50 or more times

Sl. no.	Citations	Cited by
1	Kademani B S, Kalyane V L and Kademani A B, Scientometric portrait of nobel laureate Dr. C V Raman, I*ndian Journal of Information, Library & Society,* 7 (3-4) (1994) 215-249.	79
2	Kalyane V L and Sen B K, Scientometric portrait of nobel laureate Pierre-Gilles de Gennes, *Malaysian Journal of Library and Information Science,* 1 (2) (1996) 13-26.	64
3	Kalyane V L and Sen B K, Research productivity of Tibor Braun : an analytical chemist-cum- scientometrician, *Annals of Library and Information Studies,* 50 (2) (2003) 47-61.	58
4	Kademani B S and Kalyane V L, Outstandingly cited and most significant publications of R. Chidambaram, a nuclear physicist, *Malaysian Journal of Library & Information Science,* 1 (1) (1996) 21-36.	57
5	Kademai B S, Kalyane V L, and Kademani A B, Scientometric portrait of nobel laureate S. Chandrasekhar. *JISSI: The International Journal of Scientometrics and Informetrics,* 2 (2-3) (1996) 199-135.	56
6	Kademani B S, Kalyane V L and Kademani A B, Scientometric portrait of Sir K S Krishnan, *Indian Journal of Information, Library & Society, International Prof. Kaula Special Number,* 9 (1-2) (1996) 125-150.	56
7	Kalyane V L and Munnolli S S, Scientometric portrait of T S West, *Scientometrics,* 33 (2) (1995) 233-256.	56
8	Kalyane V L and Sen B K, Scientometric portrait of C R Bhatia, an Indian geneticist and plant breeder, *Malaysian Journal of Library and Information Science,* 3 (1) (1998) 25-42.	56
9	Kademani B S, Kalyane V L and Balakrishnan M R, Scientometric portrait of P K Iyengar, *Library Science with a slant to Documentation and Information Studies,* 31 (4) (1994) 155-176.	54
10	Munnolli S S and Kalyane V L, Scientometric portrait of Ram Gopal Rastogi. *Annals of Library and Information Studies,* 50 (1) (2003) 1-17.	54
11	Kalyane V L and Kademani B S, Scientometric portrait of Barbara McClintock: the nobel laureate in physiology, *KELPRO Bulletin ,* 1 (1) (1997) 3-14.	53
12	Kalyane V L & Kalyane S V, Scientometric portrait of Vinodini Reddy, *Journal of Information Sciences,* 4 (1) (1993) 25-47.	52
13	Kalyane V L, Scientometric portrait of P M Bhargava, *Lucknow Librarian,* 27 (1-4) (1995) 42-70.	50
14	Kalyane V L and Kalyane S V, Scientometric portrait of M S Swaminathan, *Library Science with a slant to Documentation and Information Studies,* 31 (1) (1994) 31-46.	50

Table 9--Frequency of keywords appeared in the titles of Kalyane's publications

Keywords	Frequency
Scientometric portrait	25
Nobel laureate	10
India	7
Case study	6
E-print archives	5
Bhabha Atomic Research Centre	4
Citation analysis	4
Individual scientist	4
Informetrics	4
R & D	4
Bibliometric indicators	3
Coimbatore	3
E-journals	3
Information resources	3
Innovation communication productivity	3
Libraries	3
Publication productivity analysis	3
R Chidambaram	3
Science	3

Table 9--Frequency of keywords appeared in the titles of Kalyane's publications

Contd—

Keywords	Frequency
Science Citation Index	3
Activity	2
Ahmed Hassan Zewail (A H Zewall)	2
Authorship	2
Bibliographies	2
Bibliometric study	2
Citations	2
Content analysis	2
Database	2
Dentistry	2
Dynamic reference desk	2
Establishing scientometric database	2
Harnessing expertise	2
Homi Jehangir Bhabha	2
INSPEC	2
Lasers	2
Librarianship	2
M S Swaminathan	2
Medical applications	2
Medical eponyms	2
Raw materials	2
Review articles	2
Scientometric analysis	2
Scientometric dimensions	2
Scientometric highlights	2
Seeds	2
Sugarcane	2
Sugarcane Breeding Institute	2
Sugarcane research	2
Synchronous references	2
Technology	2
Tibor Braun	2
Transforming bibliographic data bases	2

Nobel laureate (N=10), India (N=7), Case study (N=6), E-print archives (N=5). These apart another 200 keywords have been used only once in the titles of his publications.

Conclusion

V L Kalyane is perhaps the only researcher to have made most contributions in the area of biobibliometrics. Beyond the confine of library and information science, he ventured into other disciplines especially plant biology. It is extremely sad to note that the most prolific and possibly the brightest star of biobibliometrics from India went beyond the horizon in June 2010 just at the age of 55.

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