

Chapter-6

Data Analysis, Discussion and Interpretation

The chapter has been divided into seven sections based on the objectives of the present study and each section deals with an individual facet of the bibliographic item of publications. Also, each section starts with an introduction, followed by the interpretations and discussion of the same. The different sections are represented as follows:

6.1 Ranking of Publications from Scientists of Central and State Universities

The volume of papers produced by researchers in a country can be used as an index of the level of research activity in that country and the whole research circle is framed by the participation of large number of research institutions/organisations. One of the major share holders of this research circle are the Universities (both Central and State Universities) which not only involve overall development of its work force but also takes deep bent in research activities. The research publications as witnessed in all the times, becomes the most direct method of assessment of research institutions in their participation of performing effective research activities. The study undertakes the same facet of undermining the portrait of Indian Central and State Universities in two major multidisciplinary databases in the field of Science and Technology and the related aspects under the shadow of Scientometrics.

In India, there are 42 Central and 275 State Universities as recognised by the UGC, devoted to a large matrix of specific and general subjects and none of the two databases index all the Universities. Mostly, the well renowned Central and State Universities with a proportionate number of publications are present in both the databases, while as the newly established Universities are not having any output in any of the databases. Both the Central and State Universities produce wide variety of documents in multiple subjects with strong output in Science and Technology than other subjects. Here the profiles

of each Central and State University in the field of Science and Technology in both databases and the ranks based on their publications are discussed.

6.1.1 Publication Profile of Central Universities in Scopus and their Ranking

Central Universities in India as per the Publications profile provided by Scopus database produce a total of 15,318 documents during the last five years (2006 – 2010). A further analysis shows the following data:

No. of Universities	No. of Publications
Five	Below 100
Eight	Above 100 but below 600
Three	Above 1000 but below 2000
Two	Above 2000 but below 3000
One	Above 3000

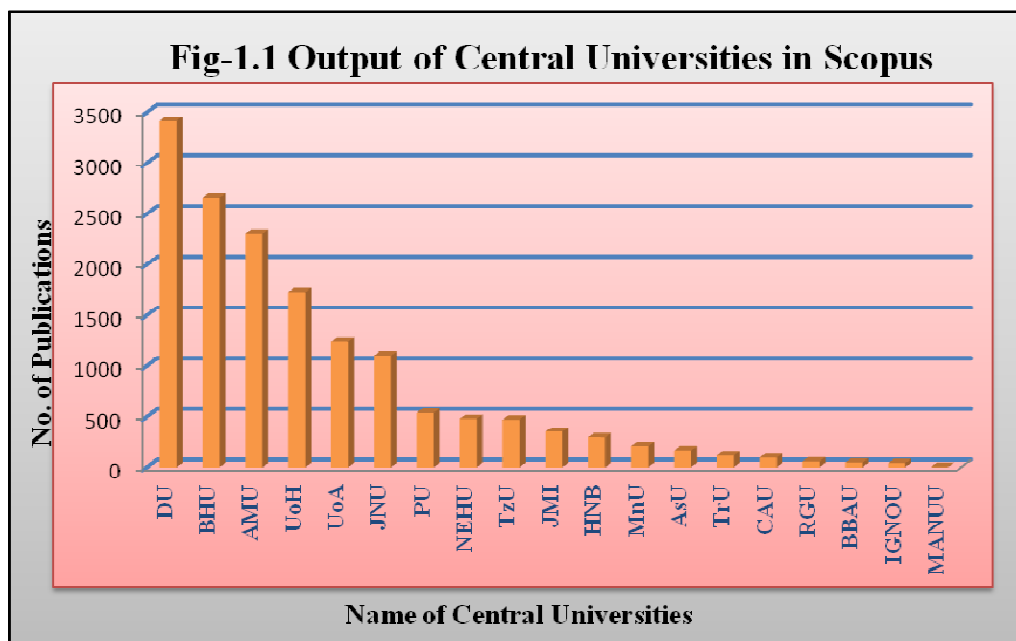
Table-1.1 provides further details of the above broad analysis. However, it is only the University of Delhi which crosses above 3000 mark with 3415 (22.29% of the total share) documents. Banaras Hindu University and Aligarh Muslim University made it to cross the above 2000 mark with 2656 (17.33% of the total share) and 2306 (15.05% of the total share) documents respectively. The Universities with documents from above 1000 and below 2000 are Hyderabad University with 1724 (11.25% of the total share), Allahabad University with 1238 (8.08% of the total share) and Jawaharlal Nehru University with 1102 (7.19% of the total share) documents. Rest of the Universities are below 600 mark and the least output comes from Babasaheb Bhimrao Ambedkar University with 47 (0.30% of the total share), Indira Gandhi National Open University with 41 (0.26% of the total share) and Maulana Azad National Urdu University with only 3 (0.01% of the total share) documents in their lap.

Table-1.1 Publication Picture of Central Universities in Scopus			
Name of the University	No. of Publications	%age Share	Rank
University of Delhi	3415	22.29	1
Banaras Hindu University, Varanasi.	2656	17.33	2
Aligarh Muslim University	2306	15.05	3
University of Hyderabad, Hyderabad, Andhra Pradesh.	1724	11.25	4
University of Allahabad, Allahabad.	1238	8.08	5
Jawaharlal Nehru University	1102	7.19	6
Pondicherry University, Puducherry, Pondicherry.	539	3.51	7

North-Eastern Hill University, Shillong, Meghalaya.	478	3.12	8
Tezpur University, Tezpur, Assam.	471	3.07	9
Jamia Millia Islamia, Jamia Nagar, New Delhi.	352	2.29	10
Hemwati Nandan Bahuguna Garhwal University, Utrkhd.	296	1.93	11
Manipur University, Manipur.	209	1.36	12
Assam University, Silchar.	167	1.09	13
Tripura University, Agartala, Tripura.	119	0.77	14
Central Agriculture University, Imphal, Manipur.	97	0.63	15
Rajiv Gandhi University, Arunachal Pradesh.	58	0.37	16
Babasaheb Bhimrao Ambedkar University, Lucknow.	47	0.30	17
Indira Gandhi National Open University	41	0.26	18
Maulana Azad National Urdu University, Andhra Pradesh	3	0.01	19
Total Cumulative Publications	15,318		

Over the past few years, University rankings have attracted considerable interest, because ranking a University gives an overall picture of its quality. The varying number of documents can be a strategic criterion for the ranking of Universities in terms of productivity count in aggregate. The well rooted Central Universities produce more or less a comparable figure of documents like University of Delhi, BHU, AMU, University of Hyderabad, JNU, etc. and the rest of the Universities produce insufficient number of documents as one would have expected. It is clear from the table-1.1 that the University of Delhi occupies the first position among all the Central Universities of India with a highest total of 3415 records followed by Banaras Hindu University with 2656 records (2nd Rank), Aligarh Muslim University with 2306 records (3rd Rank), University of Hyderabad with 1724 records (4th Rank), University of Allahabad with 1238 records (5th Rank) and so on. Being open in nature, the lowest records were that of the IGNOU and MANUU occupying 18th and 19th positions respectively.

The fig. 1.1 shows the bar diagram of published output in all the Central Universities as appeared in Scopus from 2006-2010, with Delhi University showing highest bar and Maulana Azad National Urdu University as the lowest. It is clear from the figure that the most productive Universities from above 1000 documents are having bigger differences among themselves and the least productive ones are having minor differences with only exception to Pondicherry University having 563 (1102-539) documents gap with Jawaharlal Nehru University.



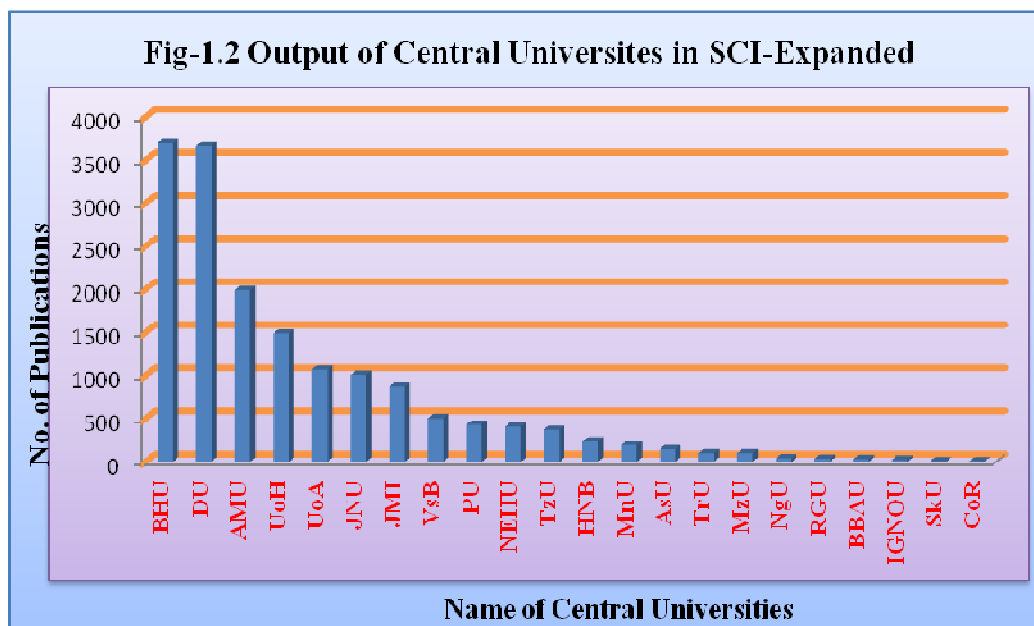
6.1.2 Publication Profile of Central Universities in SCI-Expanded (WoS) and their Ranking

In SCI-Expanded database, a total of 16,408 documents were produced by Central Universities with only two Universities producing above 3000 documents, four from below 2000 and above 1000, eight below 1000, six below 100 and two with less than 10 documents (Table-1.2). The Banaras Hindu University here in SCI-Expanded outcomes as the most productive University with 3702 (22.56% of the total share) documents and occupies the first position in the list. Followed immediately by University of Delhi with 3669 (22.36% of the total share) documents and taking 2nd strata, the difference is very meagre with Banaras Hindu University i.e., 0.20% of the total share. The Universities with above 1000 and below 2000 documents are Aligarh Muslim University with 1989 (12.12% of the total share), University of Hyderabad with 1490 (9.08% of the total share), University of Allahabad with 1068 (6.50% of the total share) and Jawahar Lal Nehru University with 1007 (6.13% of the total share) documents and occupying 3rd, 4th, 5th and 6th ranks respectively. Jamia Millia Islamia produces 867 (5.28% of the total share) documents—the highest in eight Universities below 1000 and above 100 and the

Assam University with 144 (0.87% of the total share) documents-the least in the category taking 7th to 14th ranks. Six Universities below 100 documents and above 10 is topped by Tripura University with 99 (0.60% of the total share) documents and occupying 15th position and Indira Gandhi National Open University with 22 (0.13% of the total share) occupying 20th position and the Universities with less than 10 documents are the Sikkim University and Central University of Rajasthan with 8 (0.04% of the total share) and 6 (0.03% of the total share) taking the 21st and 22nd positions respectively.

Table-1.2 Publication Picture of Central Universities in SCI-Expanded			
Name of the Central University	No. of Publications	%age Share	Rank
Banaras Hindu University, Varanasi, U.P.	3702	22.56	1
University of Delhi, Delhi	3669	22.36	2
Aligarh Muslim University, Aligarh, U.P.	1989	12.12	3
University of Hyderabad, Hyderabad, Andhra Pradesh	1490	9.08	4
University of Allahabad, Allahabad, U.P.	1068	6.50	5
Jawahar Lal Nehru University, New Delhi	1007	6.13	6
Jamia Millia Islamia, Jamia Nagar, New Delhi	867	5.28	7
Visva Bharati, Shantiniketan, West Bengal	501	3.05	8
Pondicherry University, Puducherry, Pondicherry	430	2.62	9
North Eastern Hill University, Shillong, Meghalaya	406	2.47	10
Tezpur University, Tezpur, Assam	371	2.26	11
Hemwati Nandan Bahuguna Garhwal University, Uttrakhd	238	1.45	12
Manipur University, Imphal, Manipur	193	1.17	13
Assam University, Silchar	144	0.87	14
Tripura University, Suryamaninagar, Agartala, Tripura	99	0.60	15
Mizoram University, Aizwal, Mizoram	98	0.59	16
Nagaland University, Headquarter Lumani, Nagaland	38	0.23	17
Rajiv Gandhi University, Itanagar, Arunachal Pradesh	33	0.20	18
Babasaheb Bhimrao Ambedkar University, Lucknow, U.P.	29	0.17	19
Indira Gandhi National Open University, New Delhi	22	0.13	20
Sikkim University, Gangtok, Sikkim	8	0.04	21
Central University of Rajasthan	6	0.03	22
Total Cumulative Publications	16,408		

The fig. 1.2 reveals the picture of all the Central Universities in SCI-Expanded database from 2006-2010 and the Universities are shown from highest of Banaras Hindu University to the lowest of Central University of Rajasthan. The Banaras Hindu University is having an equivalent bar line with that of the Delhi University and hereafter the lines fall down steeply to Aligarh Muslim University and University of Hyderabad. Almost from University of Allahabad to Central University of Rajasthan, there is a little difference between the predecessor and successor Universities.



6.1.3 Publication Profile of State Universities in Scopus and their Ranking

The research output of State Universities is distributed widely and is comparable enough with Central Universities of the country. Indian State Universities produce a total of 61,580 documents indexed by the Scopus database with an exceptional case of Jadavpur University which has the highest number of 4232 (6.87% of the total share) documents than any other State or Central University as shown in table-1.3. The two State Universities crossed the 3000 document mark (Jadavpur University {4232, 6.87%} and Anna University {3015, 4.89%}), three crossed 2000 (Annamalai University {2315, 3.75%}, University of Calcutta {2093, 3.39%} and Panjab University {2080, 3.37%}), thirteen crossed 1000 (University of Madras, {1985, 3.22% highest in the category} and Jawaharlal Nehru Technological University {1002, 1.62% lowest in the category}), nineteen crossed 500 (University of Mumbai {997, 1.61% highest in the category} and Dr. Babasaheb Ambedkar Marathwada University {537, 0.87% lowest in the category}), fifty six below 500 and above 100, and thirty four below 100 documents. The lesser productivity end of the Universities which produced below 100 include Chaudhary Devi Lal

University with 91 documents and 0.14% of the total share is at the top and Rabindra Bharati University with only 4 documents and 0.004% of the total share is at the bottom of the category.

Table-1.3 Publication Picture of State Universities in Scopus

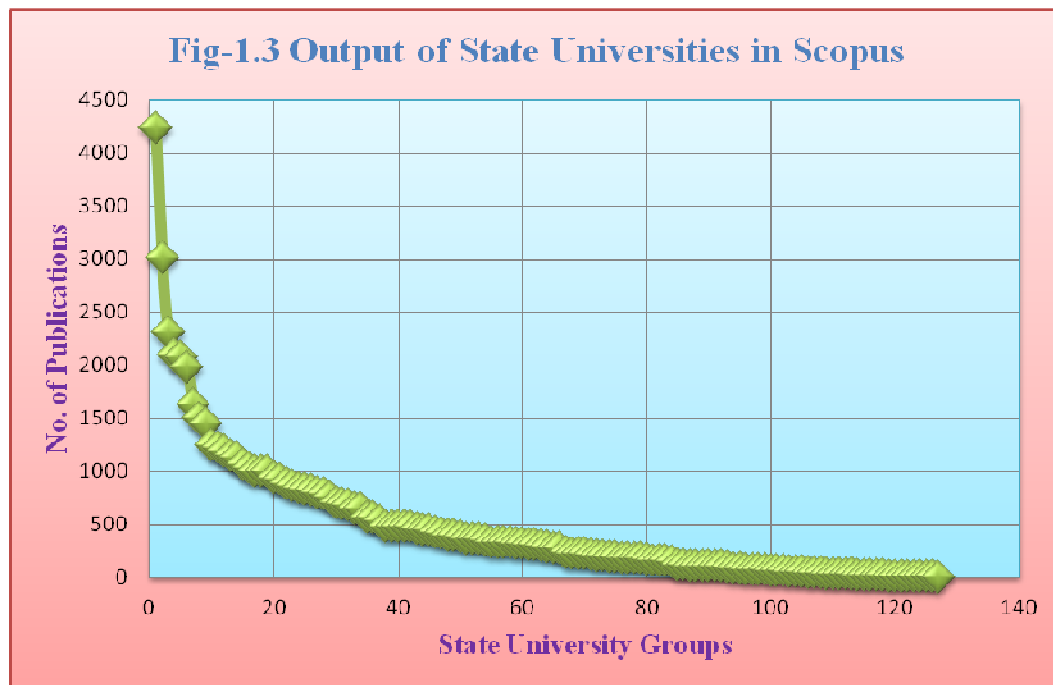
Name of the State University	No. of Publications	%age Share	Rank
Jadavpur University, Calcutta.	4232	6.87	1
Anna University, Chennai.	3015	4.89	2
Annamalai University, Annamalai Nagar.	2315	3.75	3
University of Calcutta, Kolkata.	2093	3.39	4
Punjab University, Chandigarh.	2080	3.37	5
University of Madras.	1985	3.22	6
University of Mysore	1634	2.65	7
University of Pune	1500	2.43	8
University of Rajasthan	1452	2.35	9
Cochin University of Science and Technology, Kochi.	1244	2.02	10
Andhra University, Visakhapatnam.	1221	1.98	11
Mangalore University	1197	1.94	12
Guru Nanak Dev University, Amritsar.	1146	1.86	13
Osmania University, Hyderabad.	1124	1.82	14
Sri Venkateswara University, Tirupati.	1063	1.72	15
University of Lucknow	1031	1.67	16
The Maharaja Sayajirao University of Baroda, Vadodra.	1006	1.63	17
Jawaharlal Nehru Technological University, Hyderabad.	1002	1.62	18
University of Mumbai	997	1.61	19
Bharathidasan University, Tiruchirappalli.	938	1.52	20
Punjab Agricultural University, Ludhiana.	931	1.51	21
Shivaji University, Kolhapur.	886	1.43	22
Karnatak University	866	1.40	23
Bangalore University	838	1.36	24
Bharathiar University, Coimbatore.	835	1.35	25
Madurai Kamaraj University (Kamraj University), Madurai.	816	1.32	26
University of Kalyani.	795	1.29	27
Punjabi University, Patiala.	791	1.28	28
Kurukshetra University, Kurukshetra.	756	1.22	29
G B Pant University of Agr. & Tech., Pantnagar.	704	1.14	30
Tamilnadu Agricultural University, Coimbatore.	696	1.13	31
University of Burdwan, Rajbati, Burdwan.	681	1.10	32
University of Kerala	648	1.05	33
Kakatiya University, Warangal.	646	1.04	34
Sardar Patel University, Vallabh Vidyanagar.	565	0.91	35
Gulbarga University	563	0.91	36
Dr. Babasaheb Ambedkar Marathwada University	537	0.87	37
Alagappa University, Alagappa Nagar, Karaikudi.	485	0.78	38
Kuvempu University, Shankaraghatta.	484	0.78	39
Jai Narain Vyas University, Jodhpur.	483	0.78	40
University of Jammu.	477	0.77	41
Gauhati University, Guwahati.	476	0.77	42
Guru Jambheshwar University of S and T, Hisar.	463	0.75	43
Mohan Lal Sukhadia University, Udaipur.	453	0.73	44
Mahatma Gandhi University, Kottayam.	444	0.72	45

Himachal Pradesh University, Shimla.	425	0.69	46
University of North Bengal, Darjeeling.	419	0.68	47
Vidyasagar University, Midnapore.	399	0.64	48
Guru Angad Dev Vet. and Animal Sc. University, Ludhiana.	396	0.64	49
Sri Krishnadevaraya University, Anantapur.	384	0.62	50
Utkal University, Bhubaneswar.	367	0.59	51
University of Agricultural Sciences, Bangalore.	359	0.58	52
Saurashtra University, Rajkot.	358	0.58	53
Acharya Nagarjuna University, Nagarjuna Nagar, Guntur.	351	0.56	54
Jiwaji University, Gwalior.	336	0.54	55
University of Kashmir, Srinagar.	334	0.54	56
Gujarat University, Ahmedabad.	333	0.54	57
Maharana Pratap University of Agr. & Tech., Udaipur.	326	0.52	58
Pt. Ravishankar Shukla University, Raipur.	320	0.51	59
Deen Dayal Upadhyay Gorakhpur University, Gorakhpur.	320	0.51	59
Periyar University, Salem.	315	0.51	60
North Maharashtra University	307	0.49	61
Kumaun University, Nainital.	297	0.48	62
University of Calicut, Kozhikode.	286	0.46	63
Barkatullah University, Bhopal.	283	0.45	64
Goa University, Goa.	279	0.45	65
Ch. Charan Singh University, Meerut.	239	0.38	66
Veer Narmad South Gujarat University, Surat.	230	0.37	67
Sher-e-Kashmir University of Agr. S and T of Kashmir.	222	0.36	68
Sant Gadge Baba Amravati University, Amravati.	220	0.35	69
West Bengal University of Animal and Fishery Sciences	218	0.35	70
Kerala Agricultural University	207	0.33	71
Dr. Yashwant Singh Parmar University of Hort. & Forestry	203	0.32	72
Dibrugarh University, Dibrugarh.	197	0.31	73
West Bengal University of Technology.	191	0.31	74
Vikram University, Ujjain.	182	0.29	75
Sambalpur University, Sambalpur.	180	0.29	76
Bundelkhand University, Jhansi.	180	0.29	76
Acharya N G Ranga Agricultural University, Hyderabad.	178	0.28	77
Swami Ramanand Teerth Marathwada University, Nanded.	172	0.27	78
Berhampur University, Berhampur.	166	0.26	79
University of Agricultural Sciences, Darwad.	161	0.26	80
Orissa University of Agr. and Tech., Bhubaneswar.	161	0.26	80
Rani Durgavati Vishwavidyalaya, Jabalpur.	148	0.24	81
Chhatrapati Shahu Ji Maharaj University, Kanpur.	119	0.19	82
Bhavnagar University, Bhavnagar.	114	0.18	83
Shri Mata Vaishno Devi University.	112	0.18	84
Tilkamanjhi Bhagalpur (T.M) University, Bhagalpur.	111	0.18	85
Mahatma Jyotiba Phule Rohilkhand University, Bareilly	108	0.17	86
Assam Agricultural University, Jorhat	107	0.17	87
Narendra Deva (Deo) University of Agr. and Tech.	105	0.17	88
Rajasthan Agricultural University, Bikaner.	104	0.16	89
Dr B. R. Ambedkar University, Agra.	101	0.16	90
Chaudhary Devi Lal University, Sirsa.	91	0.14	91
Patna University, Patna.	86	0.13	92
Marathwada Krishi Vidyapeeth (Agr. University), Parbhani.	77	0.12	93
Dr. Babasaheb Ambedkar Tech. University, Raigad.	76	0.12	94
Chandra Shekhar Azad University of Agr. & Tech., Kanpur.	73	0.11	95
Birsa Agricultural University	71	0.11	96

Kannur University	68	0.11	97
Maharashtra Animal & Fishery Sc. University, Nagpur.	67	0.10	98
Rajendra Agricultural University, Samastipur.	60	0.09	99
Dr. RML Avadh University. (Ram Manohar Lohia RML)	58	0.09	100
Hemchandracharya North Gujarat University, Patan.	54	0.08	101
Tamil University, Thanjavur.	54	0.08	101
Babasaheb Bhimrao Ambedkar Bihar University	45	0.07	102
Ranchi University, Ranchi.	40	0.06	103
Sardar Vallabh Bhai Patel University of Agr. & T., Meerut.	40	0.06	103
Mother Teresa Women's University, Kodaikanal.	36	0.05	104
Tamilnadu Dr. M.G.R. Medical University, Chennai.	36	0.05	104
Veer Kunwar Singh University, Ara.	35	0.05	105
Punjab Technical University, Jalandhar.	33	0.05	106
Dharmsinh Desai University, Nadiad, Gujarat.	28	0.04	107
Deenbandhu Chhotu Ram University Of S and T, Murthal.	24	0.03	108
Rajiv Gandhi University of Health Sciences	24	0.03	108
University of Kota	22	0.03	109
Magadh University, Bodh Gaya.	21	0.03	110
Mahatma Phule Krishi Vidyapeeth, Rahuri.	21	0.03	110
Gujarat Ayurved University, Jamnagar.	16	0.02	111
Madhya Pradesh Bhoj University	16	0.02	111
Maharashtra University of Health Sciences, Nashik.	15	0.02	112
Biju Patnaik University of Technology, Rourkela.	14	0.02	113
Rajasthan Technical University	14	0.02	113
Dravidian University, Kuppam, Andhra Pradesh.	13	0.02	114
Jai Prakash University, Chhapra.	13	0.02	114
Lalit Narayan Mithila University, Darbhanga.	11	0.01	115
Rabindra Bharati University, Kolkata.	4	0.006	116
Total Cumulative Publications	61, 580		

Based on the productivity count in the database for all the five years, the Universities are ranked upto 116 and it is clear from the table-1.3 above that the Jadavpur University is the top ranked University within the State Universities as well as in Central Universities and thus occupies the first rank, this is followed by the Anna University, Chennai with 3015 documents occupying the 2nd rank among state Universities. The three Universities which followed these top ranked Universities with over 2000 documents are the Annamalai University, Calcutta University and Panjab University with 2315, 2093, 2080 documents respectively occupying 3rd, 4th and 5th position in the list. The less productive Universities with below 50 documents and above 30 documents are from ranks 102-106 and below 30 documents are from 107-116 and the least productive University with only one figure i.e. 4 documents is the Rabindra Bharati University, Kolkata occupying the last 116th rank.

The Fig-1.3 below displays the picture of publications of all the State Universities in SCI-Expanded database and for the convenience of the interpretation (the number of Universities was 127 which didn't fit in the figure), the Universities were grouped into seven categories based on the number of documents as: 0-20 (First top 20 State Universities), 20-40 (Second top 20), 40-60 (third top 20), 60-80 (fourth top 20), 80-100 (next 20), 100-120 (next 20) and 120-140 (last 7 Universities). It is clear from the figure that the maximum slope is formed by the first category (0-20) contributing maximum documents from above 4000 to slight below of 1000 (Bharathidasan University with 938 documents at 20th number), followed by the second category (20-40) from below 1000 documents (Punjab Agricultural University with 931 documents at the 21st number) to above 480 (Jai Narain Vyas University with 483 documents at the 40th number) documents. The (40-60) category also shows slope from below 480 document mark (University of Jammu with 477 documents at 41st number) to above 310 (Periyar University with 315 documents at 60th number) and then the publication curve first slopes slightly upto 101 document in case of Dr B. R. Ambedkar University and afterwards rests on the base line of below 100 documents.



6.1.4 Publication Profile of State Universities in SCI-Expanded (WoS) and their Ranking

The State Universities produce 51,043 publications which are indexed by SCI-Expanded database and the count varies from below 2978 in case of Jadavpur University (5.83% of the total share, 1st rank) to 5 in case of the West Bengal University of Health Sciences (0.0097% of the total share, 131th rank) and the ranking upto 131 positions of 163 covered State Universities (Table-1.4). The Punjab University and Anna University occupying 2nd and 3rd positions have a publication strength respectively of 2458 (4.81% of the total share) and 2082 (4.07% of the total share) documents and are in the above 2000 and below 3000 documents category including Jadavpur University. The other four figure Universities from above 1000 and below 2000 are Annamalai University, Madras University, Calcutta University, Mysore University, Rajasthan University, Mangalore University and Guru Nanak Dev University with 1845 (3.61% of the total share, 4th rank), 1812 (3.54% of the total share, 5th rank), 1782 (3.49% of the total share, 6th rank), 1290 (2.52% of the total share, 7th rank), 1197 (2.34% of the total share, 8th rank), 1151 (2.25% of the total share, 9th rank) and 1040 (2.03% of the total share, 10th rank) documents respectively. From 11th to 30th rank, the range of documents fall in between 967 (Mumbai University, 1.89% of the total share) to 525 (Burdwan University, 1.02% of the total share) documents, 31st to 86th rank includes document range from 496 (Kakatiya University, 0.97% of the total share) to 102 (Bhavnagar University, 0.199% of the total share) and from 86th onwards, the Universities producing below 100 documents are ranked to the end at the West Bengal University of Health Sciences with only 5 documents and a share of 0.0097%.

Table-1.4 Publication Picture of State Universities in SCI-Expanded

Name of the State University	No. of Publications	%age Share	Rank
Jadavpur University, Calcutta, West Bengal.	2978	5.83	1
Punjab University, Chandigarh, Punjab.	2458	4.81	2
Anna University, Tamil Nadu.	2082	4.07	3
Annamalai University, Annamalai Nagar, Tamil Nadu.	1845	3.61	4

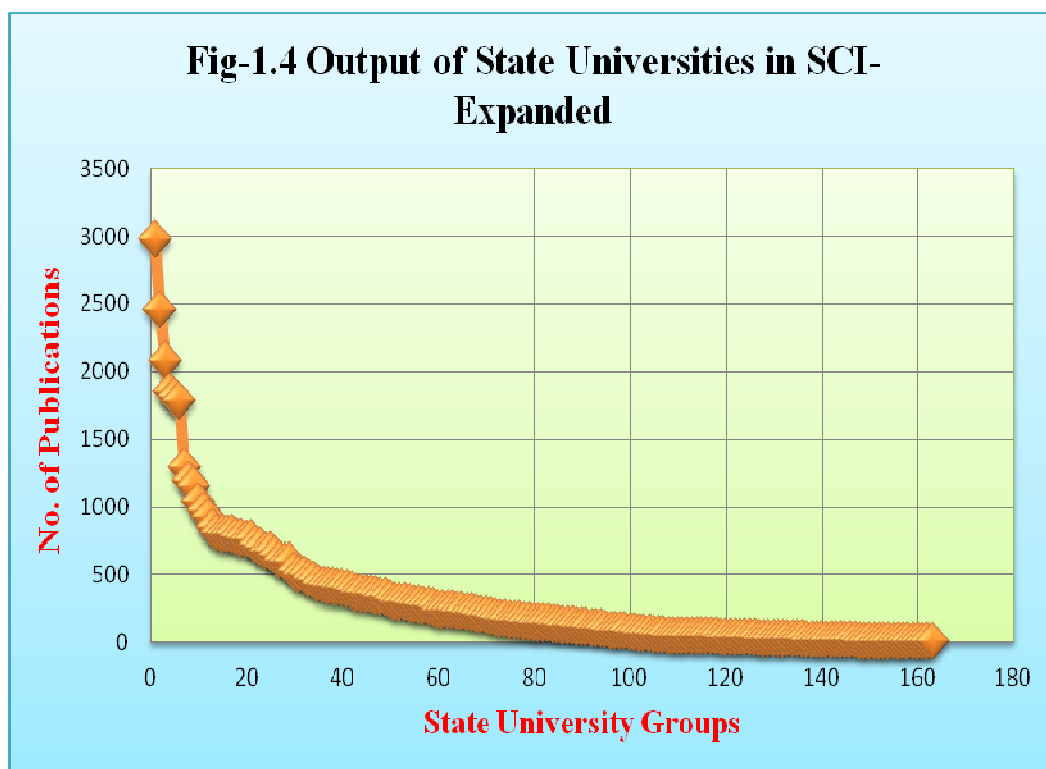
Madras University, Chennai, Tamil Nadu.	1812	3.54	5
Calcutta University, Kolkata, West Bengal.	1782	3.49	6
Mysore University, Mysore, Karnataka.	1290	2.52	7
Rajasthan University, Jaipur, Rajasthan.	1197	2.34	8
Mangalore University, Mangalore, Karnataka.	1151	2.25	9
Guru Nanak Dev University, Amritsar, Punjab.	1040	2.03	10
Mumbai University, Mumbai, Maharashtra.	967	1.89	11
Sri Venkateswara University, Tirupati, Andhra Pradesh.	919	1.80	12
Osmania University, Hyderabad, Andhra Pradesh.	849	1.66	13
Maharaja Sayajirao University of Baroda, Vadodara, Gujarat.	807	1.58	14
Bharathidasan University, Tiruchirappalli, Tamil Nadu.	800	1.56	15
Andhra University, Visakhapatnam, Andhra Pradesh.	796	1.55	16
Shivaji University, Kolhapur, Maharashtra.	795	1.55	17
Karnatak University, Dharwad, Karnataka.	775	1.51	18
Lucknow University, Lucknow, U.P.	772	1.51	19
Pune University, Pune, Maharashtra.	761	1.49	20
Jamia Hamdard, New Delhi.	756	1.48	21
Punjab Agricultural University, Ludhiana, Punjab.	724	1.41	22
Kalyani University, Kalyani, West Bengal.	701	1.37	23
Bangalore University, Bangalore, Karnataka.	672	1.31	24
Madurai Kamaraj University, Madurai, Tamil Nadu.	670	1.31	25
Bharathiar University, Coimbatore, Tamil Nadu	644	1.26	26
Jawaharlal Nehru Technological University, Hyd., Andhra. P	606	1.18	27
The Bengal Engineering & Science University, West Bengal.	597	1.16	28
Kurukshetra University, Kurukshetra, Haryana.	594	1.16	29
Burdwan University, Rajbati, Burdwan, West Bengal.	525	1.02	30
Kakatiya University, Warangal, Andhra Pradesh	496	0.97	31
Kerala University, Thiruvananthapuram, Kerala.	496	0.97	31
Sardar Patel University, Vallabh Vidyanagar, Gujarat.	471	0.92	32
Punjabi University, Patiala, Punjab.	463	0.90	33
Tamilnadu Agricultural University, Coimbatore, Tamil Nadu.	434	0.85	34
Gulbarga University, Gulbarga, Karnataka.	425	0.83	35
Jammu University, Jammu Tawi, J and K.	413	0.80	36
Choudhary Charan Singh Haryana Agr. University, Haryana.	413	0.80	36
Alagappa University, Alagappa Nagar, Karaikudi, Tamil Nadu.	400	0.78	37
Jai Narain Vyas University, Jodhpur, Rajasthan.	400	0.78	37
Dr. Babasaheb Ambedkar Marathwada University, Maharashtra.	389	0.76	38
Mahatma Gandhi University, Kottayam, Kerala.	381	0.74	39
Mohan Lal Sukhadia University, Udaipur, Rajasthan.	369	0.72	40
Himachal Pradesh University, Shimla, H.P.	365	0.71	41
Gauhati University, Guwahati, Assam.	354	0.69	42
Kuvempu University, Shankaraghatta, Karnataka.	352	0.68	43
Guru Jambheshwar University of Sc & Tech, Hisar, Haryana.	349	0.68	44
North Bengal University, Darjeeling, West Bengal.	337	0.66	45
Vidya Sagar University, Midnapore, West Bengal.	335	0.65	46
Sri Krishnadevaraya University, Anantapur, Andhra Pradesh	314	0.61	47
Saurashtra University, Rajkot, Gujarat.	301	0.58	48
The Rashtrasant Tukadoji Maharaj Nagpur Univ., Maharashtra.	300	0.58	49
Maharishi Dayanand Saraswati University, Ajmer, Rajasthan.	298	0.58	50
Jiwaji University, Gwalior, Madhya Pradesh.	289	0.56	51
Utkal University, Bhubaneswar, Orissa.	280	0.54	52
Devi Ahilya Vishwavidyalaya, Indore, Madhya Pradesh.	274	0.53	53
Gujarat University, Ahmedabad, Gujarat.	271	0.53	54
Kumaun University, Nainital, Uttarakhand.	271	0.53	54
Guru Angad Dev Vet & Animal Sc.University, Punjab.	260	0.50	55
North Maharashtra University, Jalgaon, Maharashtra.	244	0.47	56

Acharya Nagarjuna University, Guntur, Andhra Pradesh	238	0.46	57
Periyar University, Salem, Tamil Nadu.	237	0.46	58
Kashmir University, Srinagar, J and K.	237	0.46	58
Calicut University, Kozhikode, Kerala.	234	0.45	59
Pt. Ravishankar Shukla University, Raipur, Chhattisgarh.	226	0.44	60
Goa University, Goa	220	0.43	61
Deen Dayal Upadhyay Gorakhpur University, Gorakhpur, U.P.	218	0.42	62
Choudhary Charan Singh University, Meerut, U.P.	208	0.40	63
Barkatullah University, Bhopal, Madhya Pradesh.	199	0.38	64
University of Agricultural Sciences, Bangalore, Karnataka.	197	0.38	65
Bidhan Chandra Krishi Vishwavidyalaya, West Bengal.	189	0.37	66
Tamilnadu Vet. & Animal Sciences University, Tamil Nadu.	185	0.36	67
Manonmaniam Sundarnar University, Thirunelveli, Tamil Nadu.	175	0.34	68
South Gujarat University, Surat (Veer Narmad), Gujarat.	169	0.33	69
Guru Gobind Singh Indraprastha Vishwavidyalaya, Delhi	164	0.32	70
Assam Agricultural University, Jorhat, Assam.	162	0.31	71
Dibrugarh University, Dibrugarh, Assam.	161	0.31	72
Sambalpur University, Sambalpur, Orissa.	155	0.30	73
Anand Agricultural University, Anand, Gujarat.	150	0.29	74
Vikram University, Ujjain, Madhya Pradesh.	147	0.28	75
Kerala Agricultural University, Thrissur, Kerala.	147	0.28	75
Dr. Y.S.Parmar University of Hort. & Forestry, Nauni, H.P.	142	0.278	76
Swami Ramanand Teerth Marathwada University, Maharashtra.	139	0.272	77
West Bengal University of Animal & Fishery Sc, West Bengal.	138	0.270	78
Bundelkhand University, Jhansi, U.P.	133	0.26	79
Rani Durgavati Vishwavidyalaya, Jabalpur, Madhya Pradesh.	123	0.24	80
Himachal Pradesh Agr. Univ.(Chaudhary Sarwan Kumar)H.P.	120	0.235	81
Sher-e-Kashmir University of Agr. Sc &Tech., Jammu, J & K.	119	0.233	82
Sher-e-Kashmir University of Agr. Sc &Tech., Srinagar, J & K.	118	0.231	83
Maharana Pratap University of Agr. &Tech., Rajasthan.	118	0.231	83
Orissa University of Agr. & Tech., Bhubaneswar, Orissa.	113	0.22	84
Berhampur University, Berhampur, Orissa.	108	0.21	85
Bhavnagar University, Bhavnagar, Gujarat.	102	0.199	86
T.M.Bhagalpur University, Bhagalpur, Bihar.	100	0.195	87
Narendra Deva University of Agr. & Tech., Faizabad, U.P.	95	0.18	88
Acharya N.G.Ranga Agricultural University, Andhra Pradesh	89	0.17	89
Rajasthan Agricultural University, Bikaner, Rajasthan.	89	0.17	89
Karnataka Vet, Animal & Fisheries Sc.University, Karnataka.	83	0.16	90
North Orissa University, Bhubaneswar, Orissa.	83	0.16	90
West Bengal University of Technology, Kolkata, West Bengal.	79	0.15	91
G.B. Pant University of Agr. and Technology, Uttarakhand.	79	0.15	91
Chaudhary Devi Lal University, Sirsa, Haryana.	70	0.13	92
Dr. B.R. Ambedkar University, Agra, U.P.	63	0.123	93
Dr Ram Manohar Lohia Awadh University, Faizabad, U.P.	62	0.121	94
M.J.P.Rohilkhand University, Bareilly, U.P.	54	0.10	95
Sant Gadge Baba Amravati University, Amravati, Maharashtra.	54	0.10	96
Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra.	52	0.101	97
Marathwada Agricultural University, Parbhani, Maharashtra.	51	0.099	98
Jawaharlal Nehru Krishi Vishwavidyalaya, Madhya Pradesh.	50	0.097	99
Solapur University, Solapur, Maharashtra.	50	0.097	99
Patna University, Patna, Bihar.	48	0.094	100
Maharishi Dayanand University, Rohtak, Haryana.	47	0.092	101
Sri Venkateswara Veterinary University, Andhra Pradesh	46	0.09	102
Chandra Shekhar Azad University of Agr & Tech, Kanpur, U.P.	46	0.09	102
Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh.	46	0.09	102
Birsa Agricultural University, Ranchi, Jharkhand.	45	0.088	103

Smt. Nathibai Damodar Thackersey Women's Univ., Mumbai.	44	0.086	104
Shri Mata Vaishno Devi University, Jammu, J and K.	42	0.082	105
Sardar Vallabh Bhai Patel University of Agr & Tech, U.P.	38	0.074	106
Veer Kunwar Singh University, Arrah, Bihar.	37	0.072	107
Maharashtra Animal & Fishery Sciences University.	36	0.07	108
Rajiv Gandhi Prodyogiki Vishwavidyalaya, Madhya Pradesh.	35	0.068	109
West Bengal State University, West Bengal.	35	0.068	109
Uttar Pradesh Technical University, Lucknow, U.P.	34	0.066	110
Fakir Mohan University, Balasore, Orissa.	34	0.066	110
Ranchi University, Ranchi, Jharkhand.	34	0.066	110
Babasaheb Bhimrao Ambedkar Bihar University, Bihar.	32	0.062	111
Veer Bahadur Singh Purvanchal University, Jaunpur, U.P.	29	0.056	112
Rajendra Agricultural University, Samastipur, Bihar.	29	0.056	112
Punjab Technical University, Jalandhar, Punjab.	28	0.054	113
Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Maharashtra.	27	0.052	114
Kannur University, Kannur, Kerala.	27	0.052	114
Uttar Banga Krishi Vishwavidyalaya, West Bengal.	25	0.048	115
Dr. Babasaheb Ambedkar Tech. University, Maharashtra.	25	0.048	115
Hemchandracharya North Gujarat University, Gujarat.	24	0.047	116
Delhi Technological University, Shahbad Daultapur, New Delhi.	24	0.047	116
Chatrapati Sahuji Maharaj Kanpur University, Kanpur, U.P.	22	0.043	117
Ravenshaw University, Cuttak, Orissa.	22	0.043	118
Mother Teresa Women's University, Kodaikanal, Tamil Nadu.	21	0.041	119
Vinoba Bhawe University, Hazaribagh, Jharkhand.	19	0.037	120
Sri Padmavati Mahila Vishwavidyalayam, Andhra Pradesh	18	0.035	121
Tamil University, Thanjavur, Tamil Nadu.	18	0.035	121
Thiruvalluvar University, Fort, Vellore, Tamil Nadu.	18	0.035	121
King Georges Medical University, Lucknow, U.P.	16	0.031	122
Rajiv Gandhi University of Health Sciences, Bangalore.	15	0.029	123
University of Kota, Kota, Rajasthan.	15	0.029	123
Deen Bandhu Chhotu Ram University of Sc & Tech. Haryana.	14	0.027	124
Gujarat Agricultural University, Sardar Krushinagar, Gujarat.	12	0.023	125
Magadh University, Bodh Gaya, Bihar.	12	0.023	125
Maharashtra University of Health Sciences, Maharashtra.	11	0.021	126
Telangana University, Nizamabad, Andhra Pradesh	10	0.019	127
Tamilnadu Dr. M.G.R. Medical University, Tamil Nadu.	10	0.019	127
Biju Patnaik University of Technology, Rourkela, Orissa.	8	0.015	128
Awadesh Pratap Singh University, Rewa, Madhya Pradesh.	7	0.013	129
M.P. Bhoj (open) University, Bhopal, Madhya Pradesh.	7	0.013	129
Netaji Subhash Open University, Kolkata, West Bengal.	7	0.013	129
Dharmsinh Desai University, College Road, Nadiad, Gujarat.	6	0.011	130
Gujarat Ayurveda University, Jamnagar, Gujarat.	6	0.011	130
Baba Ghulam Shah Badshah University, Rajouri, J and K.	6	0.011	130
Tumkur University, Tumkur, Karnataka.	6	0.011	130
Lalit Narayan Mithila University, Darbhanga, Bihar.	6	0.011	130
Rajasthan Technical University, Bhat Road, Kota, Rajasthan.	6	0.011	130
The West Bengal University of Health Sciences, West Bengal.	5	0.0097	131
Total Cumulative Publications	51,043		

For the convenience of interpretation (as initiated above in case of Scopus), the State Universities here in SCI-Expanded database were also divided into nine categories of 20 Universities (three in case of last category

160-180) each based on the number of publications as can be seen from fig-1.4. The first category (0-20) occupies the major portion of the figure from slight below 3000 (Jadavpur University with 2978 documents) to above 760 documents (Pune University with 761 documents) which is followed by second category (20-40) from below 760 (Jamia Hamdard with 756 documents) to above 365 documents (Mohan Lal Sukhadia University with 369 documents). There is a gradual and smooth backdrop of the slope within category (40-60) and (60-80) from the documents limits of 365 in case of Himachal Pradesh University to the 123 in case of Rani Durgavati Vishwavidyalaya, Madhya Pradesh and hereafter the slope touches the base line of the figure below 123 (Himachal Pradesh Agriculture University with 120 documents) to below 6 documents (The West Bengal University of Health Sciences with only 5 documents).



6.2 Yearwise Distribution and Growth Rate of Publications

India is investing heavily on Research & Development activities, infrastructure creation, institutional capacity and instrument & laboratory facilities over the years for the sole aim of escalation of its research output. Among the major sectors, the Universities & Colleges contribute the largest share to the overall country's publication output, followed by mission-oriented R&D institutes, institutes of national importance and industry sectors. India's publications in quality journals have improved with time and have greater potential to deliver and sustain even much higher publications growth in Science & Technology. One can expect in coming years that it can catch up with other leading countries of the world. The publications data in Scopus and SCI-Expanded databases revealed that Indian Universities have shown progress in its annual publications output in Science & Technology during 2006-2010, but its pace of growth had been slow. Although in major cases, the number of publications goes on increasing along with the progressive years, but that is not true for all the Universities as some reveal a declining growth of publications with the passage of years. Thus, the growing trend sometimes decreases below the average number of publications in any year and at times increases also. The publications produced by the Central and State Universities as reflected from both Scopus and SCI-Expanded databases separately from 2006-2010 and the annual growth rate of publications is discussed as under:

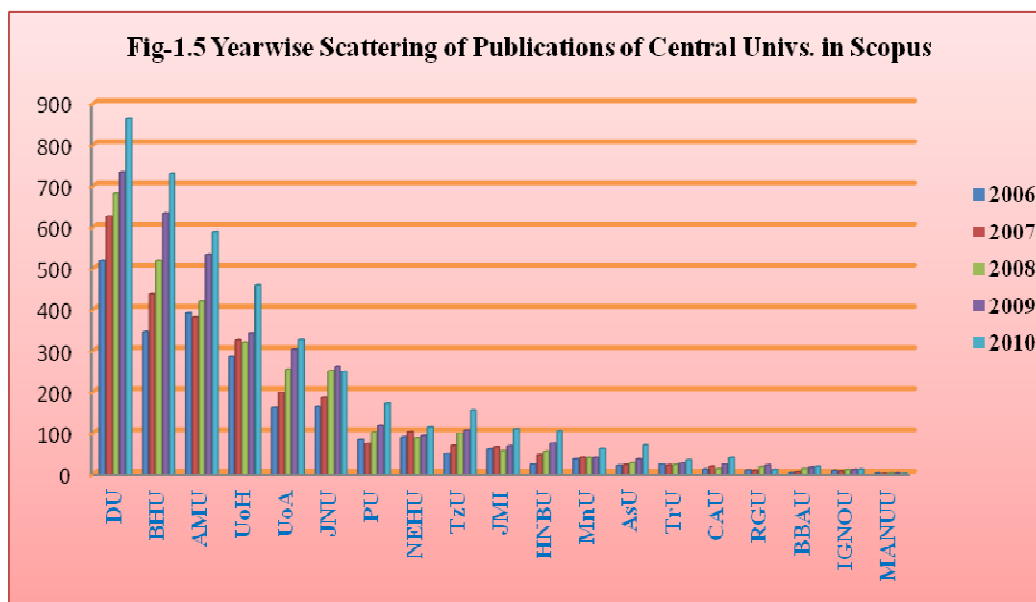
6.2.1 Yearwise Distribution of Publications of Central Universities in Scopus database

In Scopus, the publications of Central Universities go on increasing from 2255 documents in 2006 passing 2957 documents in 2008 to 4089 documents in 2010, indicating that the most productive year is 2010 and the least productive is 2006 as can be seen from the table-1.5 below. Although, we see the increase in the cumulative number of publications of years, but the same is not true within all the Central Universities. Mostly, the highly productive Universities produce the documents in increasing order, like

University of Delhi (516, 624, 681, 732, 862 respective years), Banaras Hindu University (343, 436, 516, 632, 729 respective years), Aligarh Muslim University (389, 380, 418, 532, 587 respective years) and the low productivity Universities like Indira Gandhi National Open University (7, 6, 9, 9, 10 respective years), Maulana Azad National Urdu University (1, 0, 1, 1, 0 respective years) produce almost same number of documents with the progressive years. The following table gives the further details of the yearwise analysis of publications in Scopus database of each Central University.

Table-1.5 Yearly Outline of Central Universities in Scopus					
Name of the Central University	2006	2007	2008	2009	2010
University of Delhi.	516	624	681	732	862
Banaras Hindu University, Varanasi.	343	436	516	632	729
Aligarh Muslim University.	389	380	418	532	587
University of Hyderabad, Hyderabad, A.P.	284	325	317	340	458
University of Allahabad, Allahabad.	160	197	253	302	326
Jawaharlal Nehru University.	162	185	249	259	247
Pondicherry University, Puducherry, Pondicherry.	82	73	100	115	169
North-Eastern Hill University, Shillong, Meghalaya.	88	101	86	91	112
Tezpur University, Tezpur, Assam.	48	67	97	105	154
Jamia Millia Islamia, Jamia Nagar, New Delhi.	59	64	55	66	108
Hemwati Nandan Bahuguna Garhwal Univ., Utrkhnd.	21	44	54	74	103
Manipur University, Manipur.	35	38	38	38	60
Assam University, Silchar.	18	20	26	35	68
Tripura University, Agartala, Tripura.	22	19	20	25	33
Central Agriculture University, Imphal, Manipur.	10	16	11	22	38
Rajiv Gandhi University, Arunachal Pradesh.	8	7	15	19	9
Babasaheb Bhimrao Ambedkar University, Lucknow.	2	4	11	14	16
Indira Gandhi National Open University.	7	6	9	9	10
Maulana Azad National Urdu Univ., Andhra Pradesh.	1	0	1	1	0
Total Publications	2255	2606	2957	3411	4089

Fig-1.5 shows the scattering of publications of Central Universities among the select years as represented by Scopus with top Universities at the left side and the low Universities at the right side of the bar diagram. It is clear from the figure that the year 2010 is the most productive year in almost all Central Universities and also in case of top Universities like Delhi University, Banaras Hindu University, Aligarh Muslim University, University of Hyderabad, University of Allahabad, there appears to be a greater tendency of production than other Universities. The year 2006 comes out to be the least productive year among all the years (as it was the starting year of the study).



6.2.1.1 Annual Growth Rate of Publications of Central Universities in Scopus database

From table 1.6, it is revealed that the growth rate of publications of Central Universities in Scopus is not uniform for all the selected years. It is found that the average growth rate of the publications of Central Universities in Scopus has been 12.848% and that the year 2007-08 has the lowest annual growth rate of 13.46% and the year 2009-10 as the highest of 19.87%. Except in the years 2006-07 and 2007-08, there is a continuous increase in the number of publications from an increase of 351 documents in the year 2006-07 to 678 documents in the year 2009-10.

Table-1.6 Annual Growth Rate of Publications of Central Universities in Scopus

S.No	Year	Publications	Increase/Decrease	Growth Rate (%)
1	*2005-06	2255	-	-
2	2006-07	2606	351	15.56
3	2007-08	2957	351	13.46
4	2008-09	3411	454	15.35
5	2009-10	4089	678	19.87

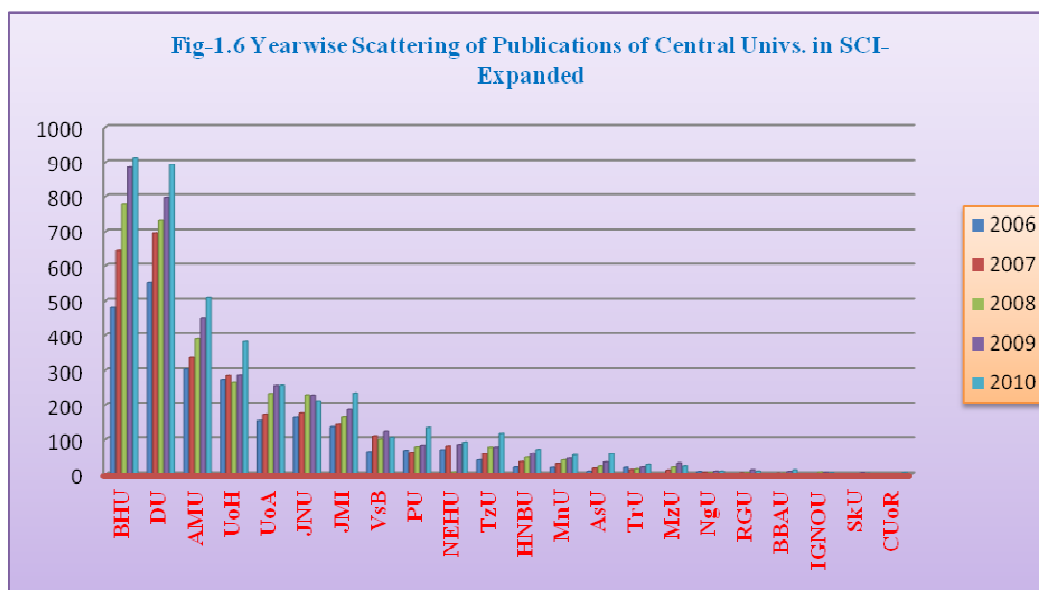
* The year 2005 is not considered for analysis, because it is out of scope of the present study

6.2.2 Yearwise Distribution of Publications of Central Universities in SCI-Expanded database

Here also in SCI-Expanded, the year 2010 evolves out to be the most productive year (4129 documents) of the study followed by 2009 (3688 documents) and the year 2006 as the least productive year (2400 documents). It is revealed from the table-1.7 that almost in all years, the predecessor successor difference is more or less about 400 documents with a maximum transition of 494 documents in 2007 and 441 documents in 2010. At the productive end (i.e., year 2010), the documents vary from 912 in case of Banaras Hindu University to 6 in case of Central University of Rajasthan, whereas at the less productive end (i.e., year 2006) the documents vary from 481 in case of Banaras Hindu University to 2 in case of Indira Gandhi National Open University. It is also found that the documents almost double from first starting year (2006; 2400 documents) to the last year (2010; 4129 documents) with an intermediate value of 3297 documents in the year 2008. The following table-1.7 provides the other aspects of the yearly analysis in SCI-Expanded database.

Table-1.7 Yearly Outline of Central Universities in SCI-Expanded					
Name of the State University	2006	2007	2008	2009	2010
Banaras Hindu University, Varanasi, U.P.	481	645	780	884	912
University of Delhi, Delhi	554	695	731	797	892
Aligarh Muslim University, Aligarh, U.P.	303	337	390	450	509
University of Hyderabad, Andhra Pradesh	274	285	263	286	382
University of Allahabad, Allahabad, U.P.	155	172	232	254	255
Jawahar Lal Nehru University, New Delhi	164	176	228	227	212
Jamia Millia Islamia, Jamia Nagar, New Delhi	138	145	165	186	233
Visva Bharati, Shantiniketan, West Bengal	65	109	100	122	105
Pondicherry University, Puducherry, Pondicherry	69	63	79	83	136
North Eastern Hill University, Shillong, Meghalaya	71	81	77	85	92
Tezpur University, Tezpur, Assam	41	58	78	78	116
Hemwati Nandan Bahuguna Garhwal Univ., Utrknd	21	36	49	60	72
Manipur University, Imphal, Manipur	20	31	41	46	55
Assam University, Silchar	9	18	24	35	58
Tripura University, Suryamaninagar, Tripura	20	14	16	21	28
Mizoram University, Aizwal, Mizoram	1	14	23	33	27
Nagaland University, Headquarter Lumani, Nagaland	8	6	6	9	9
Rajiv Gandhi University, Arunachal Pradesh	2	4	5	13	9
Babasaheb Bhimrao Ambedkar University, Lucknow	2	3	3	8	13
Indira Gandhi National Open University, New Delhi	2	2	7	6	5
Sikkim University, Gangtok, Sikkim	0	0	0	5	3
Central University of Rajasthan	0	0	0	0	6
Total Publications	2400	2894	3297	3688	4129

Fig-1.6 shows the scattering of publications of Central Universities among the last five years as represented by SCI-Expanded, with the highest output in the year 2010 and the lowest output in the year 2006. It clearly seems from the figure that there is an increasing tendency of publications in top ranked Central Universities like Banaras Hindu University, University of Delhi, Aligarh Muslim University, University of Hyderabad, University of Allahabad, etc. and a constant/stationary tendency of publications among the low ranked Central Universities like Indira Gandhi National Open University, Sikkim University and Central University of Rajasthan.



6.2.2.1 Annual Growth Rate of Publications of Central Universities in SCI-Expanded database

It can be visualised from the table 1.8 below that the growth rate of publications of Central Universities in SCI-Expanded decreases from 20.58% (highest among all the years) in the year 2006-07 to 11.85% (lowest among all the years) in the year 2008-09. However, it increases slightly to 11.95% in the year 2009-10. The same is true for the increase in the number of publications from 494 documents in the year 2006-07 to 391 documents in the year 2008-09, which increases to 441 documents in the year 2009-10. The average annual growth rate of publications in this case is 11.66%.

Table-1.8 Annual Growth Rate of Publications of Central Universities in SCIE

S.No	Year	Publications	Increase/Decrease	Growth Rate (%)
1	*2005-06	2400	-	-
2	2006-07	2894	494	20.58
3	2007-08	3297	403	13.92
4	2008-09	3688	391	11.85
5	2009-10	4129	441	11.95

* The year 2005 is not considered for analysis, because it is out of scope of the present study

6.2.3 Yearwise Distribution of Publications of State Universities in Scopus database

The State Universities of India produce a total of 9870 documents in the year 2006 and pass through 12,004 documents in the year 2008 to the 14,952 documents in the last year 2010 as revealed from the Scopus database. It is hence clearly indicated that there is the growing trend of publications among the State Universities as was seen in case of Central Universities with the year 2006 as the low productivity year and the last year 2010 as the most productive year. This tendency of growth can be used as the forecasting method of determining the future of publications of the Universities of India. During 2006, the publication ranges from 634 records in case of Jadavpur University to 1 in case of Rabindra Bharati University (a difference of 633 records) and in year 2010, it ranges from 1028 records in case of Jadavpur University to 1 in case of Rabindra Bharati University (a difference of 1027 records). The data range can be used to infer the fact that the productivity of State Universities increases with the passage of years. The table-1.9 gives further details of the yearwise analysis of publications in Scopus database of each State University.

Table-1.9 Yearly Outline of State Universities in Scopus

Name of The State University	2006	2007	2008	2009	2010
Jadavpur University, Calcutta.	634	743	850	977	1028
Anna University, Chennai.	524	558	599	588	746
Annamalai University, Annamalaiagar.	330	471	465	504	545
University of Calcutta, Kolkata.	279	391	391	520	512
Panjab University, Chandigarh.	366	386	403	429	496
University of Madras.	448	404	379	413	341
University of Mysore	333	349	244	320	388
University of Pune	253	272	276	323	376

University of Rajasthan	252	286	263	303	348
Cochin University of Science & Technology, Kochi.	239	224	258	246	277
Andhra University, Visakhapatnam.	170	211	251	286	303
Mangalore University	172	333	200	210	282
Guru Nanak Dev University, Amritsar.	212	196	226	248	264
Osmania University, Hyderabad.	202	190	187	261	284
Sri Venkateswara University, Tirupati.	153	236	240	209	225
University of Lucknow	153	188	182	254	254
The Maharaja Sayajirao Univ. of Baroda, Vadodara.	177	167	174	231	257
Jawaharlal Nehru Technological Univ., Hyderabad.	110	170	224	203	295
University of Mumbai	182	189	244	223	159
Bharathidasan University, Tiruchirappalli.	162	157	167	220	232
Punjab Agricultural University, Ludhiana.	209	197	172	172	181
Shivaji University, Kolhapur.	114	127	174	226	245
Karnatak University	189	172	136	176	193
Bangalore University	127	154	154	185	218
Bharathiar University, Coimbatore.	127	124	144	182	258
Madurai Kamaraj University, Madurai.	133	168	184	159	172
University of Kalyani.	123	129	154	181	208
Punjabi University, Patiala.	115	132	168	188	188
Kurukshetra University, Kurukshetra.	93	127	149	178	209
G B Pant University of Agr. & Tech, Pantnagar.	132	131	128	139	174
Tamilnadu Agricultural University, Coimbatore.	124	153	118	148	153
University of Burdwan, Rajbati, Burdwan.	116	119	115	144	187
University of Kerala	88	116	159	134	151
Kakatiya University, Warangal.	76	104	155	145	166
Sardar Patel University, Vallabh Vidyanagar.	100	94	109	123	139
Gulbarga University	81	93	125	143	121
Dr. Babasaheb Ambedkar Marathwada University	62	86	101	140	148
Alagappa University, Alagappa Nagar, Karaikudi.	103	100	73	86	123
Kuvempu University, Shankaraghatta.	69	85	89	120	121
Jai Narain Vyas University, Jodhpur.	80	84	112	93	114
University of Jammu.	102	98	81	100	96
Gauhati University, Guwahati.	67	80	117	81	131
Guru Jambheshwar Univ. of S and T, Hisar.	72	82	99	109	101
Mohan Lal Sukhadia University, Udaipur.	82	92	85	99	95
Mahatma Gandhi University, Kottayam.	79	71	92	82	120
Himachal Pradesh University, Shimla.	77	77	82	95	94
University of North Bengal, Darjeeling.	62	59	48	113	137
Vidyasagar University, Midnapore.	65	72	71	113	78
Guru Angad Dev Vet. & Animal Sc. Univ., Ludhiana.	8	94	98	102	94
Sri Krishnadevaraya University, Anantapur.	65	59	61	84	115
Utkal University, Bhubaneswar.	52	65	69	85	96
University of Agricultural Sciences, Bangalore.	71	67	64	69	88
Saurashtra University, Rajkot.	70	71	75	68	74
Acharya Nagarjuna University, Guntur.	42	54	89	79	87
Jiwaji University, Gwalior.	40	61	71	70	94
University of Kashmir, Srinagar.	41	58	67	89	79
Gujarat University, Ahmedabad.	41	54	78	93	67
Maharana Pratap University of Agr. & Tech., Udaipur.	52	45	83	72	74
Pt. Ravishankar Shukla University, Raipur.	54	65	73	67	61
Deen Dayal Upadhyay Gorakhpur University.	51	54	65	75	75
Periyar University, Salem.	12	38	64	81	120
North Maharashtra University	47	49	53	76	82

Kumaun University, Nainital.	43	48	63	56	87
University of Calicut, Kozhikode.	47	59	66	62	52
Barkatullah University, Bhopal.	30	43	73	70	67
Goa University, Goa.	49	58	45	66	61
Ch. Charan Singh University, Meerut.	41	48	48	45	57
Veer Narmad South Gujarat University, Surat.	35	39	42	45	69
Sher-e-Kashmir Univ. of Agr.S and T of Kashmir.	39	35	25	46	77
Sant Gadge Baba Amravati University, Amravati.	31	43	29	61	56
West Bengal University of Animal and Fishery Sciences	32	34	41	52	59
Kerala Agricultural University	34	51	49	35	38
Dr. Yashwant Singh Parmar Univ. of Hort. &Forestry	36	34	39	50	44
Dibrugarh University, Dibrugarh.	18	24	36	51	68
West Bengal University of Technology.	13	37	48	44	49
Vikram University, Ujjain.	25	24	33	45	55
Sambalpur University, Sambalpur.	30	29	39	45	37
Bundelkhand University, Jhansi.	25	39	28	38	50
Acharya N G Ranga Agr. University, Hyderabad.	46	36	32	28	36
Swami Ramanand Teerth Marathwada Univ., Nanded.	31	36	33	16	57
Berhampur University, Berhampur.	20	30	25	54	37
University of Agricultural Sciences, Darwad.	28	33	31	33	36
Orissa University of Agr. and Tech., Bhubaneswar.	17	29	34	32	49
Rani Durgavati Vishwavidyalaya, Jabalpur.	31	24	29	32	32
Chhatrapati Shahu Ji Maharaj University, Kanpur.	27	21	31	21	19
Bhavnagar University, Bhavnagar.	19	16	30	17	32
Shri Mata Vaishno Devi University.	7	11	13	31	50
Tilkamanjhi Bhagalpur (T.M) University, Bhagalpur.	14	32	16	23	26
Mahatma Jyotiba Phule Rohilkhand Univ,Bareilly	12	10	34	23	29
Assam Agricultural University, Jorhat.	12	21	27	18	29
Narendra Deva (Deo) University of Agr. and Tech.	18	20	20	27	20
Rajasthan Agricultural University, Bikaner.	19	20	32	17	16
Dr B. R. Ambedkar University,Agra.	23	22	12	22	22
Chaudhary Devi Lal University, Sirsa.	3	22	21	21	24
Patna University, Patna.	12	9	20	19	26
Marathwada Krishi Vidyapeeth (Agricultural Univ.)	10	12	16	25	14
Dr. Babasaheb Ambedkar Tech. University, Raigad.	8	17	15	15	21
Chandra Shekhar Azad Univ. of Agr. & Tech., Kanpur.	5	19	21	15	13
Birsa Agricultural University	6	12	10	20	23
Kannur University	0	5	12	18	33
Maharashtra Animal & Fishery Sciences Univ., Nagpur.	10	9	19	18	11
Rajendra Agricultural University, Samastipur.	11	9	16	12	12
Dr. RML Avadh Univ.. (Ram Manohar Lohia RML)	14	11	11	10	12
Hemchandracharya North Gujarat University, Patan.	9	6	6	6	27
Tamil University, Thanjavur.	8	12	10	11	13
Babasaheb Bhimrao Ambedkar Bihar University	9	4	6	11	15
Ranchi University, Ranchi.	8	8	6	3	15
Sardar Vallabh Bhai Patel Univ. of Agr.&Tech., Meerut.	3	6	11	9	11
Mother Teresa Women's University, Kodaikanal.	2	8	9	5	12
Tamilnadu Dr. M.G.R. Medical University, Chennai.	9	13	8	6	0
Veer Kunwar Singh University, Ara.	2	7	7	8	11
Punjab Technical University, Jalandhar.	5	2	1	9	16
Dharmsinh Desai University, Nadiad,Gujarat.	0	0	3	6	19

Deenbandhu Chhotu Ram Univ. Of S and T, Murthal.	0	3	6	3	12
Rajiv Gandhi University of Health Sciences	2	2	6	4	10
University of Kota	0	0	5	8	9
Magadh University, Bodh Gaya.	1	1	3	8	8
Mahatma Phule Krishi Vidyapeeth, Rahuri.	7	5	6	2	1
Gujarat Ayurved University, Jamnagar.	1	6	1	4	4
Madhya Pradesh Bhoj University	1	3	7	3	2
Maharashtra University of Health Sciences, Nashik.	1	4	3	3	4
Biju Patnaik University of Technology, Rourkela.	3	4	4	3	0
Rajasthan Technical University	0	1	2	6	5
Dravidian University, Kuppam, Andhra Pradesh.	0	1	1	3	8
Jai Prakash University, Chhapra.	1	2	1	7	1
Lalit Narayan Mithila University, Darbhanga.	2	1	1	3	4
Rabindra Bharati University, Kolkata.	1	1	0	1	1
Total Publications	9870	11312	12004	13442	14952

6.2.3.1 Annual Growth Rate of Publications of State Universities in Scopus database

The growth rate of publications of State Universities in Scopus is highest (14.60%) in the year 2006-07 and lowest (6.11%) in the year 2007-08, a greater dip in the number of publications as shown in table 2.0. In the year 2008-09, the growth rate increases to 11.97%, but again decreases in 2009-10 to 11.23%. The same is revealed in case of increase in the number of publications of State Universities in Scopus also. The average annual growth rate of publications in this case is 8.782%.

Table-2.0 Annual Growth Rate of Publications of State Universities in Scopus				
S.No	Year	Publications	Increase/Decrease	Growth Rate (%)
1	*2005-06	9870	-	-
2	2006-07	11312	1442	14.60
3	2007-08	12004	692	6.11
4	2008-09	13442	1438	11.97
5	2009-10	14952	1510	11.23

* The year 2005 is not considered for analysis, because it is out of scope of the present study

6.2.4 Yearwise Distribution of Publications of State Universities in SCI-Expanded database

Although, the number of yearly publications of State Universities in SCI-Expanded are less as that of Scopus, but the trend of increasing the publications from 2006-2010 is hereby also noticed. The number of

publications goes from 8066 in 2006, 9589 in 2007, 10563 in 2008, 11097 in 2009 and 11728 in 2010 - the lowest in the starting year (2006) and the highest in the last year (2010). During 2006, the number of publications of Universities range from 495 in case of Jadavpur University to 1 in case of the West Bengal University of Health Sciences and in 2010, it varies from 647 in case of Jadavpur University to 4 in case of The West Bengal University of Health Sciences. Here we see the yearly difference (Predecessor Successor) of almost 500 documents but exceptionally greater transition occurs from 2006-2007 of 1523 documents. The following table-2.1 gives the lucid picture of the publications of State Universities scattered among the five years as obtained from the SCI-Expanded (WoS) database.

Table-2.1 Yearly Outline of State Universities in SCI-Expanded

Name of the State University	2006	2007	2008	2009	2010
Jadavpur University, Calcutta, West Bengal.	495	536	605	695	647
Punjab University, Chandigarh, Punjab.	314	474	552	539	579
Anna University, Tamil Nadu.	370	380	460	427	445
Annamalai University, Annamalaiagar, Tamil Nadu.	223	418	414	377	413
Madras University, Chennai, Tamil Nadu.	416	369	343	385	299
Calcutta University, Kolkata, West Bengal.	265	321	337	430	429
Mysore University, Mysore, Karnataka.	259	303	192	254	282
Rajasthan University, Jaipur, Rajasthan.	223	255	225	225	269
Mangalore University, Mangalore, Karnataka.	167	320	186	204	274
Guru Nanak Dev University, Amritsar, Punjab.	192	183	211	232	222
Mumbai University, Mumbai, Maharashtra.	188	221	252	196	111
Sri Venkateswara University, Tirupati, Andhra Pradesh.	147	209	217	177	169
Osmania University, Hyderabad, Andhra Pradesh.	153	127	153	220	196
Maharaja Sayajirao University of Baroda, Gujarat.	140	151	159	186	171
Bharathidasan University, Tiruchirappalli, Tamil Nadu.	143	135	135	188	200
Andhra University, Visakhapatnam, Andhra Pradesh.	125	154	180	161	176
Shivaji University, Kolhapur, Maharashtra.	108	123	160	198	206
Karnatak University, Dharwad, Karnataka.	174	156	133	153	159
Lucknow University, Lucknow, U.P.	131	145	149	164	183
Pune University, Pune, Maharashtra.	99	113	148	153	248
Jamia Hamdard, New Delhi.	106	111	151	190	196
Punjab Agricultural University, Ludhiana, Punjab.	164	151	149	133	127
Kalyani University, Kalyani, West Bengal.	111	114	143	161	172
Bangalore University, Bangalore, Karnataka.	104	120	135	147	166
Madurai Kamaraj University, Madurai, Tamil Nadu.	121	146	144	131	128
Bharathiar University, Coimbatore, Tamil Nadu	104	103	119	127	191
Jawaharlal Nehru Tech. University, Andhra Pradesh	77	120	133	125	151
The Bengal Eng. & Science University, West Bengal.	85	109	109	131	163
Kurukshetra University, Kurukshetra, Haryana.	74	106	115	149	154
Burdwan University, Rajbati, Burdwan, West Bengal.	84	92	92	108	149
Kakatiya University, Warangal, Andhra Pradesh	61	81	119	113	122
Kerala University, Thiruvananthapuram, Kerala.	68	96	120	107	108
Sardar Patel University, Vallabh Vidyanagar, Gujarat.	77	76	97	109	112

Punjabi University, Patiala, Punjab.	163	70	54	69	107
Tamilnadu Agricultural University, Tamil Nadu.	55	97	106	94	82
Gulbarga University, Gulbarga, Karnataka.	58	74	96	112	86
Jammu University, Jammu Tawi, J and K.	88	91	72	82	80
Choudhary Charan Singh Haryana Agr. University.	72	84	97	81	81
Alagappa University, Alagappa Nagar, Tamil Nadu.	87	93	62	61	97
Jai Narain Vyas University, Jodhpur, Rajasthan.	71	65	89	82	93
Dr. Babasaheb Ambedkar Marathwada Univ., Maharashtra.	34	54	81	109	111
Mahatma Gandhi University, Kottayam, Kerala.	65	65	86	72	93
Mohan Lal Sukhadia University, Udaipur, Rajasthan.	61	72	74	87	76
Himachal Pradesh University, Shimla, H.P.	59	67	73	89	77
Gauhati University, Guwahati, Assam.	53	56	96	62	87
Kuvempu University, Shankaraghatta, Karnataka.	39	52	79	99	83
Guru Jambheshwar University of Sc & Tech, Hisar, Haryana.	51	65	76	90	67
North Bengal University, Darjeeling, West Bengal.	59	50	44	75	109
Vidya Sagar University, Midnapore, West Bengal.	54	65	64	90	62
Sri Krishnadevaraya University, .Andhra Pradesh	52	43	59	79	81
Saurashtra University, Rajkot, Gujarat.	57	66	70	53	55
The Rashtrasant Tukadoji Maharaj Nagpur Univ., Mharashtra.	48	56	63	65	69
Maharishi Dayanand Saraswati University, Ajmer, Rajasthan.	69	63	55	53	58
Jiwaji University, Gwalior, Madhya Pradesh.	32	54	65	67	71
Utkal University, Bhubaneswar, Orissa.	42	50	62	57	69
Devi Ahilya Vishwavidyalaya, Indore, Madhya Pradesh.	46	52	54	61	61
Gujarat University, Ahmedabad, Gujarat.	36	40	72	72	51
Kumaun University, Nainital, Uttarakhand.	30	47	62	61	71
Guru Angad Dev Vet & Animal Sc.University, Punjab.	4	62	76	60	58
North Maharashtra University, Jalgaon, Maharashtra.	38	49	41	55	61
Acharya Nagarjuna University, Guntur, Andhra Pradesh	26	41	55	57	59
Periyar University, Salem, Tamil Nadu.	12	33	46	66	80
Kashmir University, Srinagar, J and K.	25	37	57	67	51
Calicut University, Kozhikode, Kerala.	35	42	65	48	44
Pt. Ravishankar Shukla University, Raipur, Chhattisgarh.	21	43	59	53	51
Goa University, Goa	35	39	39	58	49
Deen Dayal Upadhyay Gorakhpur University, U.P.	22	27	47	66	56
Choudhary Charan Singh University, Meerut, U.P.	34	54	42	33	45
Barkatullah University, Bhopal, Madhya Pradesh.	18	28	54	53	46
University of Agricultural Sciences, Bangalore, Karnataka.	39	47	45	36	30
Bidhan Chandra Krishi Vishwavidyalaya, West Bengal.	23	34	55	28	49
Tamilnadu Vet. & Animal Sciences Univ., Tamil Nadu.	39	46	48	25	28
Manonmaniam Sundarnar University, Tamil Nadu.	12	32	32	46	53
South Gujarat University, (Veer Narmad), Gujarat.	17	20	32	34	45
Guru Gobind Singh Indraprastha Vishwavidyalaya, Delhi	13	26	35	30	60
Assam Agricultural University, Jorhat, Assam.	35	40	40	26	21
Dibrugarh University, Dibrugarh, Assam.	15	26	35	29	56
Sambalpur University, Sambalpur, Orissa.	28	22	36	41	28
Anand Agricultural Univerisity, Anand, Gujarat.	11	18	53	26	42
Vikram University, Ujjain, Madhya Pradesh.	25	20	32	31	39
Kerala Agricultural University, Thrissur, Kerala.	18	33	40	32	24
Dr. Y.S.Parmar University of Hort. & Forestry, H.P.	19	25	27	39	32
Swami Ramanand Teerth Marathwada Univ., Maharashtra.	23	32	28	14	42
West Bengal Univ. of Animal & Fishery Sc, West Bengal.	20	19	29	31	39
Bundelkhand University, Jhansi, U.P.	22	32	25	29	25
Rani Durgavati Vishwavidyalaya, Madhya Pradesh.	27	20	27	25	24
Himachal Pradesh Agr. Univ.(Chaudhary Sarwan Kumar)	37	22	29	23	12
Sher-e-Kashmir Univ. of Agr. Sc & Tech., Jammu , J & K.	11	21	22	28	37
Sher-e-Kashmir Univ. of Agr. Sc & Tech., Srinagar, J & K.	11	11	25	30	41

Orissa University of Agriculture & Technology, Orissa.	7	16	32	28	30
Maharana Pratap University of Agr. & Tech, Rajasthan.	12	10	31	26	39
Berhampur University, Berhampur, Orissa.	17	18	18	32	23
Bhavnagar University, Bhavnagar, Gujarat.	15	16	22	19	30
T.M.Bhagalpur University, Bhagalpur, Bihar.	13	32	14	16	25
Narendra Deva University of Agr. & Technology, U.P.	9	22	27	29	8
Acharya N.G.Ranga Agricultural University, Andhra Pradesh	23	18	24	9	15
Rajasthan Agricultural University, Bikaner, Rajasthan.	9	24	29	20	7
Karnataka Vet, Animal & Fisheries Sc.Univ., Karnataka.	8	17	21	25	12
North Orissa University, Bhubaneswar, Orissa.	8	5	23	23	24
West Bengal University of Technology, West Bengal.	5	9	17	22	26
G.B. Pant University of Agr. and Technology, Uttarakhand.	3	12	19	18	27
Chaudhary Devi Lal University, Sirsa, Haryana.	2	18	16	15	19
Dr. B.R. Ambedkar University, Agra, U.P.	11	10	9	15	18
Dr Ram Manohar Lohia Awadh University, U.P.	11	7	13	10	21
M.J.P.Rohilkhand University, Bareilly, U.P.	3	5	16	14	16
Sant Gadge Baba Amravati University, Maharashtra.	4	11	6	15	18
Mahatma Phule Krishi Vidyapeeth, Maharashtra.	10	9	11	11	11
Marathwada Agricultural University, Maharashtra.	5	8	18	14	6
Jawaharlal Nehru Krishi Vishwavidyalaya, Madhya Pradesh.	8	11	10	11	10
Solapur University, Solapur, Maharashtra.	4	5	6	10	25
Patna University, Patna, Bihar.	6	5	11	10	16
Maharishi Dayanand University, Rohtak, Haryana.	2	9	10	8	19
Sri Venkateswara Veterinary University, Andhra Pradesh	0	5	13	11	17
Chandra Shekhar Azad University of Agr & Tech, U.P.	2	9	19	9	7
Indira Gandhi Krishi Vishwavidyalaya, Chhattisgarh.	7	15	10	7	7
Birsa Agricultural University, Ranchi, Jharkhand.	4	12	11	7	11
Smt. Nathibai Damodar Thackersey Women's Univ.	5	3	10	18	8
Shri Mata Vaishno Devi University, Jammu, J and K.	5	3	4	7	23
Sardar Vallabh Bhai Patel University of Agr & Tech, U.P.	1	7	10	10	10
Veer Kunwar Singh University, Arrah, Bihar.	1	9	9	9	9
Maharashtra Animal & Fishery Sciences Univ., Maharashtra.	4	7	10	8	7
Rajiv Gandhi Prodyogiki Vishwavidyalaya, M.Pradesh.	0	4	10	10	12
West Bengal State University, West Bengal.	0	0	0	14	23
Uttar Pradesh Technical University, Lucknow, U.P.	2	1	6	13	12
Fakir Mohan University, Balasore, Orissa.	6	7	5	10	6
Ranchi University, Ranchi, Jharkhand.	6	11	6	1	10
Babasaheb Bhimrao Ambedkar Bihar University, Bihar.	8	3	3	9	9
Veer Bahadur Singh Purvanchal University, Jaunpur, U.P.	6	8	6	4	5
Rajendra Agricultural University, Samastipur, Bihar.	3	3	10	7	6
Punjab Technical University, Jalandhar, Punjab.	1	2	2	3	20
Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Maharashtra.	0	1	10	13	3
Kannur University, Kannur, Kerala.	0	4	3	7	13
Uttar Banga Krishi Vishwavidyalaya, West Bengal.	1	2	8	11	3
Dr. Babasaheb Ambedkar Technological Univ., Maharashtra.	1	3	4	9	8
Hemchandracharya North Gujarat University, Gujarat.	4	1	4	6	9
Delhi Technological University, New Delhi.	0	0	0	1	23
Chatrapati Sahuji Maharaj Kanpur University, U.P.	4	6	4	1	7
Ravenshaw University, Cuttak, Orissa.	0	3	3	8	8
Mother Teresa Women's University, Tamil Nadu.	2	5	6	4	4
Vinoba Bhave University, Jharkhand.	7	3	2	1	6
Sri Padmavati Mahila Vishwavidyalayam, Andhra Pradesh	0	5	1	7	5
Tamil University, Thanjavur, Tamil Nadu.	2	3	4	4	5
Thiruvalluvar University, Fort, Vellore, Tamil Nadu.	1	8	6	1	2
King Georges Medical University, Lucknow, U.P.	7	6	1	1	1
Rajiv Gandhi University of Health Sciences, Karnataka.	1	2	3	1	8

University of Kota, Kota, Rajasthan.	0	0	2	5	8
Deen Bandhu Chhotu Ram Univ. of Sc & Tech, Haryana.	0	2	3	2	7
Gujarat Agricultural University, Gujarat.	4	2	2	1	3
Magadh University, Bodh Gaya, Bihar.	0	1	3	4	4
Maharashtra University of Health Sciences, Maharashtra.	2	2	3	0	4
Telangana University, Nizamabad, Andhra Pradesh	0	0	0	2	8
Tamilnadu Dr. M.G.R. Medical University, Tamil Nadu.	2	4	1	1	2
Biju Patnaik University of Technology, Rourkela, Orissa.	1	2	4	1	0
Awadesh Pratap Singh University, Rewa, Madhya Pradesh.	0	1	4	1	1
M.P.Bhoj (open) University, Bhopal, Madhya Pradesh.	1	0	2	3	1
Netaji Subhash Open University, Kolkata, West Bengal.	2	3	2	0	0
Dharmsinh Desai University, College Road, Nadiad, Gujarat.	0	0	0	2	4
Gujarat Ayurveda University, Jamnagar, Gujarat.	0	3	0	3	0
Baba Ghulam Shah Badshah University, Rajouri, J and K.	1	0	3	0	2
Tumkur University, Tumkur, Karnataka.	0	0	2	0	4
Lalit Narayan Mithila University, Darbhanga, Bihar.	2	1	0	1	2
Rajasthan Technical University, Kota, Rajasthan.	0	0	2	3	1
The West Bengal Univ. of Health Sciences, West Bengal.	1	0	0	0	4
Total Publications	8066	9589	10563	11097	11728

6.2.4.1 Annual Growth Rate of Publications of State Universities in SCI-Expanded database

From table 2.2, it is clearly revealed that the growth rate of publications of State universities in SCI-Expanded database decreases from 18.88% in the year 2006-07 to 5.05% in the year 2008-09. Later in the year 2009-10, there is a slight increase in the growth rate of publications of State Universities in Scopus to 5.68%. The annual increase in the number of publications is also highest in the year 2006-07, which decreases to 534 documents in the year 2008-09 and after wards, it increases to 631 documents in the year 2009-10. The average annual growth rate of publications comes out to be 7.952%.

Table-2.2 Annual Growth Rate of Publications of State Universities in SCIE				
S.No	Year	Publications	Increase/Decrease	Growth Rate (%)
1	*2005-06	8066	-	-
2	2006-07	9589	1523	18.88
3	2007-08	10563	974	10.15
4	2008-09	11097	534	5.05
5	2009-10	11728	631	5.68

* The year 2005 is not considered for analysis, because it is out of scope of the present study

6.3 Subject areas covered in the published output of Indian Universities

As we witness that the publications in Science and Technology is greater than that of the Social Science, Arts & Humanities subjects both at the national and international level, the study enveloped the field of Science and Technology, within which large divisions of subjects were present in both Scopus and SCI-Expanded databases. Following this global dimension and the timely demand of the hour, the Central and State Universities in India produce larger volume of their publications towards Science and Technology than Social Science, Arts & Humanities subjects, as represented by the two databases. The stronger subject areas of research activities in Indian Universities are: Chemistry, Physics, Engineering, Medicine, Material Sciences, Agriculture, Biochemistry, Genetics and Molecular Biology, Pharmacology Pharmacy, Biotechnology Applied Microbiology, etc. while the weaker areas are: Veterinary, Neuroscience, Energy, Health Professions, Telecommunications, Rheumatology, Reproductive Biology, Nursing, Dentistry, Sport Sciences, Respiratory System, Rehabilitation, etc. There are greater subject divisions of Science and Technology field in SCI-Expanded database than that of Scopus database. It may be mentioned here that the present study took into consideration only first 10 subject areas from each University for the final analysis. The following analysis will deal individually with the subject wise publications of Central and State Universities in both Scopus and SCI-Expanded databases.

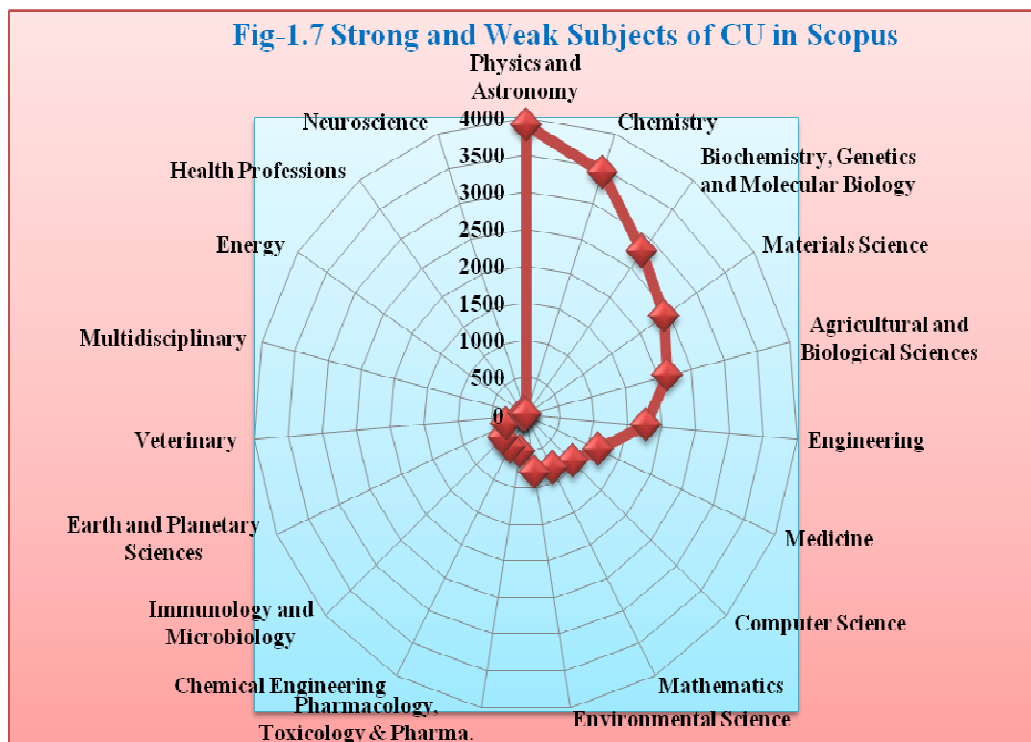
6.3.1 Subject areas of Central Universities in Scopus database

The Central Universities produced their documents in a total of 19 subject areas in Science and Technology as was revealed from Scopus database (table-2.3). The Physics and Astronomy with 3902 documents is at the top of all subject areas followed by chemistry with 3451, Biochemistry, Genetics and Molecular Biology with 2777, Materials Science with 2423, Agricultural and Biological Sciences with 2148 documents. The next category of medium

productive subjects were: Engineering (1775 documents), Medicine (1169 documents), Computer Science (929 documents), Mathematics (814 documents), Environmental Science (788 documents), the last and the weakest subject areas having less than 50 documents were: Veterinary (41 documents), Multidisciplinary (40 documents), Energy (28 documents), Health Professions (10 documents), and Neuroscience (7 documents). The table below provides the broader outline of all the subject areas along with their publication share.

Table-2.3 Strong and Weak Subjects of Central Universities in Scopus		
S No.	Subject Area	No. of Publications
1	Physics and Astronomy	3902
2	Chemistry	3451
3	Biochemistry, Genetics and Molecular Biology	2777
4	Materials Science	2423
5	Agricultural and Biological Sciences	2148
6	Engineering	1775
7	Medicine	1169
8	Computer Science	929
9	Mathematics	814
10	Environmental Science	788
11	Pharmacology, Toxicology and Pharmaceutics	505
12	Chemical Engineering	493
13	Immunology and Microbiology	458
14	Earth and Planetary Sciences	311
15	Veterinary	41
16	Multidisciplinary	40
17	Energy	28
18	Health Professions	10
19	Neuroscience	7

Fig-1.7 shows the pictorial view of the publications of Central Universities according to the subjects in Scopus. It may be clearly seen from the figure that the marker line touches almost the corner of the circle, which is the apex of the circle only at the Physics and Astronomy subject. The same goes on decreasing continuously to the point of Environmental Science. After that, the line collapses closely at the Earth and Planetary Sciences subject. From this onwards, as the number of documents are less than 50 (a very low in the selected range of 0-500 documents), the line has not further shown and thus rests on the base point of the circle as can be perceived from the figure below.



6.3.2 Subject areas of Central Universities in SCI-Expanded database

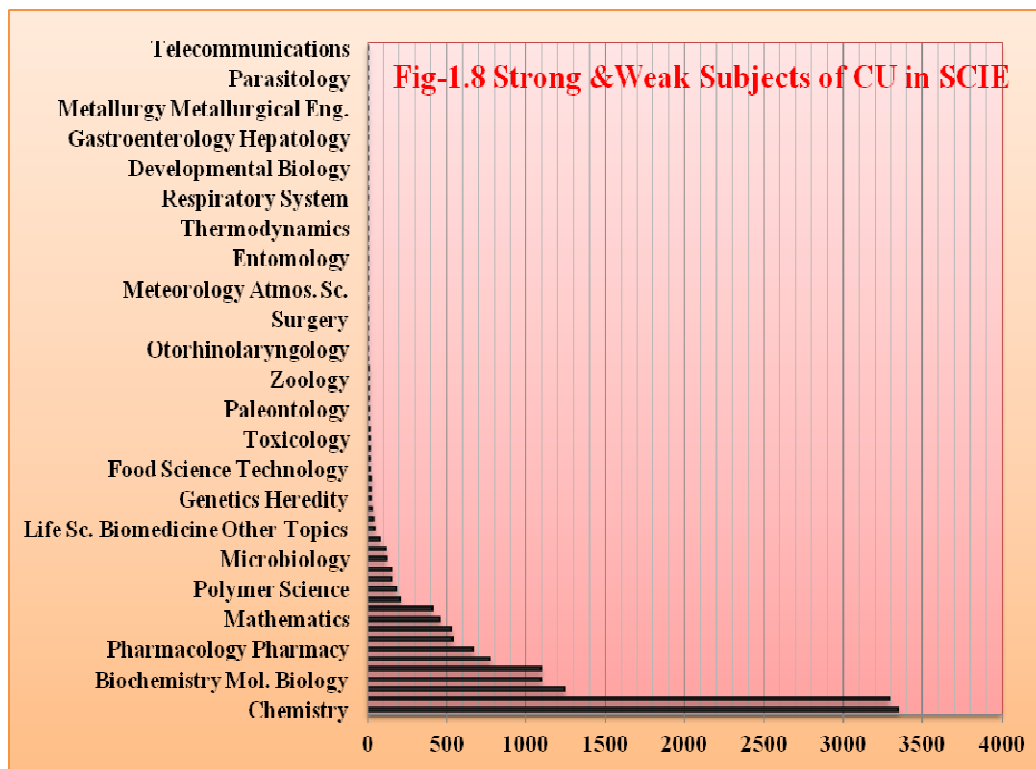
In SCI-Expanded database, the Central Universities contribute publications in major 67 subjects with Chemistry (3349 documents) and Physics (3289 documents) exceptionally crossing above 3000 document mark and thus evolves as the strong subject areas having a larger number of documents in their favour. There are only three subjects (Materials Science with 1244, Biochemistry Molecular Biology with 1095 and Engineering with 1092 documents) which have got a document count of above 1000 but below 1300 documents. The subjects which have below 1000 and above 100 documents are 12 subjects i.e. from Science Technology Other Topics with 771 documents to Optics with 113 documents and the rest of the subjects are having below 100 documents. It can also be noted down that there are 15 subjects which have got only one publication in their lap. The table-2.4 below provides the further analysis of the subject wise publication profile of Central Universities in SCI-Expanded database.

Table-2.4 Strong and Weak Subjects of Central Universities in SCI-Expanded

S No.	Subject Area	No. of Publications
1	Chemistry	3349
2	Physics	3289
3	Materials Science	1244
4	Biochemistry Molecular Biology	1095
5	Engineering	1092
6	Science Technology Other Topics	771
7	Pharmacology Pharmacy	663
8	Biotechnology Applied Microbiology	534
9	Environmental Sciences Ecology	530
10	Mathematics	457
11	Plant Sciences	405
12	Agriculture	204
13	Polymer Science	177
14	Crystallography	155
15	Biophysics	151
16	Microbiology	116
17	Optics	113
18	Astronomy Astrophysics	78
19	Life Sciences Biomedicine Other Topics	45
20	Energy Fuels	38
21	Geology	29
22	Genetics Heredity	25
23	Instruments Instrumentation	22
24	Mechanics	22
25	Food Science Technology	19
26	Nuclear Science Technology	18
27	Neurosciences Neurology	16
28	Toxicology	16
29	Pediatrics	15
30	Immunology	11
31	Paleontology	11
32	General Internal Medicine	10
33	Medical Laboratory Technology	10
34	Zoology	10
35	Spectroscopy	9
36	Pathology	7
37	Otorhinolaryngology	6
38	Water Resources	6
39	Geochemistry Geophysics	5
40	Surgery	5
41	Anatomy Morphology	4
42	Cell Biology	4
43	Meteorology Atmospheric Sciences	4
44	Psychiatry	4
45	Computer Science	3
46	Entomology	3
47	Integrative Complementary Medicine	3
48	Public Environmental Occupational Health	3
49	Thermodynamics	3
50	Tropical Medicine	3
51	Infectious Diseases	2
52	Respiratory System	2

53	Business Economics	1
54	Cardiovascular System Cardiology	1
55	Developmental Biology	1
56	Endocrinology Metabolism	1
57	Forestry	1
58	Gastroenterology Hepatology	1
59	Hematology	1
60	Mathematical Computational Biology	1
61	Metallurgy Metallurgical Engineering	1
62	Nutrition Dietetics	1
63	Orthopedics	1
64	Parasitology	1
65	Reproductive Biology	1
66	Rheumatology	1
67	Telecommunications	1

Fig-1.8 shows the strong and weak subjects of the Central Universities in SCI-Expanded database and here all the subjects are not named out (cannot include list of 67 subjects). The exceptional escalation of horizontal bars in case of Chemistry and Physics is clearly revealed from the figure, followed first by a few comparative stronger subjects and then by the intermediary subjects. The bar portion of the weak subjects lies on the axis with minute detections as their number of publications is very low in the range of 0-500.

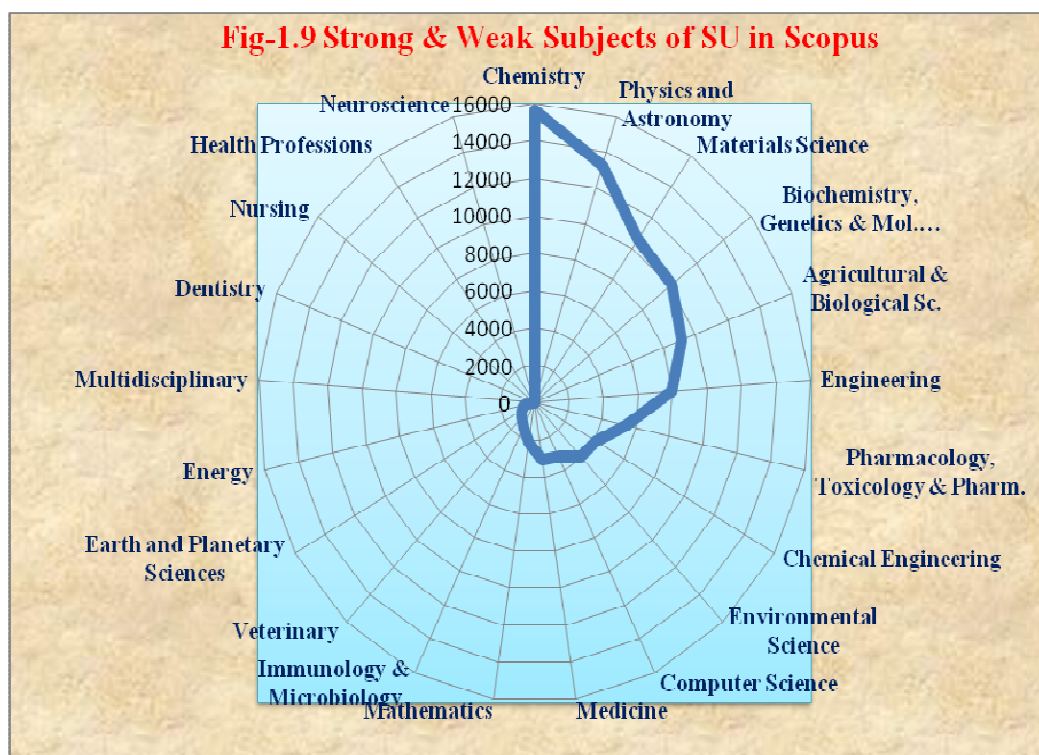


6.3.3 Subject areas of State Universities in Scopus database

There are 21 subject areas in which the State Universities have produced their publication output as indexed by Scopus database with Chemistry as the strongest subject having 15,609 documents in its share followed by Physics and Astronomy with 13,261 documents, Materials Science with 10,539 documents, Biochemistry, Genetics and Molecular Biology with 10,165 documents. The subjects which have received the documents from below 10,000 and above 1000 are the medium productive subjects such as Agricultural and Biological Sciences (9144 documents), Engineering (7980 documents), Pharmacology, Toxicology and Pharmaceutics (5425 documents), Chemical Engineering (4119 documents), Environmental Science (3897 documents), etc. The weak subject areas with documents below 1000 are Earth and Planetary Sciences with 896 documents, Energy with 619 documents, Multidisciplinary with 145 documents and rest others with only below 15 documents. The table-2.5 below further reveals the subjects dispersion of State Universities in Scopus database.

Table-2.5 Strong and Weak Subjects of State Universities in Scopus		
S No.	Subject Area	No. of Publications
1	Chemistry	15609
2	Physics and Astronomy	13261
3	Materials Science	10539
4	Biochemistry, Genetics and Molecular Biology	10165
5	Agricultural and Biological Sciences	9144
6	Engineering	7980
7	Pharmacology, Toxicology and Pharmaceutics	5425
8	Chemical Engineering	4119
9	Environmental Science	3897
10	Computer Science	3159
11	Medicine	3076
12	Mathematics	2193
13	Immunology and Microbiology	1474
14	Veterinary	1096
15	Earth and Planetary Sciences	896
16	Energy	619
17	Multidisciplinary	145
18	Dentistry	12
19	Nursing	12
20	Health Professions	7
21	Neuroscience	3

Fig-1.9 shows the graphic representation of strong and weak subjects in State Universities as reflected from Scopus database. We can see clearly the line touching the border only at Chemistry, indicating the subject as the strongest subject among State Universities in Scopus and then after wards the line goes on decreasing continuously towards the centre of the circle first slightly at the Immunology & Microbiology and later on completely at Energy. The line totally coincides with the centre in the areas of weak subjects from Multidisciplinary subject to Neuroscience as can be seen from the figure below.



6.3.4 Subject areas of State Universities in SCI-Expanded database

The Indian State Universities as depicted by SCI-Expanded database produced their documents in 98 broader subject areas with the highest number of publications here also in the field of Chemistry with 12,973 documents. The other strong subjects of State Universities in SCI-Expanded are the Physics with 7512 documents, Materials Science with 4643 documents, Engineering with 4173 documents, Pharmacology Pharmacy with 3284 documents, Crystallography with 2720 documents, Agriculture with 2507 documents,

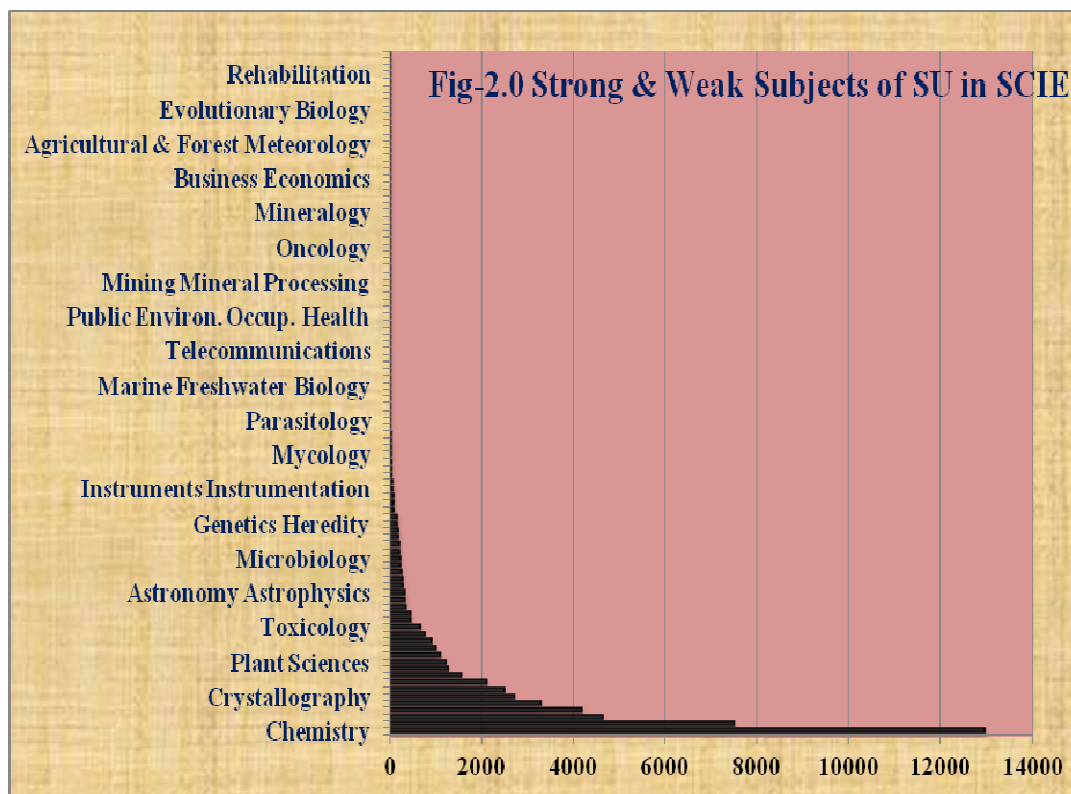
Biochemistry Molecular Biology with 2117 and Environmental Sciences Ecology with 1566 documents. The subject areas with documents below 1300 and above 300 are the medium productive subjects such as Biotechnology Applied Microbiology with 1259 documents (highest in the category) and Astronomy Astrophysics with 320 documents (lowest in the category). The weak subjects can be seen from Geology (285 documents) below 300 to those of Acoustics, Agricultural and Forest Meteorology, Anthropology, etc. subjects having only one document in their share. The table-2.6 provides the depth analysis of all the subjects along with the number of publications received.

Table-2.6 Strong and Weak Subjects of State Universities in SCI-Expanded		
S No.	Subject Area	No. of Publications
1	Chemistry	12973
2	Physics	7512
3	Materials Science	4643
4	Engineering	4173
5	Pharmacology Pharmacy	3284
6	Crystallography	2720
7	Agriculture	2507
8	Biochemistry Molecular Biology	2117
9	Environmental Sciences Ecology	1566
10	Biotechnology Applied Microbiology	1259
11	Plant Sciences	1223
12	Science Technology Other Topics	1098
13	Polymer Science	993
14	Mathematics	908
15	Food Science Technology	751
16	Toxicology	657
17	Veterinary Sciences	459
18	Optics	456
19	Computer science	342
20	Energy Fuels	321
21	Astronomy Astrophysics	320
22	Geology	285
23	Spectroscopy	271
24	Electrochemistry	249
25	Metallurgy Metallurgical Engineering	237
26	Microbiology	232
27	Mechanics	215
28	Meteorology Atmospheric Sciences	204
29	Cell Biology	189
30	Nuclear Science Technology	179
31	Genetics Heredity	163
32	Neurosciences Neurology	151
33	Biophysics	96
34	Life Sciences Biomedicine Other Topics	85
35	Thermodynamics	77
36	Instruments Instrumentation	72

37	Entomology	58
38	Immunology	46
39	Fisheries	45
40	Virology	41
41	Mycology	33
42	Zoology	33
43	Nutrition Dietetics	30
44	Medical Laboratory Technology	29
45	Water Resources	25
46	Parasitology	22
47	Research Experimental Medicine	22
48	Endocrinology Metabolism	20
49	Operations Research Management Science	20
50	Paleontology	20
51	Marine Freshwater Biology	18
52	Reproductive Biology	17
53	General Internal Medicine	16
54	Physiology	15
55	Geochemistry Geophysics	14
56	Telecommunications	14
57	Automation Control Systems	13
58	Infectious Diseases	12
59	Developmental Biology	11
60	Forestry	10
61	Public Environmental Occupational Health	10
62	Remote Sensing	9
63	Integrative Complementary Medicine	7
64	Psychiatry	7
65	Education Educational Research	6
66	Mining Mineral Processing	6
67	Behavioural sciences	5
68	Cardiovascular System Cardiology	5
69	Dentistry Oral Surgery Medicine	5
70	Oceanography	5
71	Oncology	5
72	Anatomy Morphology	4
73	Chromatographia	4
74	Construction Building Technology	3
75	Gastroenterology Hepatology	3
76	Mineralogy	3
77	Orthopedics	3
78	Pathology	3
79	Pediatrics	3
80	Biodiversity Conservation	2
81	Business Economics	2
82	Hematology	2
83	Radiology Nuclear Medicine Medical Imaging	2
84	Tropical Medicine	2
85	Acoustics	1
86	Agricultural and Forest Meteorology	1
87	Anthropology	1
88	Dermatology	1
89	Drug Development and Industrial Pharmacy	1
90	Epidemiology	1
91	Evolutionary Biology	1
92	History Philosophy of Science	1

93	Intervirolgy	1
94	Nursing	1
95	Radiation Physics and Chemistry	1
96	Rehabilitation	1
97	Respiratory System	1
98	Sport Sciences	1

Fig-2.0 portraits the picture of major subject areas of State Universities indexed by SCI-Expanded. As the list of the subjects is greater (98), all the names of the subjects cannot be displayed in the figure. The base of the figure is formed of the horizontal bars of strong subjects (Chemistry, Physics, Materials Science, Engineering, Pharmacology Pharmacy, Crystallography, Agriculture, Biochemistry Molecular Biology, and Environmental Sciences Ecology) and the area of the horizontal bars go on decreasing and we can see them upto the subject Instruments Instrumentation (the medium productive subjects). Here after, the bars are not identifiable with subjects having documents less than 60 indicating the weak subjects of State Universities in SCI-Expanded database.



6.4 Document Types used for Publication by Indian Universities

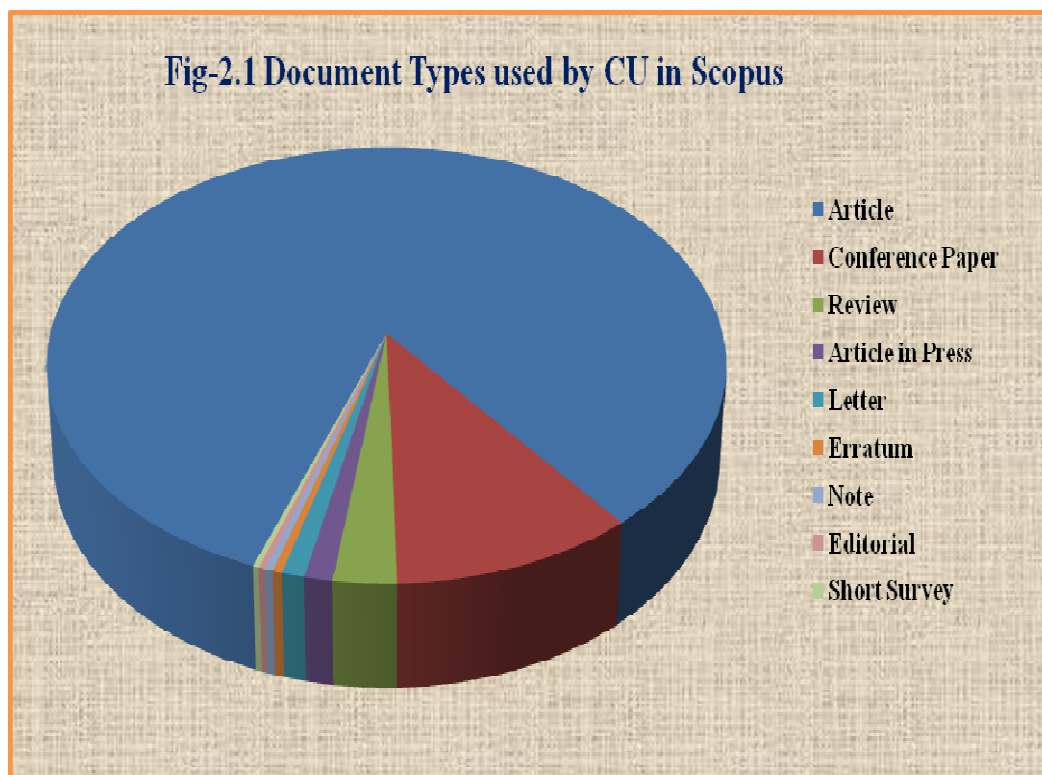
The research publications can be produced through a wide variety of forms/formats called as document types. All Institutes contribute their publication output through journal articles, conference proceeding papers, reviews (journal and book), letters, notes, editorials, short surveys, articles in press, etc. and these all cumulate to give the whole number of records in any database. It is this cumulative number which is considered as the overall published output of any Institute. We know that the journal articles constitute a major share of publications, followed by conference proceeding papers, reviews, letters and the like. The least used forms are the short surveys, erratums, notes, editorials, articles in press, etc. Although majority of the Universities follow this facet of publishing trend, yet there are also some Universities where disproportionate distribution of document types occurs, but that too only after journal article form which is the first form of document type in every case. Here all the document types which the Indian Central and State Universities used while contributing their publications are represented individually both in Scopus and SCI-Expanded databases along with the number of publications received by each document type.

6.4.1 Document Types used by Central Universities in Scopus database

As revealed by Scopus, the Central Universities used nine different document types for publishing their research output with article form (12,839 documents) as the most widely used document type. Because we know that the articles are the first insight and general mode of drafting the research output in academic journals among research communities. The conference papers with 1561 documents are the second most favoured document type used by Central Universities, followed by reviews with 403 documents and so on. The least used document types are the editorials (40 documents) and short surveys (39 documents) as can be seen from the following table-2.7 which gives the list of all the document types used by Central Universities in Scopus database.

Table-2.7 Types of Documents used by Central Universities in Scopus		
S No.	Document Type	No. of Publications
1	Article	12,839
2	Conference Paper	1561
3	Review	403
4	Article in Press	178
5	Letter	145
6	Erratum	60
7	Note	53
8	Editorial	40
9	Short Survey	39

Fig-2.1 below shows a wide variety of document types preferred by the Central Universities for publishing their research output. It is clearly noticeable from the figure that the maximum area of the pie-chart is being covered by the 'article form' followed by conference papers and reviews. The articles in press and letters are the average used document types and the last four types i.e., erratums, notes, editorials and the short surveys are the leastly used document forms for communicating the research output.

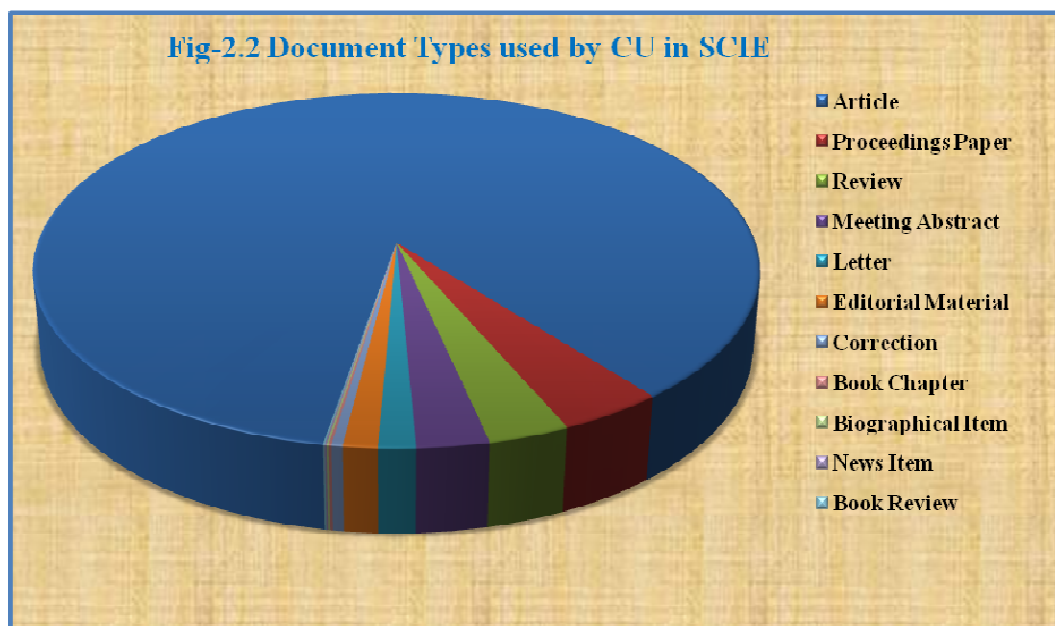


6.4.2 Document Types used by Central Universities in SCI-Expanded database

The Central Universities as from SCI-Expanded database used a total of eleven types of documents for publishing their research content. Here also the ‘article form’ is the most widely used path for deciphering the information with 14,377 documents published in this form (table-2.8). The proceedings paper with 604 documents, reviews with 435 documents, meeting abstracts with 429 documents, letters with 237 documents and editorial materials with 208 documents are the second preferred document types of Central Universities. The others are the least used document types and the details can be had from the table below.

Table-2.8 Types of Documents used by Central Universities in SCIE		
S No.	Document Type	No. of Publications
1	Article	14,377
2	Proceedings Paper	604
3	Review	435
4	Meeting Abstract	429
5	Letter	237
6	Editorial Material	208
7	Correction	63
8	Book Chapter	19
9	Biographical Item	13
10	News Item	12
11	Book Review	11

Fig-2.2 shows the types of documents used by Central Universities as represented by SCI-Expanded database. The most favoured form of document used is the ‘article form’ which constitutes the maximum portion of the pie-chart, as we witness the fame of journal article publishing in academia followed by the proceedings paper. The reviews, meeting abstracts, letters and editorial materials are occupying the comparable portions as is clearly visible from the figure. The rest of the document types are having less area coverage in the pie-chart indicating their less usage for publishing the research content by the Central Universities.

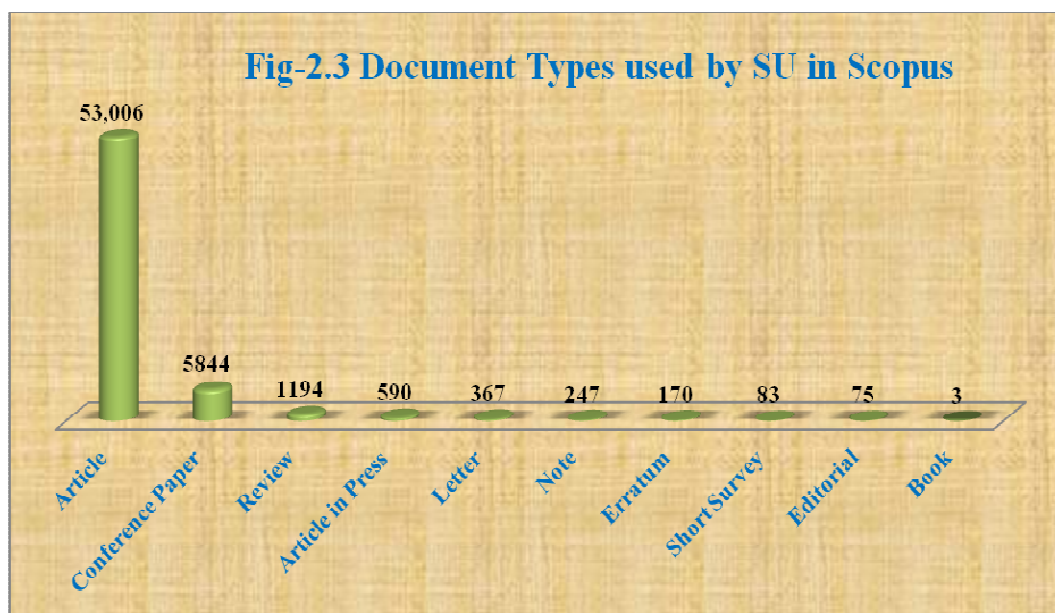


6.4.3 Document Types used by State Universities in Scopus database

The State Universities of India produced their publications in a total of ten document types as reflected from the Scopus database. The 'article form' with 53,007 documents is the most preferred medium of communication to the outside research community followed by the conference papers with 5844 documents as the second source for publication (Table-2.9). The reviews came out to be in a position to cross the 1000 document mark with 1194 documents in its share where as the comparatively less used forms include articles in press (590 documents), letters (367 documents), notes (247 documents) and erratums (170 documents). The least used forms are the short surveys (83 documents), editorials (75 documents) and books (3 documents).

Table-2.9 Types of Documents used by State Universities in Scopus		
S No.	Document Type	No. of Publications
1	Article	53,007
2	Conference Paper	5844
3	Review	1194
4	Article in Press	590
5	Letter	367
6	Note	247
7	Erratum	170
8	Short Survey	83
9	Editorial	75
10	Book	3

Fig-2.3 shows the types of documents used by State Universities for their publication output as revealed from the Scopus database. The number of publications of each document type is shown over the corresponding cylinder. It is clearly visible that the 'article form' with the highest cylinder, is the most widely used form for publishing, followed by conference papers, reviews, articles in press and the like. The least used forms lay almost on the base line of the figure as their share of documents is very less.



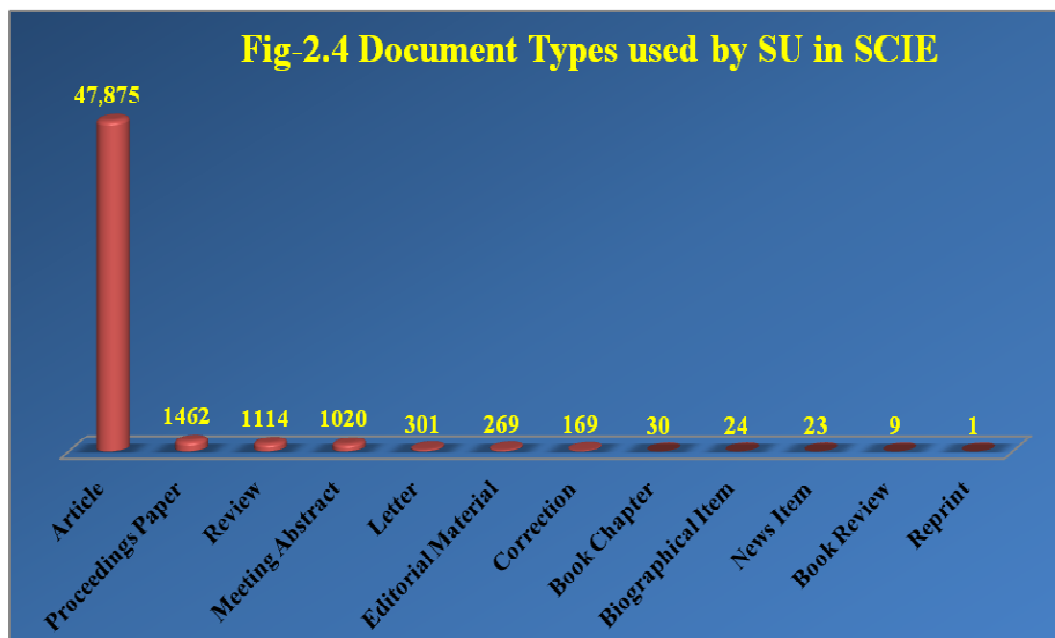
6.4.4 Document Types used by State Universities in SCI-Expanded database

There are twelve types of documents used by State Universities for publishing their research output as was retrieved from the SCI-Expanded database. Here also the 'article form' gains the ground with 47,055 documents in its share, so as to evolve as the most preferable medium of publishing among the State Universities of India. It was followed by the proceedings paper with 1332 documents, reviews with 1012 documents and meeting abstracts with 954 documents as the secondly preferred forms for publishing. The comparatively less used forms are letters (287 documents), editorial material (203 documents) and correction (131 documents) whereas the others are the least used forms for

publishing. The table-3.0 below outlines all the document types and their corresponding publications produced by the State Universities of India.

Table-3.0 Types of Documents used by State Universities in SCIE		
S No.	Document Type	No. of Publications
1	Article	47,055
2	Proceedings Paper	1332
3	Review	1012
4	Meeting Abstract	954
5	Letter	287
6	Editorial Material	203
7	Correction	131
8	Book Chapter	23
9	Biographical Item	21
10	News Item	18
11	Book Review	6
12	Reprint	1

Fig-2.4 shows the cylindrical column chart of the document types used by the State Universities for their publication as reflected from SCI-Expanded database. It is clear from the figure that the highest cylinder is that of the 'article form' followed by the identifiable cylinders of proceedings paper, reviews and meeting abstracts. The cylindrical portions of letters (slightly visible) and later on wards are less visible, depicting their less usage for publication by the State Universities of India.



6.5 Language wise distribution of Publications by the Scientists of Indian Universities

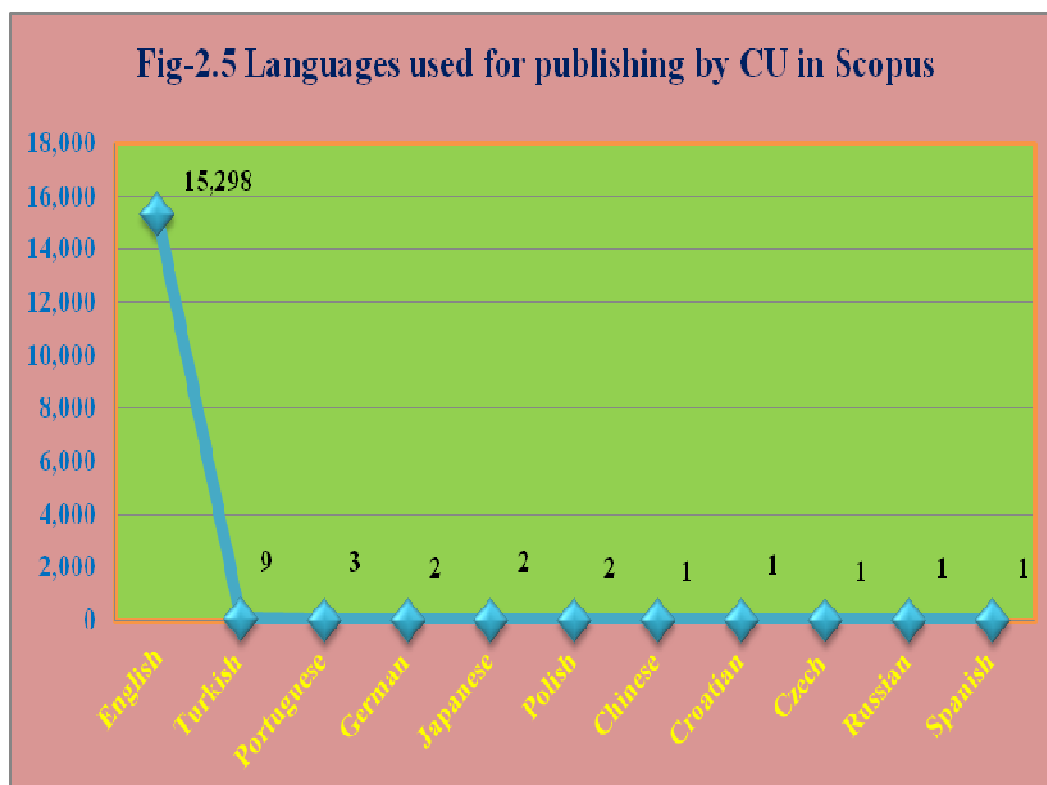
Language is the most powerful means of communication of intellectual flow of ideas. The language is the means of expression, the vehicle for hard hidden thoughts entrapped in the human mental faculties which are either generated inadvertently or collected by way of experience and knowledge. Thus, the language is the interface between an individual's way of perception and to the external world. Although a language is deeply associated with the culture, religion, social set ups of communities, but there appears to be an overwhelming impact of English as an international language, as the authors are more prone to write in that language. It was found that more than 95% of publications of Indian Universities are in English and the rest in other non local languages. The total number of publications of each language used by the Indian Central and State Universities indexed by Scopus and SCI-Expanded databases are hereby discussed individually in the following sections.

6.5.1 Language wise distribution of Publications by the Scientists of Central Universities in Scopus database

As reflected by Scopus database, the Central Universities used eleven different languages for communicating their publication output. The English (with 15,296 documents) as the most widely used language, comes out to be the most preferred language for the authors of the Central Universities to publish their ideas (table-3.1). The lesser used languages were: Turkish with 8 documents, Portuguese with 3 documents, German, Japanese and Polish with 2 documents each. The other languages with only one publication in their share are the least used languages as detailed in the table below.

Table-3.1 Languages used for communication by CU in Scopus		
S No.	Language	No. of Publications
1	English	15,296
2	Turkish	8
3	Portuguese	3
4	German	2
5	Japanese	2
6	Polish	2
7	Chinese	1
8	Croatian	1
9	Czech	1
10	Russian	1
11	Spanish	1

Fig-2.5 shows the languages used by the authors of Central Universities in their published output as was retrieved from the Scopus database. It is clearly evident that the English is the most favoured language for the authors to publish their research output. The other non local languages are very meagerly used for communicating the intellectual thoughts to the research community.



6.5.2 Language wise distribution of Publications by the Scientists of Central Universities in SCI-Expanded database

An analysis of SCI-Expanded database revealed that all documents are published in English language, but only one of the documents is published in German language by the authors of the Central Universities, as shown in table-3.2 below.

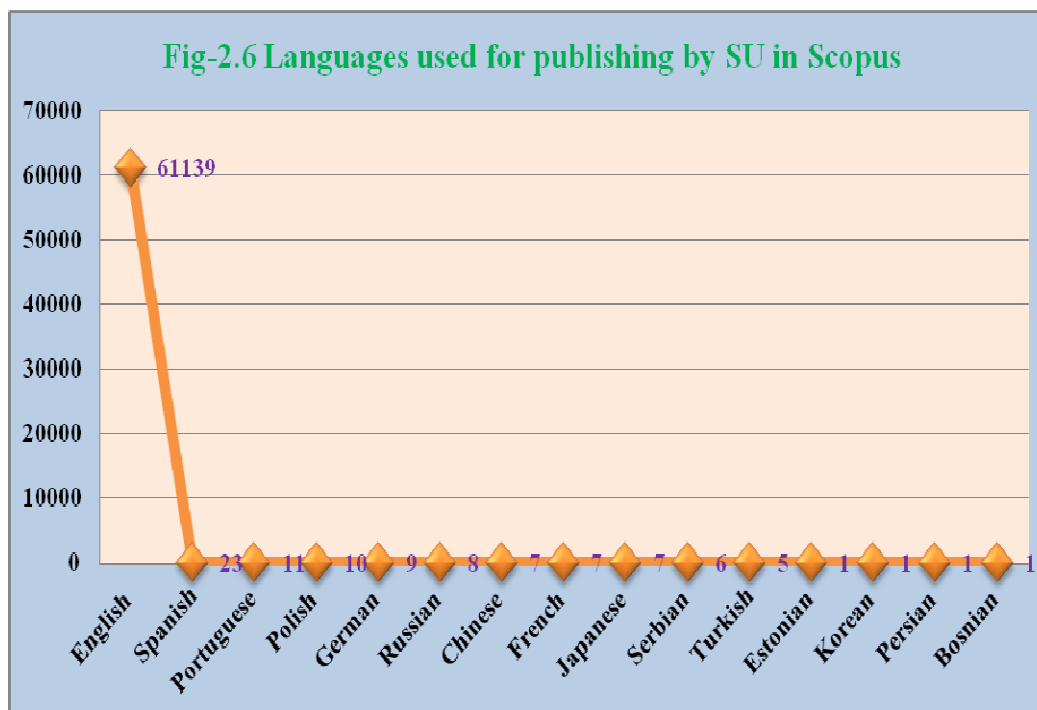
Table-3.2 Languages used for communication by CU in SCIE		
S No.	Language	No. of Publications
1	English	16407
2	German	1

6.5.3 Language wise distribution of Publications by the Scientists of State Universities in Scopus database

The authors of the Indian State Universities, as revealed by Scopus database used 15 languages to communicate their published output. The English as an international language is here also the most preferred script for publishing with 61,469 documents published in it. Some of the languages like Spanish (28 documents), Portuguese (17 documents) and Polish (13 documents) which have got below 30 and equal to 13 documents in their share, are the less preferred languages for the authors in State Universities. From Polish onwards, the languages below 10 documents are the least favoured scripts for publishing with some of them having only one publication in their share (Estonian, Korean, Persian and Bosnian). The table 3.3 below gives the list of all the languages which were used by the authors of the State Universities as indexed in the Scopus database.

Table-3.3 Languages used for communication by SU in Scopus		
S No.	Language	No. of Publications
1	English	61469
2	Spanish	28
3	Portuguese	17
4	Polish	13
5	German	9
6	Russian	8
7	Chinese	7
8	French	7
9	Japanese	7
10	Serbian	6
11	Turkish	5
12	Estonian	1
13	Korean	1
14	Persian	1
15	Bosnian	1

Fig-2.6 below shows the languages used by the authors of the State Universities to publish their intellectual thoughts to the outside research circle. Here, it is clearly visible from the figure that the English language is with the highest published documents and is prominently identifiable in the figure. The rest of the languages which fall on the axis of the figure indicate their less usage for publishing by the authors of the State Universities as mirrored by Scopus database.

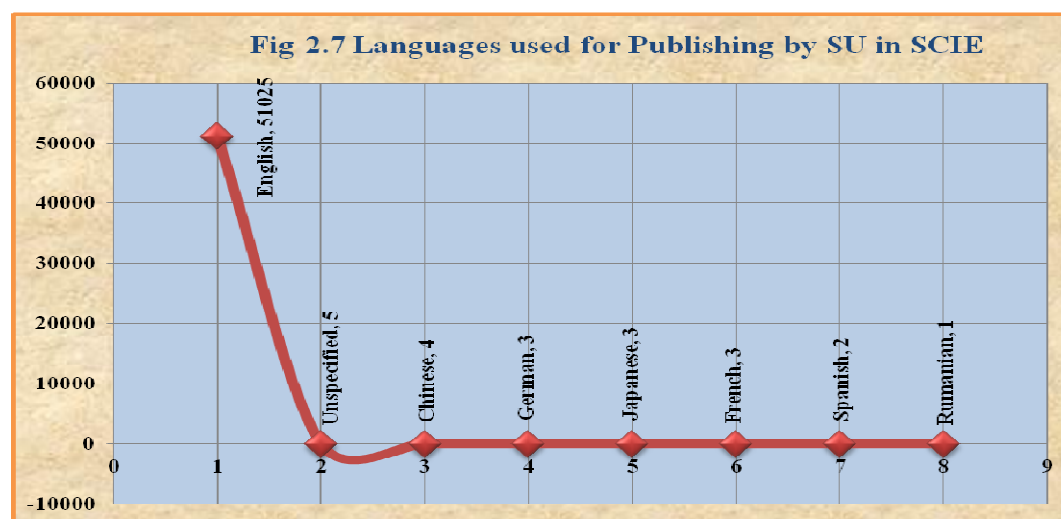


6.5.4 Language wise distribution of Publications by the Scientists of State Universities in SCI-Expanded database

In SCI-Expanded database, only seven languages have been used by the authors of the State Universities with 5 documents unspecified for any language. Here also, the English is the most favoured language for publishing with 51,022 documents published in it. The other non local languages are the lesser used languages with their documents less than five as can be seen from the table-3.4 below, which gives the list of all languages used for publishing the research output by the authors of the State Universities of India.

Table-3.4 Languages used for communication by SU in SCIE		
S No.	Language	No. of Publications
1	English	51022
2	Unspecified	5
3	Chinese	4
4	German	3
5	Japanese	3
6	French	3
7	Spanish	2
8	Rumanian	1

Fig-2.7 shows the languages used by the authors of State Universities for publishing their research output. The higher graph of English language is clearly visible from the figure, representing the fact of being the most favoured script for research communication. From English onwards, the graph falls down drastically in the case of all other languages which are the less preferred languages for the authors of the State Universities according to SCI-Expanded.



6.6 Ranking of Source Titles of publications by the Scientists in Central and State Universities

Communication of scientific information is the basis of scholarly research around the globe. Source titles are the means for publishing the research output. They are generally categorised as scientific journals, conference proceedings, books, lecture notes, bulletins, letters, etc. It is therefore worthwhile to find out the major source titles as preferred by Indian scientists for publishing their scientific research. What we currently witness is the large proliferation of journal publishing industry including print as well as electronic forms, both at the National and International level. Besides this, the journal publication is considered as the main means of research contribution in academia and hence Universities mostly spotlight their publications through this root of publishing. In recent years, we also see a growing trend of conferences in academic institutions in almost each and every subject and their proceedings contain the valuable papers, which are also considered as the reasonable means of contribution in the overall publication profile of the Universities. The lecture notes and letters form a meagre fraction of sources for publication, because it gives less weightage (not always) for authors to be claimed as an item of publication. Many a time, journals may contain editorials and reviews (although sometimes the latter can be as a separate publication) and can act as a source of publishing the reviews for books and journal articles. All the Universities publish through these sources of publication in one way or the other and cover large variety of general and subject specific sources both at the national and international level (including Indian origin and foreign sources). But here in the present study, a limit was put upon these source titles to analyse only the first top 10 titles of each Central and State University.

The following sections will deal with the individual analysis and discussion of source titles used by Central and State Universities as portrayed in Scopus and SCI-Expanded databases.

6.6.1 Ranking of Source Titles used by the Scientists of Central Universities in Scopus database

Indian scientists working in Central Universities used wide variety of source titles for publishing their research output as represented by the Scopus database. The 'Current Science' comes out to be the top most source title covering 226 documents and occupying the first position among Central Universities. This is followed by: (i) Source titles covering above 100 documents, for example, 'Spectrochimica Acta Part A Molecular and Biomolecular Spectroscopy' with 135 documents (rank 2nd), 'Physical Review Letters' with 117 documents (rank 3rd) and 'Journal of the Indian Chemical Society' with 109 documents (rank 4th) (Table-3.5).

(ii) Source titles covering below 70 and above 20 documents: for example, 'Oxidation Communications' with 64 documents (rank 5th), 'Physics Letters Section B Nuclear Elementary Particle and High Energy Physics' with 62 documents (rank 6th), 'Tetrahedron Letters' with 62 documents (rank 6th), 'Indian Journal of Physics' with 61 documents (rank 7th), etc. are the average used source titles among the Central Universities.

(iii) At the lesser document end of the list (from 20 to 3 documents), the lowest used source titles covering only three documents and 46th rank: for example, 'Archives of Medical Science', 'Chinese Physics Letters', 'International Journal of Ecology and Environmental Sciences', 'Asian Journal of Microbiology Biotechnology and Environmental Sciences', 'Liquid Crystals', etc. The overall analysis picture can be traced out from the table below which shows only the first top 100 source titles of Central Universities as reflected by Scopus database.

Table-3.5 Ranking of Source Titles used by the Scientists of CU in Scopus (Top 100)				
S No.	Source Title	Records	Rank	
1	Current Science	226	1	Higher
2	Spectrochimica Acta Part A Molecular and Biomolecular Spectroscopy	135	2	
3	Physical Review Letters	117	3	
4	Journal of the Indian Chemical Society	109	4	
5	Oxidation Communications	64	5	Average
6	Physics Letters Section B Nuclear Elementary Particle and High Energy Physics	62	6	
7	Tetrahedron Letters	62	6	
8	Indian Journal of Physics	61	7	

9	Physical Review D Particles Fields Gravitation and Cosmology	61	7	
10	Polyhedron	56	8	
11	Journal of the Geological Society of India	54	9	
12	Physical Review C Nuclear Physics	48	10	
13	Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	44	11	
14	Asian Journal of Chemistry	43	12	
15	National Academy Science Letters	42	13	
16	Environmental Monitoring and Assessment	40	14	
17	Nuclear Instruments and Methods in Physics Research Section B Beam Interactions with Materials and Atoms	38	15	
18	Journal of Applied Polymer Science	37	16	
19	Crystal Growth and Design	36	17	
20	Physical Review E Statistical Nonlinear and Soft Matter Physics	36	17	
21	Journal of Applied Physics	35	18	
22	Indian Journal of Pure and Applied Physics	32	19	
23	Journal of Physics D Applied Physics	30	20	
24	International Journal of Systematic and Evolutionary Microbiology	29	21	
25	Indian Journal of Microbiology	28	22	
26	Aip Conference Proceedings	27	23	
27	2009 International Multimedia Signal Processing and Comm. Techn. Impact	26	24	
28	General and Comparative Endocrinology	26	24	
29	Journal of Coordination Chemistry	25	25	
30	Proceedings of SPIE the International Society for Optical Engineering	25	25	
31	World Journal of Microbiology and Biotechnology	25	25	
32	Colloids and Surfaces A Physicochemical and Engineering Aspects	24	26	
33	Journal of Instrumentation	24	26	
34	Journal of Physical Chemistry B	23	27	
35	Acta Crystallographica Section E Structure Reports Online	22	28	
36	Indian Journal of Animal Sciences	22	28	
37	Journal of Chemical Sciences	22	28	
38	International Journal of Hydrogen Energy	21	29	
39	Journal of Chemical and Engineering Data	21	29	
40	Synlett	21	29	
41	Archives of Phytopathology and Plant Protection	20	30	
42	IEEE Region 10 Annual International Conference Proceedings TENCON	20	30	
43	Journal of Organometallic Chemistry	20	30	
44	Journal of Dispersion Science and Technology	19	31	
45	Carbohydrate Polymers	18	32	
46	Journal of Hazardous Materials	17	33	
47	Indian Journal of Traditional Knowledge	16	34	
48	Materials Chemistry and Physics	16	34	
49	Tropical Ecology	16	34	
50	Physica B Condensed Matter	15	35	
51	Pharmacologyonline	14	36	
52	Plos One	14	36	
53	Journal of Biological Chemistry	13	37	lower
54	Physical Review B Condensed Matter and Materials Physics	13	37	
55	Indian Veterinary Journal	12	38	
56	Biochemical and Biophysical Research Communications	11	39	
57	Indian Journal of Experimental Biology	11	39	
58	Journal of Alloys and Compounds	11	39	
59	2009 Inter. Conference on Intelligent Agent and Multi Agent Systems Iama	9	40	
60	Journal of Physical Chemistry A	9	40	
61	Journal of Polymer Materials	9	40	
62	Zoos Print Journal	9	40	
63	Astrophysics and Space Science	8	41	
64	Progress in Organic Coatings	8	41	
65	Radiation Measurements	8	41	
66	Indian Journal of Chemistry Section B Organic and Medicinal Chemistry	7	42	
67	Journal of Optics India	7	42	
68	Microscopy Research and Technique	7	42	

69	Colloids and Surfaces B Biointerfaces	6	43
70	Ecology Environment and Conservation	6	43
71	Energy and Fuels	6	43
72	Environmentalist	6	43
73	EPJ Applied Physics	6	43
74	Indian Journal of Agricultural Biochemistry	6	43
75	International Journal of Nanoparticles	6	43
76	Journal of Food Agriculture and Environment	6	43
77	Journal of Forestry Research	6	43
78	Journal of Molecular Liquids	6	43
79	Nature Environment and Pollution Technology	6	43
80	Radiation Effects and Defects in Solids	6	43
81	Acta Physico Chimica Sinica	5	44
82	Biological Trace Element Research	5	44
83	Chemical and Pharmaceutical Bulletin	5	44
84	Colloid and Polymer Science	5	44
85	Indian Journal of Pharmaceutical Sciences	5	44
86	Journal of Luminescence	5	44
87	Vegetos	5	44
88	Ferroelectrics	4	45
89	International Journal of Poultry Science	4	45
90	Physica C Superconductivity and Its Applications	4	45
91	Pramana Journal of Physics	4	45
92	Archives of Medical Science	3	46
93	Asian Journal of Microbiology Biotechnology and Environmental Sciences	3	46
94	Chinese Physics Letters	3	46
95	International Journal of Ecology and Environmental Sciences	3	46
96	Liquid Crystals	3	46
97	Molecular Physics	3	46
98	Monthly Notices of the Royal Astronomical Society	3	46
99	Physiology and Molecular Biology of Plants	3	46
100	Pollution Research	3	46

6.6.2 Ranking of Source Titles used by the Scientists of Central Universities in SCI-Expanded database

As revealed by the SCI-Expanded database in table-3.6, (i) the ‘Current Science’ acts as the most widely used source title for the research publications of the Central Universities of India with 265 documents and occupying first rank. Here the 2nd rank is occupied by ‘Physical Review Letters’ and ‘Spectrochimica Acta Part A Molecular and Biomolecular Spectroscopy’ each covering 135 documents. The ‘Journal of the Indian Chemical Society’ with 120 documents (rank 3rd) and Physical Review D with 106 documents (rank 4th) also cross above 100 document mark.

(ii) The average used source titles covering below 70 and above 20 documents: for example, ‘Oxidation Communications’ with 64 documents (rank 5th), Journal of Applied Polymer Science with 63 documents (rank 6th), ‘Physics Letters B’ with 62 documents (rank 7th), etc.

(iii) The lower ranked source titles are from 20 to 3 documents with some covering only four documents: for example, 'Allelopathy Journal', 'Applied Biochemistry and Biotechnology', 'Chinese Physics Letters', etc. each occupying the 41st rank and the lowest 42nd rank is occupied by 'Acta Orthopaedica Belgica' with only three documents. The further analysis can be visualised from the table below which shows only the first top 100 source titles.

Table-3.6 Ranking of Source Titles used by the Scientists of CU in SCIE (Top 100)				
S. No.	Source Title	Records	Rank	
1	Current Science	265	1	Higher
2	Physical Review Letters	135	2	
3	Spectrochimica Acta Part A Molecular And Biomolecular Spectroscopy	135	2	
4	Journal Of The Indian Chemical Society	120	3	
5	Physical Review D	106	4	
6	Oxidation Communications	64	5	
7	Journal Of Applied Polymer Science	63	6	
8	Physics Letters B	62	7	
9	Journal Of Applied Physics	61	8	
10	Tetrahedron Letters	59	9	
11	Polyhedron	56	10	
12	Journal Of The Geological Society Of India	53	11	
13	Physical Review C	49	12	
14	Journal Of Instrumentation	46	13	
15	Physical Review E	46	13	
16	Indian Journal Of Physics And Proceedings Of The Indian Association For The Cultivation Of Science	39	14	
17	Crystal Growth Design	36	15	
18	Indian Journal Of Traditional Knowledge	36	15	
19	National Academy Science Letters India	36	15	
20	Nuclear Instruments Methods In Physics Research Section B Beam Interactions With Materials And Atoms	33	16	Average
21	Colloids And Surfaces B Biointerfaces	32	17	
22	Journal Of Physical Chemistry B	31	18	
23	Journal Of Physics D Applied Physics	31	18	
24	Journal Of Coordination Chemistry	30	19	
25	Physica B Condensed Matter	28	20	
26	Colloids And Surfaces A Physicochemical And Engineering Aspects	26	21	
27	General And Comparative Endocrinology	26	21	
28	International Journal Of Systematic And Evolutionary Microbiology	26	21	
29	Acta Crystallographica Section E Structure Reports Online	25	22	
30	European Journal Of Medicinal Chemistry	25	22	
31	Indian Journal Of Medical Research	25	22	
32	Physics Of Plasmas	25	22	
33	Environmental Monitoring And Assessment	24	23	
34	Materials Science And Engineering A Structural Materials Properties Microstructure And Processing	24	23	
35	Tropical Medicine International Health	24	23	
36	Indian Journal Of Physics	23	24	
37	Indian Journal Of Pure Applied Physics	23	24	
38	International Journal Of Hydrogen Energy	23	24	
39	Journal Of Alloys And Compounds	21	25	
40	Journal Of Chemical And Engineering Data	21	25	
41	Physical Review B	21	25	

42	Asian Journal Of Chemistry	20	26	Lower
43	Journal Of Chemical Sciences	20	26	
44	Synlett	20	26	
45	Progress In Organic Coatings	19	27	
46	Biochemistry Moscow	18	28	
47	Journal Of Dispersion Science And Technology	18	28	
48	Journal Of Hazardous Materials	18	28	
49	Journal Of Organometallic Chemistry	18	28	
50	Carbohydrate Polymers	17	29	
51	Indian Journal Of Experimental Biology	17	29	
52	Oriental Insects	15	30	
53	Applied Mathematics And Computation	14	31	
54	Journal Of Biological Chemistry	13	32	
55	Journal Of Molecular Catalysis A Chemical	13	32	
56	Biochemical And Biophysical Research Communications	12	33	
57	Himalayan Geology	11	34	
58	Plos One	11	34	
59	Pramana Journal Of Physics	11	34	
60	Journal Of Gastroenterology And Hepatology	10	35	
61	Materials Chemistry And Physics	10	35	
62	Radiation Effects And Defects In Solids	10	35	
63	European Physical Journal D	9	36	
64	Journal Of Polymer Materials	9	36	
65	Range Management And Agroforestry	9	36	
66	Astrophysics And Space Science	8	37	
67	Communications In Nonlinear Science And Numerical Simulation	8	37	
68	Journal Of Physical Chemistry A	8	37	
69	Geochimica Et Cosmochimica Acta	7	38	
70	Journal Of Environmental Biology	7	38	
71	Journal Of Physics And Chemistry Of Solids	7	38	
72	Journal Of Pure And Applied Microbiology	7	38	
73	Microscopy Research And Technique	7	38	
74	Radiation Measurements	7	38	
75	Ecological Modelling	6	39	
76	Energy Fuels	6	39	
77	Indian Journal Of Chemistry Section B Org. Chem. Including Med. Chemistry	6	39	
78	Indian Journal Of Horticulture	6	39	
79	Journal Of Vertebrate Paleontology	6	39	
80	Vegetos	6	39	
81	Biological Trace Element Research	5	40	
82	Bioresource Technology	5	40	
83	Biotropica	5	40	
84	Chemical Pharmaceutical Bulletin	5	40	
85	European Physical Journal Applied Physics	5	40	
86	Indian Journal Of Otolaryngology And Head Neck Surgery	5	40	
87	Journal Of Cytology	5	40	
88	Journal Of Luminescence	5	40	
89	Allelopathy Journal	4	41	
90	Applied Biochemistry And Biotechnology	4	41	
91	Chinese Physics Letters	4	41	
92	Indian Journal Of Pathology And Microbiology	4	41	
93	Indian Journal Of Pediatrics	4	41	
94	Indian Journal Of Pharmacology	4	41	
95	International Journal Of Agricultural And Statistical Sciences	4	41	
96	International Journal Of Phytoremediation	4	41	
97	Journal Of Neurochemistry	4	41	
98	Journal Of The Anatomical Society Of India	4	41	
99	Liquid Crystals	4	41	
100	Acta Orthopaedica Belgica	3	42	

6.6.3 Ranking of Source Titles used by the Scientists of State Universities in Scopus database

In State Universities, there were thousands of source titles used for publishing the research output, but here the list of only 200 top most source titles used are provided in table-3.7. It was found that (i) the ‘Acta Crystallographica Section E Structure Reports Online’ is the most widely used source title among State Universities of India with 1824 publications in its share and thus occupying the first position in the list. Followed by: ‘Current Science’ with 513 documents, ‘Asian Journal of Chemistry’ with 505 documents, ‘Indian Journal of Animal Sciences’ with 485 documents, and ‘Journal of the Indian Chemical Society’ with 473 documents occupying the 2nd, 3rd, 4th, and 5th rank respectively.

(ii) The source titles occupying ranks from 6th to 55th with documents from below 300 (e.g., ‘Spectrochimica Acta Part A Molecular and Biomolecular Spectroscopy’ with 283 documents and rank 6th) to above 50 documents (e.g., ‘Journal of Dispersion Science and Technology’ with 51 documents and rank 55th) are the medium used source titles.

(iii) The lesser used source titles i.e. from 50 to 11 documents in the list include those that cover only 12 documents: e.g., ‘Indian Journal of Biochemistry and Biophysics’, ‘Indian Journal of Microbiology’, ‘International Journal of Thermophysics’, etc. each acquiring 90th rank, whereas the lowest used source titles, e.g., ‘Acta Microbiologica Et Immunologica Hungarica’, ‘Indian Journal of Human Genetics’, ‘International Journal of Agricultural and Statistical Sciences’, ‘International Journal of Modern Physics B’ and ‘Journal of Applied Mathematics and Computing’ each with only 11 documents and occupying the last 91st rank. The details of further analysis are outlined in the table below which provides the sketch of all the top 200 source titles.

Table-3.7 Ranking of Source Titles used by the Scientists of SU in Scopus (Top 200)				
	Source Title	Records	Rank	Higher
1	Acta Crystallographica Section E Structure Reports Online	1824	1	
2	Current Science	513	2	
3	Asian Journal of Chemistry	505	3	
4	Indian Journal of Animal Sciences	485	4	

5	Journal of the Indian Chemical Society	473	5	Average
6	Spectrochimica Acta Part A Molecular and Biomolecular Spectroscopy	283	6	
7	Journal of Applied Polymer Science	278	7	
8	Indian Veterinary Journal	266	8	
9	Indian Journal of Agricultural Sciences	260	9	
10	Indian Journal of Chemistry Section B Organic and Medicinal Chemistry	246	10	
11	Polyhedron	229	11	
12	Physical Review Letters	227	12	
13	Tetrahedron Letters	226	13	
14	Journal of Alloys and Compounds	224	14	
15	Physical Review D Particles Fields Gravitation and Cosmology	209	15	
16	Asian Journal of Microbiology Biotechnology and Environmental Sciences	199	16	
17	Pharmacologyonline	197	17	
18	Journal of Food Science and Technology	182	18	
19	Physical Review C Nuclear Physics	178	19	
20	Pestology	168	20	
21	Lecture Notes in Computer Science Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics	161	21	
22	Indian Journal of Heterocyclic Chemistry	155	22	
23	Indian Journal of Pure and Applied Physics	154	23	
24	Aip Conference Proceedings	149	24	
25	Synthetic Communications	142	25	
26	Acta Horticulturae	137	26	
27	Pollution Research	131	27	
28	Indian Journal of Physics	124	28	
29	Phosphorus Sulfur and Silicon and the Related Elements	121	29	
30	E Journal of Chemistry	118	30	
31	Journal of the Geological Society of India	116	31	
32	Ecology Environment and Conservation	115	32	
33	Indian Jour. of Chemistry Section A Inorg. Physical Theoretical & Analytical Chemistry	113	33	
34	Archives of Phytopathology and Plant Protection	96	34	
35	Research on Crops	95	35	
36	Journal of Hazardous Materials	90	36	
37	Physics Letters Section B Nuclear Elementary Particle and High Energy Physics	90	36	
38	Applied Surface Science	85	37	
39	Biosciences Biotechnology Research Asia	83	38	
40	Critical Reviews in Microbiology	79	39	
41	Indian Journal of Agronomy	79	39	
42	Journal of Environmental Biology	79	39	
43	European Journal of Medicinal Chemistry	77	40	
44	International Journal of Advanced Manufacturing Technology	76	41	
45	Environmental Monitoring and Assessment	73	42	
46	Tetrahedron	73	42	
47	Indian Journal of Pharmaceutical Sciences	72	43	
48	Molecular and Cellular Biochemistry	70	44	
49	International Journal of Polymeric Materials	69	45	
50	Journal of Crystal Growth	64	46	
51	Indian Journal of Experimental Biology	63	47	
52	Physica B Condensed Matter	63	47	
53	Journal of Molecular Structure	61	48	
54	Analytical Sciences X Ray Structure Analysis Online	60	49	
55	Astrophysics and Space Science	60	49	
56	Microwave and Optical Technology Letters	58	50	
57	Annals of Biology	57	51	
58	AMA Agricultural Mechanization in Asia Africa and Latin America	55	52	
59	Annals of Agri Bio Research	54	53	
60	Materials Chemistry and Physics	53	54	
61	Information Technology Journal	51	55	
62	Journal of Dispersion Science and Technology	51	55	

63	Journal of Agrometeorology	50	56
64	Bioresource Technology	48	57
65	Carbohydrate Polymers	48	57
66	Molecular Crystals and Liquid Crystals	48	57
67	IEEE Region 10 Annual International Conference Proceedings TENCON	47	58
68	Inorganica Chimica Acta	47	58
69	Indian Journal of Horticulture	46	59
70	Journal of Chemical Crystallography	46	59
71	Chromatographia	45	60
72	Journal of Coordination Chemistry	45	60
73	Journal of Heterocyclic Chemistry	45	60
74	Oriental Journal of Chemistry	45	60
75	Industrial and Engineering Chemistry Research	44	61
76	Journal of Applied Physics	44	61
77	Journal of Molecular Liquids	44	61
78	Chemico Biological Interactions	43	62
79	Main Group Metal Chemistry	43	62
80	Proceedings of Icsn 2007 International Conference on Signal Processing Communications and Networking	43	62
81	Journal of Physics D Applied Physics	41	63
82	Indian Journal of Environmental Protection	40	64
83	Acta Poloniae Pharmaceutica Drug Research	39	65
84	Journal of Ecophysiology and Occupational Health	39	65
85	Legume Research	37	66
86	Journal of Thermal Analysis and Calorimetry	36	67
87	Communications in Computer and Information Science	35	68
88	Chinese Chemical Letters	34	69
89	Indian Journal of Animal Research	34	69
90	International Journal of Theoretical Physics	34	69
91	Journal of Raman Spectroscopy	34	69
92	Polymer Plastics Technology and Engineering	34	69
93	Proceedings of SPIE the International Society for Optical Engineering	33	70
94	Materials and Design	31	71
95	Studies in Computational Intelligence	31	71
96	Journal of Physical Chemistry A	30	72
97	Journal of Scientific and Industrial Research	30	72
98	Synthesis	30	72
99	Physics of Plasmas	29	73
100	Transition Metal Chemistry	29	73
101	Bulletin of Materials Science	28	74
102	Catalysis Communications	28	74
103	International Journal of Electrochemical Science	28	74
104	International Journal of Systematic and Evolutionary Microbiology	28	74
105	Journal of Materials Science	28	74
106	Journal of Physics G Nuclear and Particle Physics	28	74
107	Journal of Veterinary Parasitology	28	74
108	Zootaxa	28	74
109	International Journal of Pharmtech Research	27	75
110	Solar Energy Materials and Solar Cells	27	75
111	Cytologia	26	76
112	Journal of Pharmaceutical and Biomedical Analysis	26	76
113	Journal of Reinforced Plastics and Composites	26	76
114	Pramana Journal of Physics	26	76
115	Communications in Soil Science and Plant Analysis	25	77
116	Indian Journal of Agricultural Biochemistry	25	77
117	Journal of Materials Science Materials in Electronics	25	77
118	Progress in Rubber Plastics and Recycling Technology	25	77
119	International Journal of Hydrogen Energy	24	78
120	Mycotaxon	24	78
121	Physical Review B Condensed Matter and Materials Physics	24	78
122	Colloids and Surfaces B Biointerfaces	23	79
123	European Physical Journal C	23	79

Lower

124	Journal of Instrumentation	23	79
125	Optoelectronics and Advanced Materials Rapid Communications	23	79
126	Oxidation Communications	23	79
127	Indian Journal of Biotechnology	22	80
128	International Journal of Pure and Applied Mathematics	22	80
129	Physica E Low Dimensional Systems and Nanostructures	22	80
130	Synlett	22	80
131	Bulletin of the Korean Chemical Society	21	81
132	Food Chemistry	21	81
133	Journal of Chemical and Engineering Data	21	81
134	Journal of Chemical Physics	21	81
135	Journal of Chemical Research	21	81
136	Journal of Colloid and Interface Science	21	81
137	Veterinary Practitioner	21	81
138	Yakugaku Zasshi	21	81
139	AAPS Pharmscitech	20	82
140	Indian Journal of Chemical Technology	20	82
141	Ionics	20	82
142	Journal of Biopesticides	20	82
143	Journal of Essential Oil Research	20	82
144	Journal of Luminescence	20	82
145	Physics and Chemistry of Liquids	20	82
146	Toxicology Mechanisms and Methods	20	82
147	Applied Physics Letters	19	83
148	International Journal of Chemtech Research	19	83
149	Journal of Physics and Chemistry of Solids	19	83
150	Journal of Sulfur Chemistry	19	83
151	Journal of Tropical Agriculture	19	83
152	Nuclear Instruments and Methods in Physics Research Section B Beam Interactions with Materials and Atoms	19	83
153	Chemical Engineering Science	18	84
154	Clinica Chimica Acta	18	84
155	Inorganic Chemistry	18	84
156	Optik	18	84
157	Surface and Coatings Technology	18	84
158	World Journal of Microbiology and Biotechnology	18	84
159	Chemical Engineering Journal	17	85
160	Journal of Fluorescence	17	85
161	Organic Process Research and Development	17	85
162	Euphytica	16	86
163	Journal of Physics Conference Series	16	86
164	Sensors and Actuators B Chemical	16	86
165	Thin Solid Films	16	86
166	Annals of Arid Zone	15	87
167	Applied Mathematics and Mechanics English Edition	15	87
168	Chemical Engineering Research and Design	15	87
169	Green Chemistry Letters and Reviews	15	87
170	Journal of Membrane Science	15	87
171	Journal of Power Sources	15	87
172	Letters in Organic Chemistry	15	87
173	Separation Science and Technology	15	87
174	Acta Crystallographica Section C Crystal Structure Communications	14	88
175	African Journal of Biotechnology	14	88
176	Asian Journal of Plant Sciences	14	88
177	Journal of Health Science	14	88
178	Vegetos	14	88
179	Aiche Annual Meeting Conference Proceedings	13	89
180	Applied Mathematics and Computation	13	89
181	Chaos Solitons and Fractals	13	89
182	Heterocyclic Communications	13	89
183	Indian Journal of Engineering and Materials Sciences	13	89
184	International Journal of Pharmacy and Pharmaceutical Sciences	13	89

185	Journal of Enzyme Inhibition and Medicinal Chemistry	13	89
186	Zoos Print Journal	13	89
187	Indian Journal of Biochemistry and Biophysics	12	90
188	Indian Journal of Microbiology	12	90
189	International Journal of Thermophysics	12	90
190	Journal of Chromatography B Analytical Technologies in the Biomedical & Life Sc.	12	90
191	Journal of Industrial Pollution Control	12	90
192	Journal of Molecular Structure THEOCHEM	12	90
193	Journal of the Serbian Chemical Society	12	90
194	Pharmacognosy Magazine	12	90
195	Radiation Measurements	12	90
196	Acta Microbiologica Et Immunologica Hungarica	11	91
197	Indian Journal of Human Genetics	11	91
198	International Journal of Agricultural and Statistical Sciences	11	91
199	International Journal of Modern Physics B	11	91
200	Journal of Applied Mathematics and Computing	11	91

6.6.4 Ranking of Source Titles used by the Scientists of State Universities in SCI-Expanded database

As reflected from SCI-Expanded database, here also the State Universities used (i) the ‘Acta Crystallographica Section E Structure Reports Online’ as the most suitable source title for publishing their research content covering 1920 documents and thus acquired the first rank in the list of all source titles. The other favourable source titles which have crossed above 300 document mark are: ‘Indian Journal of Animal Sciences’ with 529 documents, ‘Journal of the Indian Chemical Society’ with 509 documents, ‘Current Science’ with 463 documents, ‘Asian Journal of Chemistry’ with 446 documents, and ‘Indian Journal of Agricultural Sciences’ with 326 documents, occupying 2nd, 3rd, 4th, 5th, and 6th ranks respectively (Table-3.8).

(ii) The source titles covering the documents from 300 to above 50 and occupying the ranks from 7th (‘Journal of Applied Polymer Science’ with 300 documents) to 54th (‘Indian Journal of Pharmacology’ with 52 documents) are the average used source titles among the State Universities.

(iii) The lower end of the list includes those source titles which cover documents from 50 to 13 with some of them covering only 15 documents (like ‘Applied Mathematics & Mechanics English Edition’ occupying 86th rank), 14 documents (like ‘Carbohydrate Polymers’ occupying 87th rank) and the lowest used source titles comes out to be covering only 13 documents (like ‘Acta

Crystallographica Section F Structural Biology & Crystallization Communications' occupying 88th rank). The detailed account of all the top 200 source titles used by State Universities are visualised in the following table.

Table-3.8 Ranking of Source Titles used by the scientists of SU in SCIE (Top 200)				
S No.	Source Title	Records	Rank	
1	Acta Crystallographica Section E Structure Reports Online	1920	1	Higher
2	Indian Journal of Animal Sciences	529	2	
3	Journal of the Indian Chemical Society	509	3	
4	Current Science	463	4	
5	Asian Journal of Chemistry	446	5	
6	Indian Journal of Agricultural Sciences	326	6	
7	Journal of Applied Polymer Science	300	7	
8	Spectrochimica Acta Part A Molecular and Biomolecular Spectroscopy	273	8	Average
9	Indian Journal of Chemistry Section B Organic Chemistry including Medicinal Chemistry	257	9	
10	Indian Journal Of Heterocyclic Chemistry	245	10	
11	Journal Of Alloys And Compounds	240	11	
12	Physical Review Letters	229	12	
13	Indian Journal Of Pure Applied Physics	226	13	
14	Tetrahedron Letters	216	14	
15	Journal Of Food Science And Technology Mysore	206	15	
16	Polyhedron	205	16	
17	Physical Review C	195	17	
18	Indian Veterinary Journal	193	18	
19	Physical Review D	174	19	
20	Research On Crops	162	20	
21	Synthetic Communications	153	21	
22	Indian Journal Of Chemistry Section A Inorganic Bio Inorganic Physical Theoretical Analytical Chemistry	152	22	
23	Journal Of Environmental Biology	150	23	
24	Journal Of The Geological Society Of India	140	24	
25	Indian Journal Of Horticulture	132	25	
26	Plant Archives	131	26	
27	Journal Of Agrometeorology	128	27	
28	Phosphorus Sulfur And Silicon And The Related Elements	119	28	
29	Applied Surface Science	116	29	
30	European Journal Of Medicinal Chemistry	115	30	
31	Indian Jour. Of Physics & Proceedings Of The Indian Asso. For The Cultivation Of Sc.	114	31	
32	Journal Of Hazardous Materials	113	32	
33	Physics Letters B	96	33	
34	E Journal Of Chemistry	94	34	
35	International Journal Of Agricultural And Statistical Sciences	92	35	
36	Tetrahedron	86	36	
37	Crystal Research And Technology	83	37	
38	Physica B Condensed Matter	82	38	
39	Indian Journal Of Experimental Biology	81	39	
40	Astrophysics And Space Science	79	40	
41	International Journal Of Advanced Manufacturing Technology	77	41	
42	Inorganica Chimica Acta	74	42	
43	Molecular And Cellular Biochemistry	74	42	
44	Journal Of Crystal Growth	71	43	
45	Optoelectronics And Advanced Materials Rapid Communications	68	44	
46	Environmental Monitoring And Assessment	67	45	
47	Materials Chemistry And Physics	66	46	
48	Ama Agricultural Mechanization In Asia Africa And Latin America	63	47	
49	Journal Of Heterocyclic Chemistry	62	48	
50	African Journal Of Biotechnology	59	49	

51	Journal Of Coordination Chemistry	59	49	
52	Journal Of Materials Science	59	49	
53	Journal Of Molecular Structure	59	49	
54	Chromatographia	58	50	
55	Chemico Biological Interactions	57	51	
56	Industrial Engineering Chemistry Research	56	52	
57	Bioresource Technology	55	53	
58	Indian Journal Of Pharmacology	52	54	
59	Indian Journal Of Chemical Technology	50	55	
60	Journal Of Chemical Crystallography	50	55	
61	Arkivoc	49	56	Lower
62	Catalysis Communications	47	57	
63	Indian Journal Of Animal Research	47	57	
64	Journal Of Molecular Liquids	47	57	
65	Journal Of Luminescence	45	58	
66	Journal Of Molecular Catalysis A Chemical	45	58	
67	Molecular Crystals And Liquid Crystals	45	58	
68	Acta Poloniae Pharmaceutica	44	59	
69	Inorganic Chemistry	44	59	
70	Journal Of Dispersion Science And Technology	44	59	
71	Main Group Metal Chemistry	43	60	
72	Nuclear Instruments Methods In Physics Research Section B Beam Interactions With Materials And Atoms	43	60	
73	Bulletin Of Environmental Contamination And Toxicology	41	61	
74	Legume Research	41	61	
75	Polymer Plastics Technology And Engineering	40	62	
76	Bioorganic Medicinal Chemistry	39	63	
77	Indian Journal Of Genetics And Plant Breeding	39	63	
78	Indian Journal Of Virology	39	63	
79	Journal Of Physical Chemistry B	39	63	
80	Abstracts Of Papers Of The American Chemical Society	38	64	
81	Indian Journal Of Pharmaceutical Sciences	38	64	
82	Animal Nutrition And Feed Technology	37	65	
83	International Journal Of Electrochemical Science	37	65	
84	Aaps Pharmscitech	36	66	
85	Bulletin Of Materials Science	36	66	
86	Journal Of Applied Physics	36	66	
87	Buffalo Bulletin	34	67	
88	Chinese Chemical Letters	34	67	
89	Communications In Soil Science And Plant Analysis	34	67	
90	Journal Of Raman Spectroscopy	33	68	
91	Journal Of Scientific Industrial Research	33	68	
92	Carbohydrate Research	32	69	
93	Indian Journal Of Traditional Knowledge	32	69	
94	International Journal Of Theoretical Physics	32	69	
95	Colloids And Surfaces B Biointerfaces	31	70	
96	Journal Of Optoelectronics And Advanced Materials	31	70	
97	Physics Of Plasmas	31	70	
98	Pramana Journal Of Physics	31	70	
99	Synthesis Stuttgart	31	70	
100	International Journal Of Systematic And Evolutionary Microbiology	30	71	
101	Journal Of Pharmacy And Pharmacology	30	71	
102	Journal Of Reinforced Plastics And Composites	30	71	
103	Clinica Chimica Acta	29	72	
104	Materials Design	29	72	
105	Medicinal Chemistry Research	29	72	
106	Solar Energy Materials And Solar Cells	29	72	
107	Transition Metal Chemistry	28	73	
108	Vegetos	28	73	
109	Journal Of Chemical And Engineering Data	27	74	
110	Journal Of Instrumentation	27	74	
111	European Physical Journal C	26	75	

112	Journal Of Magnetism And Magnetic Materials	26	75
113	Journal Of Thermal Analysis And Calorimetry	26	75
114	Oxidation Communications	26	75
115	International Journal Of Hydrogen Energy	25	76
116	Journal Of Physics And Chemistry Of Solids	25	76
117	Proceedings Of The National Academy Of Sciences India Section B Biological Sciences	25	76
118	Research Journal Of Biotechnology	25	76
119	Applied Mathematics And Computation	24	77
120	Heterocyclic Communications	24	77
121	Indian Journal Of Engineering And Materials Sciences	24	77
122	Ionics	23	78
123	Journal Of Chemical Physics	23	78
124	Journal Of Colloid And Interface Science	23	78
125	Sensors And Actuators B Chemical	23	78
126	Euphytica	22	79
127	Indian Journal Of Biotechnology	22	79
128	International Journal Of Polymeric Materials	22	79
129	Journal Of Chemical Research S	22	79
130	Materials Letters	22	79
131	Optik	22	79
132	Proceedings Of The National Academy Of Sciences India Section A Physical Sciences	22	79
133	Bulletin Of The Korean Chemical Society	21	80
134	Chalcogenide Letters	21	80
135	Food Chemistry	21	80
136	Journal Of Pharmaceutical And Biomedical Analysis	21	80
137	Journal Of Pure And Applied Microbiology	21	80
138	Mycotaxon	21	80
139	Agricultural Water Management	20	81
140	Bulgarian Chemical Communications	20	81
141	Journal Of Essential Oil Research	20	81
142	Materials And Manufacturing Processes	20	81
143	Synlett	20	81
144	Toxicology Mechanisms And Methods	20	81
145	Zootaxa	20	81
146	Applied Organometallic Chemistry	19	82
147	Food And Chemical Toxicology	19	82
148	Green Chemistry Letters And Reviews	19	82
149	Indian Journal Of Physics	19	82
150	International Journal Of Heat And Mass Transfer	19	82
151	Monthly Notices Of The Royal Astronomical Society	19	82
152	Surface Coatings Technology	19	82
153	Veterinary Practitioner	19	82
154	Acta Crystallographica Section C Crystal Structure Communications	18	83
155	Chaos Solitons Fractals	18	83
156	Chemical Engineering Science	18	83
157	Journal Of Enzyme Inhibition And Medicinal Chemistry	18	83
158	Journal Of Physical Chemistry A	18	83
159	Bioorganic Medicinal Chemistry Letters	17	84
160	Chemical Pharmaceutical Bulletin	17	84
161	Indian Journal Of Biochemistry Biophysics	17	84
162	Journal Of Physics Condensed Matter	17	84
163	Materials Sc. & Engineering A Structural Materials Properties Microstructure & Processing	17	84
164	Organic Process Research Development	17	84
165	Physical Review E	17	84
166	Chemical Engineering Journal	16	85
167	Cytologia	16	85
168	Dalton Transactions	16	85
169	Geochimica Et Cosmochimica Acta	16	85
170	International Journal Of Thermophysics	16	85

171	Journal Of Camel Practice And Research	16	85
172	Journal Of Chromatography B Analytical Technologies In The Biomedical & Life Sc.	16	85
173	Journal Of Macromolecular Science Part A Pure And Applied Chemistry	16	85
174	Phytotherapy Research	16	85
175	Range Management And Agroforestry	16	85
176	World Journal Of Microbiology Biotechnology	16	85
177	Applied Mathematics And Mechanics English Edition	15	86
178	International Journal Of Modern Physics B	15	86
179	Journal Of Fluorescence	15	86
180	Journal Of Inclusion Phenomena And Macrocyclic Chemistry	15	86
181	Journal Of Membrane Science	15	86
182	Pharmaceutical Biology	15	86
183	Physica Scripta	15	86
184	Carbohydrate Polymers	14	87
185	Chemical Engineering Research Design	14	87
186	Journal Of Health Science	14	87
187	Journal Of Power Sources	14	87
188	Letters In Organic Chemistry	14	87
189	National Academy Science Letters India	14	87
190	Nutrient Cycling In Agroecosystems	14	87
191	Small Ruminant Research	14	87
192	Acta Crystallographica Section F Structural Biology And Crystallization Communications	13	88
193	Advances In Space Research	13	88
194	Applied Biochemistry And Biotechnology	13	88
195	Chemosphere	13	88
196	Designed Monomers And Polymers	13	88
197	Iete Journal Of Research	13	88
198	Indian Journal Of Pharmaceutical Education And Research	13	88
199	Integrated Ferroelectrics	13	88
200	Materials Science And Engineering B Advanced Functional Solid State Materials	13	88

6.7 Prolific Authors of Universities

Of the total resources available in any institute, the human resources constitute a fundamental component with an ability to renovate and transform all other resources into workable products and services into value added services. This constituent can be called as the core of all activities performed in any institute, from the first blue print of policy framing to the final policy execution by taking a strong participative role in each and every facet of the tasks involved. Although work force activities vary largely among the research institutes, but in Universities, they are mostly committed to teaching and research based activities. Besides teaching, they take a keen interest in publishing their intellectual contents in the form of journal articles, conference papers, books, editorials, reviews, notes, letters, etc. that in effect contributes to the overall publication profile of the University. A large number of researchers working in Indian Universities contribute in the overall published output of the University. The present study however covers only the first top 10 prolific authors of each Central and State University for the final analysis. The picture

of these prolific authors along with the number of documents is discussed in the following sections on the basis of the data extracted from Scopus and SCI-Expanded databases in both Central and State Universities separately.

6.7.1 Ranking of Prolific Authors from Central Universities based on Scopus Database

Table 3.9 reveals most prolific authors from Central Universities on the basis of Scopus data. The table shows that the first ten positions are being occupied by the authors of the University of Delhi which may be called as the most productive University. In Delhi University, Shivpuri, R.K. occupies first rank contributing a maximum number of 199 papers and Harel, A. with 191 papers occupying 6th rank. The contributions from University of Delhi are understandable in view of its highly developed infra structural facilities and being in capital city. However, a few exceptional authors from comparatively low ranked Universities have noteworthy number of publications such as Pandey, A.C. from University of Allahabad producing 77 papers and occupying 7th rank before Srivastava, O.N. from Banaras Hindu University with 57 papers occupying 8th rank, Khan, R.H. from Aligarh Muslim University with 55 papers occupying 9th rank, while Porsezian, K. from Pondicherry University with 54 papers occupying 10th rank and followed by others. The lower ranks in the list are occupied by the authors producing below 20 papers (like Aboul-Enein, H.Y. and Davidar, P. each with 19 papers and occupying 35th rank from Jamia Millia Islamia and Pondicherry University respectively) and the lowest positions acquired by the authors producing only 15 papers (like Mukherjee, A.K. from Tezpur University occupying 39th rank) and 14 papers (Maji, T.K. from Tezpur University and Ali, A. from Jamia Millia Islamia each occupying 40th rank). The detailed description can be visualised from the table below, which indicates the top 100 prolific authors from Central Universities with their number of papers and the consequent rank acquired.

Table-3.9 Ranking of Prolific Authors from CU based on Scopus DB (Top 100)

S No.	Name of the Author	No. of Papers	Affiliation	Rank
1	Shivpuri, R.K.	199	University of Delhi	1
2	Weber, M.	196	University of Delhi	2
3	Adams, T.	194	University of Delhi	3
4	Bean, A.	193	University of Delhi	4
5	Elvira, V.D.	193	University of Delhi	4
6	Baringer, P.	193	University of Delhi	4
7	Alverson, G.	193	University of Delhi	4
8	Snow, G.R.	193	University of Delhi	4
9	Gregores, E.M.	192	University of Delhi	5
10	Harel, A.	191	University of Delhi	6
11	Pandey, A.C.	77	University of Allahabad, Allahabad.	7
12	Srivastava, O.N.	57	Banaras Hindu University, Varanasi.	8
13	Khan, R.H.	55	Aligarh Muslim University	9
14	Porsezian, K.	54	Pondicherry University, Puducherry, Pondicherry.	10
15	Hong, B.	52	Banaras Hindu University, Varanasi.	11
16	Vznuzdaev, E.	52	Banaras Hindu University, Varanasi.	11
17	Torii, H.	51	Banaras Hindu University, Varanasi.	12
18	Choi, I.J.	51	Banaras Hindu University, Varanasi.	12
19	Heffner, M.	51	Banaras Hindu University, Varanasi.	12
20	Kochenda, L.	51	Banaras Hindu University, Varanasi.	12
21	Vinogradov, A.A.	51	Banaras Hindu University, Varanasi.	12
22	Desmond, E.J.	51	Banaras Hindu University, Varanasi.	12
23	Yanovich, A.	51	Banaras Hindu University, Varanasi.	12
24	Kripal, R.	51	University of Allahabad, Allahabad.	12
25	Mahanti, M.K.	50	North-Eastern Hill University, Shillong, Meghalaya.	13
26	Reddanna, P.	47	University of Hyderabad, Hyderabad, Andhra Pradesh.	14
27	Yadav, L.D.S.	47	University of Allahabad, Allahabad.	14
28	Desiraju, G.R.	45	University of Hyderabad, Hyderabad, Andhra Pradesh.	15
29	Karak, N.	43	Tezpur University, Tezpur, Assam	16
30	Sasikala, C.	42	University of Hyderabad, Hyderabad, Andhra Pradesh.	17
31	Pathak, A.P.	38	University of Hyderabad, Hyderabad, Andhra Pradesh.	18
32	Samanta, A.	36	University of Hyderabad, Hyderabad, Andhra Pradesh.	19
33	Das, S.K.	35	University of Hyderabad, Hyderabad, Andhra Pradesh.	20
34	Mohammad, A.	35	Aligarh Muslim University	20
35	Anis, M.	35	Aligarh Muslim University	20
36	Sudheendran, K.	34	University of Hyderabad, Hyderabad, Andhra Pradesh.	21
37	Sen, K.D.	34	University of Hyderabad, Hyderabad, Andhra Pradesh.	21
38	Hayat, S.	32	Aligarh Muslim University	22
39	Mahapatra, S.	31	University of Hyderabad, Hyderabad, Andhra Pradesh.	23
40	Husain, Q.	30	Aligarh Muslim University	24
41	Ramola, R.C.	30	Hemwati Nandan Bahuguna Garhwal University, Utrkd.	24
42	Pal, S.	29	University of Hyderabad, Hyderabad, Andhra Pradesh.	25
43	Bohidar, H.B.	29	Jawaharlal Nehru University	25
44	Siddique, Y.H.	29	Aligarh Muslim University	25
45	Naqvi, A.Z.	29	Aligarh Muslim University	25
46	Kabir-ud-Din,	29	Aligarh Muslim University	25
47	Kumar, R.	29	Aligarh Muslim University	25
48	Mohanta, D.	28	Tezpur University, Tezpur, Assam	26
49	Rai, A.K.	28	University of Allahabad, Allahabad.	26
50	Siddiqui, Z.A.	27	Aligarh Muslim University	27
51	Rai, V.K.	27	University of Allahabad, Allahabad.	27
52	Singh, V.	26	University of Allahabad, Allahabad.	28
53	Choudhury, A.	25	Tezpur University, Tezpur, Assam	29
54	Ali, A.	25	Jamia Millia Islamia, Jamia Nagar, New Delhi.	29
55	Khan, Z.	25	Jamia Millia Islamia, Jamia Nagar, New Delhi.	29
56	Abbasi, S.A.	25	Pondicherry University, Puducherry, Pondicherry.	29
57	Sharma, P.K.	25	University of Allahabad, Allahabad.	29
58	Kumar, A.	24	Tezpur University, Tezpur, Assam	30
59	Deka, R.C.	24	Tezpur University, Tezpur, Assam	30

60	Prakash, H.	24	University of Allahabad, Allahabad.	30
61	Venkateswarlu, M.	23	Pondicherry University, Puducherry, Pondicherry.	31
62	Bhattacharjee, D.	23	Tripura University, Agartala, Tripura.	31
63	Rawat, M.S.M.	23	Hemwati Nandan Bahuguna Garhwal University, Utrkd.	31
64	Hussain, S.A.	22	Tripura University, Agartala, Tripura.	32
65	Behari, K.	22	University of Allahabad, Allahabad.	32
66	Gopal, R.	22	University of Allahabad, Allahabad.	32
67	Ahmed, G.A.	21	Tezpur University, Tezpur, Assam	33
68	Sahu, P.P.	21	Tezpur University, Tezpur, Assam	33
69	Satyanarayana, N.	21	Pondicherry University, Puducherry, Pondicherry.	33
70	Prasad, R.	20	Jawaharlal Nehru University	34
71	Bhattacharya, A.	20	Jawaharlal Nehru University	34
72	Aboul-Enein, H.Y.	19	Jamia Millia Islamia, Jamia Nagar, New Delhi.	35
73	Davidar, P.	19	Pondicherry University, Puducherry, Pondicherry.	35
74	Dolui, S.K.	18	Tezpur University, Tezpur, Assam	36
75	Bamezai, R.N.K.	18	Jawaharlal Nehru University	36
76	Basu Baul, T.S.	18	North-Eastern Hill University, Shillong, Meghalaya.	36
77	Sharma, C.M.	18	Hemwati Nandan Bahuguna Garhwal University, Utrkd.	36
78	Malik, M.A.	17	Jamia Millia Islamia, Jamia Nagar, New Delhi.	37
79	Ali, I.	17	Jamia Millia Islamia, Jamia Nagar, New Delhi.	37
80	Mathur, P.P.	17	Pondicherry University, Puducherry, Pondicherry.	37
81	Dinda, B.	17	Tripura University, Agartala, Tripura.	37
82	Zulfequar, M.	16	Jamia Millia Islamia, Jamia Nagar, New Delhi.	38
83	Bharadwaj, K.K.	16	Jawaharlal Nehru University	38
84	Abbasi, T.	16	Pondicherry University, Puducherry, Pondicherry.	38
85	Parthasarathy, N.	16	Pondicherry University, Puducherry, Pondicherry.	38
86	Mukherjee, A.K.	15	Tezpur University, Tezpur, Assam	39
87	Husain, M.	15	Jamia Millia Islamia, Jamia Nagar, New Delhi.	39
88	Madhubala, R.	15	Jawaharlal Nehru University	39
89	Singh, R.P.	15	Jawaharlal Nehru University	39
90	Ghosh, S.	15	Jawaharlal Nehru University	39
91	Patnaik, S.	15	Jawaharlal Nehru University	39
92	Mallick, B.N.	15	Jawaharlal Nehru University	39
93	Tandon, V.	15	North-Eastern Hill University, Shillong, Meghalaya.	39
94	Chandra, A.K.	15	North-Eastern Hill University, Shillong, Meghalaya.	39
95	Chandrasekaran, G.	15	Pondicherry University, Puducherry, Pondicherry.	39
96	Semalty, A.	15	Hemwati Nandan Bahuguna Garhwal University, Utrkd.	39
97	Prasad, G.	15	Hemwati Nandan Bahuguna Garhwal University, Utrkd.	39
98	Bhattacharjee, R.	14	Assam University, Silchar.	40
99	Maji, T.K.	14	Tezpur University, Tezpur, Assam	40
100	Ali, A.	14	Jamia Millia Islamia, Jamia Nagar, New Delhi.	40

6.7.2 Ranking of Prolific Authors from Central Universities based on SCI-Expanded Database

Table 4.0 shows that the first ten positions are occupied again by the authors from University of Delhi, getting 1st to 8th rank in the list of 100 most prolific authors from Central Universities as represented in SCI-Expanded database. In University of Delhi, Kumar, A. with 322 papers acquired first rank and Maravin, Y. with 210 research papers obtaining 8th rank. This is followed by the authors of Banaras Hindu University with Singh, AK contributing 177 papers and occupying 9th rank (highest in Banaras Hindu University) to Singh

SK contributing 98 papers and rank 15th. Here after Kabir Ud Din from Aligarh Muslim University contributing 96 papers occupied 16th rank, the trend (productive University productive authors) vanishes by Ahmad, S from Jamia Millia Islamia contributing 93 papers and rank 17th.

The less productive authors contributing below 30 papers are: Ramola, RC from HNB Garhwal University contributing 29 papers, getting rank 50th; Abbasi, SA from Pondicherry University contributing only 21 papers and occupying 57th rank (lowest among the list). The broader aspects of the all the 100 most prolific authors from Central Universities can be visualised from the table below.

Table-4.0 Ranking of Prolific Authors from CU based on SCIE DB (Top 100)				
S No.	Name of the Author	No. of Papers	Affiliation	Rank
1	Kumar A	322	University of Delhi	1
2	Jain S	228	University of Delhi	2
3	Chandra A	218	University of Delhi	3
4	Shivpuri RK	214	University of Delhi	4
5	Shivpuri R K	213	University of Delhi	5
6	Beuselinck R	212	University of Delhi	6
7	Bhatnagar V	211	University of Delhi	7
8	Askew A	210	University of Delhi	8
9	Hirosky R	210	University of Delhi	8
10	Maravin Y	210	University of Delhi	8
11	Singh AK	177	Banaras Hindu University	9
12	Singh S	169	Banaras Hindu University	10
13	Kumar A	146	Banaras Hindu University	11
14	Singh V	119	Banaras Hindu University	12
15	Kumar S	111	Banaras Hindu University	13
16	Sundar S	103	Banaras Hindu University	14
17	Singh SK	98	Banaras Hindu University	15
18	Kabir Ud Din	96	Aligarh Muslim University	16
19	Ahmad S	93	Jamia Millia Islamia	17
20	Singh A	91	Banaras Hindu University	18
21	Kumar R	90	Aligarh Muslim University	19
22	Pandey AC	84	University Allahabad	20
23	Srivastava On	79	Banaras Hindu University	21
24	Singh RK	77	Banaras Hindu University	22
25	Ahmad A	68	Aligarh Muslim University	23
26	Ahmad Sharif	68	Jamia Millia Islamia	23
27	Yadav LDS	65	University Allahabad	24
28	Kumar S	64	Aligarh Muslim University	25
29	Husain M	62	Jamia Millia Islamia	26
30	Khan RH	57	Aligarh Muslim University	27
31	Khan S	55	Aligarh Muslim University	28
32	Ali A	55	Jamia Millia Islamia	28
33	Singh V	53	University Allahabad	29
34	Zulfequar M	52	Jamia Millia Islamia	30
35	Kripal R	52	University Allahabad	30
36	Nangia A	52	University Hyderabad	30
37	Yadav Lal Dhar S	51	University Allahabad	31
38	Mahanti MK	50	Ne Hill University	32

39	Porsezian K	50	Pondicherry University	32
40	Bhattacharya S	50	Visva Bharati University	32
41	Khan MA	49	Aligarh Muslim University	33
42	Kripal Ram	48	University Allahabad	34
43	Pandey Avinash C	48	University Allahabad	34
44	Husain Q	45	Aligarh Muslim University	35
45	Prasad R	45	Aligarh Muslim University	35
46	Desiraju GR	45	University Hyderabad	35
47	Ahmad I	44	Aligarh Muslim University	36
48	Mahanti M K	44	Ne Hill University	36
49	Nangia Ashwini	44	University Hyderabad	36
50	Reddanna P	44	University Hyderabad	36
51	Ahmad F	43	Jamia Millia Islamia	37
52	Ashraf SM	43	Jamia Millia Islamia	37
53	Ramanathan AL	41	Jawaharlal Nehru University	38
54	Karak N	41	Tezpur University	38
55	Sasikala C	40	University Hyderabad	39
56	Ramana CV	39	University Hyderabad	40
57	Singh AK	38	University Allahabad	41
58	Sasikala CH	38	University Hyderabad	41
59	Azam A	37	Jamia Millia Islamia	42
60	Kumar S	37	University Allahabad	42
61	Ramana CH V	37	University Hyderabad	42
62	Samanta A	37	University Hyderabad	42
63	Khan Z	36	Jamia Millia Islamia	43
64	Das SK	36	University Hyderabad	43
65	Rao PS	35	Pondicherry University	44
66	Karak Niranjana	35	Tezpur University	44
67	Bhattacharya A	34	Jawaharlal Nehru University	45
68	Bohidar HB	34	Jawaharlal Nehru University	45
69	Baul TSB	34	Ne Hill University	45
70	Dhar R	34	University Allahabad	45
71	Ahmad Faizan	33	Jamia Millia Islamia	46
72	Ramaswamy R	32	Jawaharlal Nehru University	47
73	Baul Tushar S Basu	32	Ne Hill University	47
74	Ramanathan A L	31	Jawaharlal Nehru University	48
75	Kumar S	30	Jawaharlal Nehru University	49
76	Prasad R	30	Jawaharlal Nehru University	49
77	Misra AP	30	Visva Bharati University	49
78	Ramola RC	29	HNB Garhwal University	50
79	Bhattacharya Alok	29	Jawaharlal Nehru University	50
80	Das S	29	Visva Bharati University	50
81	Kumar A	28	Tezpur University	51
82	Bohidar H B	27	Jawaharlal Nehru University	52
83	Prasad Rajendra	27	Jawaharlal Nehru University	52
84	Choudhury A	27	Tezpur University	52
85	Banerjee S	27	Visva Bharati University	52
86	Saha A	27	Visva Bharati University	52
87	Rao P Sambasiva	26	Pondicherry University	53
88	Dolui SK	26	Tezpur University	53
89	Sen S	26	Visva Bharati University	53
90	Deka RC	25	Tezpur University	54
91	Hussain SA	25	Tripura University	54
92	Dutta S	25	Visva Bharati University	54
93	Maity M	25	Visva Bharati University	54
94	Ramola R C	24	HNB Garhwal University	55
95	Mohanta D	24	Tezpur University	55
96	Akchurin N	24	Visva Bharati University	55
97	Akgun U	24	Visva Bharati University	55
98	Rao HSP	22	Pondicherry University	56
99	Bhattacharjee D	22	Tripura University	56
100	Abbasi SA	21	Pondicherry University	57

6.7.3 Ranking of Prolific Authors from State Universities based on Scopus Database

Table 4.1 provides the ranking of prolific authors from State Universities based on Scopus database. However, the trend of productivity followed in State Universities is different than what has been seen in Central Universities. The Narayana, B. from Mangalore University (not regarded as the highest productive State University) with 309 papers and occupies first rank. The 2nd, 3rd, 4th, and 5th ranks are occupied by Yathirajan, H.S. (308 papers from University of Mysore), Gowda, B.T. (300 papers from Mangalore University), Fuess, H. (296 papers from Mangalore University), and Narayana, B. (261 papers from University of Mysore) respectively. The breaking of the trend can be further imagined from the fact that the first prolific author of three top ranked Universities appeared at 26th rank contributing 92 papers (Das, S. of Jadavpur University), at 28th rank contributing 85 papers (Jayavel, R. of Anna University) and at 23th rank contributing 97 papers (Balasubramanian, V. of Annamalai University). The authors who are producing below 40 papers can be said as the less productive authors in this list like Mogilaiah, K. from Kakatiya University, Srinivasan, B.R. from Goa University, Pasha, M.A. from Bangalore University, etc. each contributing 39 papers and acquiring 66th rank. The list ends at Saraf, S. from Pt. Ravishankar Shukla University and Giridhar, R. from 'The Maharaja Sayajirao University of Baroda' each acquiring 70th rank with 35 contributions. The table provides the detailed sketch of ranking of all the top 200 authors along with their affiliated Universities as represented in Scopus database.

Table-4.1 Ranking of Prolific Authors from SU based on Scopus DB (Top 200)				
S No.	Name of the Author	No. of Papers	Affiliation	Rank
1	Narayana, B.	309	Mangalore University	1
2	Yathirajan, H.S.	308	University of Mysore	2
3	Gowda, B.T.	300	Mangalore University	3
4	Fuess, H.	296	Mangalore University	4
5	Narayana, B.	261	University of Mysore	5
6	Yathirajan, H.S.	259	Mangalore University	6
7	Foro, S.	222	Mangalore University	7
8	Baringer, P.	203	Panjab University, Chandigarh	8

9	Alverson, G.	203	Panjab University, Chandigarh	8
10	Bean, A.	203	Panjab University, Chandigarh	8
11	Adams, T.	202	Panjab University, Chandigarh	9
12	Weber, M.	201	Panjab University, Chandigarh	10
13	Bhatnagar, V.	200	Panjab University, Chandigarh	11
14	Atramentov, O.	199	Panjab University, Chandigarh	12
15	Bose, T.	198	Panjab University, Chandigarh	13
16	Buehler, M.	197	Panjab University, Chandigarh	14
17	Barberis, E.	197	Panjab University, Chandigarh	14
18	Majumdar, K.C.	141	University of Kalyani	15
19	Dharmaprakash, S.M.	140	Mangalore University	16
20	Fun, H.K.	139	Mangalore University	17
21	Patil, P.S.	124	Mangalore University	18
22	Sarojini, B.K.	118	Mangalore University	19
23	Rangappa, K.S.	118	University of Mysore	19
24	Sarojini, B.K.	113	University of Mysore	20
25	Nandibewoor, S.T.	105	Karnatak University	21
26	Jasinski, J.P.	105	University of Mysore	21
27	Mohanakrishnan, A.K.	99	University of Madras	22
28	Balasubramanian, V.	97	Annamalai University, Annamalai Nagar	23
29	Jasinski, J.P.	95	Mangalore University	24
30	Lokhande, C.D.	93	Shivaji University, Kolhapur	25
31	Thomas, S.	92	Mahatma Gandhi University, Kottayam	26
32	Raghunathan, R.	92	University of Madras	26
33	Das, S.	92	Jadavpur University, Calcutta	26
34	Velmurugan, D.	87	University of Madras	27
35	Mukkanti, K.	85	Jawaharlal Nehru Technological University, Hyderabad	28
36	Shingare, M.S.	85	Dr. Babasaheb Ambedkar Marathwada University	28
37	Jayavel, R.	85	Anna University, Chennai	28
38	Mitra, S.	85	Jadavpur University, Calcutta	28
39	Chattopadhyay, S.	84	University of Jammu	29
40	Chattopadhyay, S.	84	University of Rajasthan	29
41	Natarajan, S.	84	Madurai Kamaraj Univ. (Kamraj University), Madurai	29
42	Bolte, M.	83	University of Mysore	30
43	Bhati, A.K.	83	University of Rajasthan	30
44	Bhati, A.K.	82	University of Jammu	31
45	Estienne, M.	81	University of Jammu	32
46	Estienne, M.	81	University of Rajasthan	32
47	Pal, T.K.	81	Jadavpur University, Calcutta	32
48	Bielcikova, J.	79	University of Jammu	33
49	Mohanan, P.	79	Cochin University of Science and Technology, Kochi	33
50	Bielcikova, J.	79	University of Rajasthan	33
51	Bellwied, R.	78	University of Jammu	34
52	Caines, H.	78	University of Jammu	34
53	Bellwied, R.	78	University of Rajasthan	34
54	Caines, H.	78	University of Rajasthan	34
55	Ponnuswamy, M.N.	77	University of Madras	35
56	Samiyappan, R.	76	Tamilnadu Agricultural University, Coimbatore	36
57	Heinz, M.	75	University of Jammu	37
58	Heinz, M.	75	University of Rajasthan	37
59	Ravikumar, K.	75	University of Madras	37
60	Krishnakumar, V.	75	Periyar University, Salem	37
61	Suaide, A.A.P.	74	University of Jammu	38
62	Ahammed, Z.	74	University of Jammu	38
63	Jones, P.G.	74	University of Jammu	38
64	Suaide, A.A.P.	74	University of Rajasthan	38
65	Jones, P.G.	74	University of Rajasthan	38

66	Ulery, J.	74	University of Rajasthan	38
67	Sanjeeviraja, C.	70	Alagappa University, Alagappa Nagar, Karaikudi	39
68	Roy, K.	70	Jadavpur University, Calcutta	39
69	Sarkar, C.K.	70	Jadavpur University, Calcutta	39
70	Aminabhavi, T.M.	67	Karnatak University	40
71	Chougule, B.K.	65	Shivaji University, Kolhapur	41
72	Hankare, P.P.	64	Shivaji University, Kolhapur	42
73	Sundaraganesan, N.	63	Annamalai University, Annamalaiagar	43
74	Gayathri, D.	63	University of Madras	43
75	Perumal, S.	61	Madurai Kamaraj Univ. (Kamraj University), Madurai	44
76	Gopalakrishnan, R.	60	Anna University, Chennai	45
77	Konar, A.	60	Jadavpur University, Calcutta	45
78	Naveen, S.	59	University of Mysore	46
79	Mathew, K.T.	58	Cochin University of Science and Technology, Kochi	47
80	Shinde, D.B.	58	Dr. Babasaheb Ambedkar Marathwada University	47
81	Sridhar, M.A.	57	University of Mysore	48
82	Chinnakali, K.	57	Anna University, Chennai	48
83	Mangalaraj, D.	57	Bharathiar University, Coimbatore	48
84	Menon, V.P.	56	Annamalai University, Annamalaiagar	49
85	Deb, A.	56	Jadavpur University, Calcutta	49
86	Veeraiah, N.	55	Acharya Nagarjuna Univ., Nagarjuna Nagar, Guntur	50
87	Ramasamy, P.	55	Anna University, Chennai	50
88	Balachandran, K.	55	Bharathiar University, Coimbatore	50
89	Rahaman, F.	55	Jadavpur University, Calcutta	50
90	Pari, L.	54	Annamalai University, Annamalaiagar	51
91	Chinnakali, K.	54	University of Madras	51
92	Maulik, U.	54	Jadavpur University, Calcutta	51
93	Sinha, C.	54	Jadavpur University, Calcutta	51
94	Nampoori, V.P.N.	53	Cochin University of Science and Technology, Kochi	52
95	Thiruvalluvar, A.	53	Annamalai University, Annamalaiagar	52
96	Aminabhavi, T.M.	52	Karnatak University	53
97	Anantharaman, M.R.	52	Cochin University of Science and Technology, Kochi	53
98	Gaur, N.K.	52	Barkatullah University, Bhopal	53
99	Lokhande, R.S.	52	University of Mumbai	53
100	Singh, N.	52	Punjabi University, Patiala	53
101	Ghosh, A.	52	University of Calcutta, Kolkata	53
102	Kumar, R.	51	Kurukshetra University, Kurukshetra.	54
103	Mahadevan, K.M.	51	Kuvempu University, Shankaraghatta	54
104	Joseph, R.	51	Cochin University of Science and Technology, Kochi	54
105	Pandurangan, A.	51	Anna University, Chennai	54
106	Ramesh, P.	51	University of Madras	54
107	Guchhait, N.	51	University of Calcutta, Kolkata	54
108	Chiranjeevi, P.	50	Sri Venkateswara University, Tirupati	55
109	Aanandan, C.K.	50	Cochin University of Science and Technology, Kochi	55
110	More, M.A.	50	University of Pune	55
111	Sharma, G.D.	50	Jai Narain Vyas University, Jodhpur	55
112	Jayachandran, M.	50	Alagappa University, Alagappa Nagar, Karaikudi	55
113	Vaidehi, V.	50	Anna University, Chennai	55
114	Buddhudu, S.	49	Sri Venkateswara University, Tirupati	56
115	Radhakrishnan, P.	49	Cochin University of Science and Technology, Kochi	56
116	Thomas, S.	49	Mahatma Gandhi University, Kottayam	56
117	Govindwar, S.P.	49	Shivaji University, Kolhapur	56
118	Singh, M.	49	Punjabi University, Patiala	56
119	Jaleel, C.A.	49	Annamalai University, Annamalaiagar	56
120	Kanagarajan, V.	49	Annamalai University, Annamalaiagar	56
121	Manavalan, R.	49	Annamalai University, Annamalaiagar	56

122	Nalini, N.	49	Annamalai University, Annamalai Nagar	56
123	Varalakshmi, P.	49	University of Madras	56
124	Muthusubramanian, S.	49	Madurai Kamaraj Univ. (Kamraj University), Madurai	56
125	Jayasankar, C.K.	48	Sri Venkateswara University, Tirupati	57
126	Madamwar, D.	48	Sardar Patel University, Vallabh Vidyanagar	57
127	Jayaraj, M.K.	48	Cochin University of Science and Technology, Kochi	57
128	Bhosale, C.H.	48	Shivaji University, Kolhapur	57
129	Singh, N.	48	Guru Nanak Dev University, Amritsar	57
130	Athimoolam, S.	48	Madurai Kamaraj Univ. (Kamraj University), Madurai	57
131	Sherigara, B.S.	47	Kuvempu University, Shankaraghatta	58
132	Joshi, J.B.	47	University of Mumbai	58
133	Murugesan, V.	47	Anna University, Chennai	58
134	Manoharan, S.	47	Annamalai University, Annamalai Nagar	58
135	Mayekar, A.N.	46	University of Mysore	59
136	Butcher, R.J.	46	University of Mysore	59
137	Fun, H.K.	46	Anna University, Chennai	59
138	Fun, H.K.	46	University of Madras	59
139	Jani, A.R.	45	Sardar Patel University, Vallabh Vidyanagar	60
140	Sugunan, S.	45	Cochin University of Science and Technology, Kochi	60
141	Singhal, R.S.	45	University of Mumbai	60
142	Joag, D.S.	45	University of Pune	60
143	Lobana, T.S.	45	Guru Nanak Dev University, Amritsar	60
144	Shingate, B.B.	44	Dr. Babasaheb Ambedkar Marathwada University	61
145	Sengwa, R.J.	44	Jai Narain Vyas University, Jodhpur	61
146	Muthiah, P.T.	44	Bharathidasan University, Tiruchirappalli	61
147	Suresh, J.	44	Madurai Kamaraj Univ. (Kamraj University), Madurai	61
148	Sarma, H.P.	43	Gauhati University, Guwahati	62
149	Joseph, K.	43	Mahatma Gandhi University, Kottayam	62
150	Rajpure, K.Y.	43	Shivaji University, Kolhapur	62
151	Puri, V.	43	Shivaji University, Kolhapur	62
152	Vasudevan, T.	43	Alagappa University, Alagappa Nagar, Karaikudi	62
153	Selvarajan, V.	43	Bharathiar University, Coimbatore	62
154	Mahulikar, P.P.	42	North Maharashtra University	63
155	Aiyer, R.C.	42	University of Pune	63
156	Ahuja, B.L.	42	Mohan Lal Sukhadia University, Udaipur	63
157	Mahalingam, T.	42	Alagappa University, Alagappa Nagar, Karaikudi	63
158	Prasad, K.	41	Tilkamanjhi Bhagalpur (T.M) University, Bhagalpur	64
159	Sasikala, C.	40	Jawaharlal Nehru Technological University, Hyderabad	65
160	Amarnath, J.	40	Jawaharlal Nehru Technological University, Hyderabad	65
161	Rajanarendar, E.	40	Kakatiya University, Warangal	65
162	Suvaradhan, K.	40	Sri Venkateswara University, Tirupati	65
163	Vasudevan, K.	40	Cochin University of Science and Technology, Kochi	65
164	Singare, P.U.	40	University of Mumbai	65
165	Lakshmanan, M.	40	Bharathidasan University, Tiruchirappalli	65
166	Mogilaiah, K.	39	Kakatiya University, Warangal	66
167	Srinivasan, B.R.	39	Goa University, Goa	66
168	Pasha, M.A.	39	Bangalore University	66
169	Patil, S.A.	39	Karnatak University	66
170	Mahadevan Pillai, V.P.	39	University of Kerala	66
171	Pandit, A.B.	39	University of Mumbai	66
172	Renganathan, R.	39	Bharathidasan University, Tiruchirappalli	66
173	Kuttalam, S.	39	Tamilnadu Agricultural University, Coimbatore	66
174	Roy, M.N.	39	University of North Bengal, Darjeeling	66
175	Rekha, D.	38	Sri Venkateswara University, Tirupati	67

176	Saraf, S.	38	Pt. Ravishankar Shukla University, Raipur	67
177	Singh, M.	38	Himachal Pradesh University, Shimla	67
178	Thangaraj, R.	38	Guru Nanak Dev University, Amritsar	67
179	Palanichamy, M.	38	Anna University, Chennai	67
180	Ghosh, K.K.	37	Pt. Ravishankar Shukla University, Raipur	68
181	Patel, M.N.	37	Sardar Patel University, Vallabh Vidyanagar	68
182	Chimatadar, S.A.	37	Karnatak University	68
183	Banipal, T.S.	37	Guru Nanak Dev University, Amritsar	68
184	Tiwar, A.K.	37	Punjabi University, Patiala	68
185	Sankhla, S.	37	Jai Narain Vyas University, Jodhpur	68
186	Kannan, P.	37	Anna University, Chennai	68
187	Kumar, A.	37	G B Pant University of Agr. & Technology, Pantnagar	68
188	Mathela, C.S.	37	Kumaun University, Nainital	68
189	Uthanna, S.	36	Sri Venkateswara University, Tirupati	69
190	Shrivastav, P.S.	36	Gujarat University, Ahmedabad	69
191	Sairam, M.	36	Karnatak University	69
192	Kanhere, D.G.	36	University of Pune	69
193	Chate, P.A.	36	Shivaji University, Kolhapur	69
194	Ramamurthi, K.	36	Bharathidasan University, Tiruchirappalli	69
195	Chandra, G.	36	University of Burdwan, Rajbati, Burdwan	69
196	Mukhopadhyay, S.	36	University of Burdwan, Rajbati, Burdwan	69
197	Drew, M.G.B.	36	University of Calcutta, Kolkata	69
198	Chattopadhyay, B.	36	University of Kalyani	69
199	Saraf, S.	35	Pt. Ravishankar Shukla University, Raipur	70
200	Giridhar, R.	35	The Maharaja Sayajirao Univ. of Baroda, Vadodara	70

6.7.4 Ranking of Prolific Authors from State Universities based on SCI-Expanded Database

Table 4.2 shows top 200 authors from State Universities as portrayed in SCI-Expanded database. It was found that Kumar, A. from Panjab University comes as the most productive author among all the State Universities of India contributing 380 papers and thus occupies the first rank. It is followed by Narayana, B. (most productive author in Scopus) from Mangalore University contributing 317 papers (rank 2nd), Yathirajan, H.S. from University of Mysore contributing 313 papers (rank 3rd), Gowda, B.T. from Mangalore University contributing 311 papers (rank 4th), Gowda B Thimme from Mangalore University contributing 304 papers (rank 5th), and so on. Here Mitra, S. of Jadavpur University (different first author as in Scopus), Jayavel, R. of Anna University and Balasubramanian, V. of Annamalai University (same first authors as in Scopus) contributing 115 papers and rank 29th, 81 papers and rank 46th and 103 papers and rank 39th respectively for the three top ranked State Universities. The authors contributing below 50 papers are the less productive authors in this list like ‘Pandurangan, A.’ from Anna University,

‘Nalini, N.’ from Annamalai University, ‘Sureshababu Vommina, V.’ from Bangalore University, etc. each producing 49 papers and occupying 76th rank. The lowest ranked author where the list ends is the ‘Kamath P. Vishnu’ from Bangalore University producing only 40 papers and occupying 85th rank. Further details of all the 200 top authors of State Universities along with the respective number of contributions and the ranks acquired can be seen in the table below.

Table-4.2 Ranking of Prolific Authors from SU based on SCIE DB (Top 200)				
S No.	Name of the Author	No. of Papers	Affiliation	Rank
1	Kumar A	380	Panjab University	1
2	Narayana B	317	Mangalore University	2
3	Yathirajan HS	313	University Mysore	3
4	Gowda BT	311	Mangalore University	4
5	Gowda B Thimme	304	Mangalore University	5
6	Fuess H	296	Mangalore University	6
7	Fuess Hartmut	296	Mangalore University	6
8	Yathirajan H S	295	University Mysore	7
9	Narayana B	271	University Mysore	8
10	Yathirajan HS	270	Mangalore University	9
11	Yathirajan H S	258	Mangalore University	10
12	Zhang ZP	238	Panjab University	11
13	Banerjee S	226	Panjab University	12
14	Zhang Z P	225	Panjab University	13
15	Foro Sabine	223	Mangalore University	14
16	Foro S	222	Mangalore University	15
17	Tully C	221	Panjab University	16
18	Li J	218	Panjab University	17
19	Jain S	216	Panjab University	18
20	Weber M	215	Panjab University	19
21	Gavrilov V	214	Panjab University	20
22	Hagopian S	214	Panjab University	20
23	Fun HK	182	Mangalore University	21
24	Raghunathan R	158	University Madras	22
25	Majumdar KC	145	University Kalyani	23
26	Kumar R	144	Kurukshetra University	24
27	Thomas S	141	Mahatma Gandhi University	25
28	Aminabhavi TM	124	Karnatak University	26
29	Sarojini BK	119	University Mysore	27
30	Ponnuswamy MN	116	University Madras	28
31	Mitra S	115	Jadavpur University	29
32	Nandibewoor ST	114	Karnatak University	30
33	Butcher RJ	112	University Mysore	31
34	Chakraborty S	111	Jadavpur University	32
35	Jasinski Jerry P	110	University Mysore	33
36	Jasinski JP	110	University Mysore	33
37	Ghosh D	109	Jadavpur University	34
38	Sarojini B K	109	University Mysore	34
39	Thomas Sabu	107	Mahatma Gandhi University	35
40	Velmurugan D	106	University Madras	36
41	Butcher Ray J	105	University Mysore	37
42	Majumdar K C	104	University Kalyani	38
43	Rangappa KS	104	University Mysore	38
44	Balasubramanian V	103	Annamalai University	39
45	Ghosh S	103	Jadavpur University	39

46	Ponnuswamy M N	99	University Madras	40
47	Mohanakrishnan AK	98	University Madras	41
48	Das S	95	Jadavpur University	42
49	Lokhande CD	91	Shivaji University	43
50	Singh S	90	Guru Nanak Dev University	44
51	Sharma M	90	University Rajasthan	44
52	Raniwala S	82	University Rajasthan	45
53	Jayavel R	81	Anna University	46
54	Pal TK	81	Jadavpur University	46
55	Lokhande C D	81	Shivaji University	46
56	Ghosh S	81	University Calcutta	46
57	Gupta N	81	University Rajasthan	46
58	Raniwala R	81	University Rajasthan	46
59	Mukkanti K	80	Jnt University	47
60	Sharma M	80	University Jammu	47
61	Kumar S	79	Guru Nanak Dev University	48
62	Natarajan S	79	Madurai Kamaraj University	48
63	Ahammed Z	79	University Jammu	48
64	Mohanty B	79	University Jammu	48
65	Peitzmann T	79	University Jammu	48
66	Raniwala R	79	University Jammu	48
67	Raniwala S	79	University Jammu	48
68	Roy C	79	University Jammu	48
69	Ahammed Z	79	University Rajasthan	48
70	Mohanty B	79	University Rajasthan	48
71	Peitzmann T	79	University Rajasthan	48
72	Roy C	79	University Rajasthan	48
73	Chattopadhyay S	78	University Jammu	49
74	Chattopadhyay S	78	University Rajasthan	49
75	Saxena NS	78	University Rajasthan	49
76	Bellwied R	77	University Jammu	50
77	Bhasin A	77	University Jammu	50
78	Ghosh A	76	University Calcutta	51
79	Goswami S	75	Bengal Engn Sci University	52
80	Ravikumar K	75	University Madras	52
81	Roy K	74	Jadavpur University	53
82	Goswami Shyamaprosad	73	Bengal Engn Sci University	54
83	Bhattacharya S	73	Jadavpur University	54
84	Menon VP	72	Annamalai University	55
85	Perumal S	72	Madurai Kamaraj University	55
86	Mitra Samiran	71	Jadavpur University	56
87	Reddy CS	71	Kakatiya University	56
88	Sherigara BS	71	Kuvempu University	56
89	Krishnakumar V	71	Periyar University	56
90	Jaleel CA	68	Annamalai University	57
91	Singh P	68	Guru Nanak Dev University	57
92	Sanjeeviraja C	67	Alagappa University	58
93	Singh K	67	Guru Nanak Dev University	58
94	Shingare MS	66	Dr Babasaheb Ambedkar Marathwada University	59
95	Mohanakrishnan A K	66	University Madras	59
96	Chougule BK	65	Shivaji University	60
97	Jain R	64	Jiwaji University	61
98	Nandibewoor Sharanappa T	64	Karnatak University	61
99	Sureshababu VV	63	Bangalore University	62
100	Chattopadhyay KK	63	Jadavpur University	62
101	Gayathri D	63	University Madras	62
102	Veeraiah N	62	Acharya Nagarjuna	63
103	Sundaraganesan N	62	Annamalai University	63
104	Aminabhavi Tejraj M	62	Karnatak University	63
105	Chougule B K	62	Shivaji University	63

106	Chinnakali K	61	Anna University	64
107	Kumar Rajneesh	61	Kurukshetra University	64
108	Buddhudu S	61	Sri Venkateswara University	64
109	Ramasamy P	60	Anna University	65
110	Singh N	60	Guru Nanak Dev University	65
111	Sherigara B S	60	Kuvempu University	65
112	Fun HK	59	Anna University	66
113	Gopalakrishnan R	59	Anna University	66
114	Nagarajan G	59	Anna University	66
115	Patil SA	58	Karnatak University	67
116	Hankare PP	58	Shivaji University	67
117	Shingare Murlidhar S	57	Dr Babasaheb Ambedkar Marathwada University	68
118	Singh J	57	Guru Nanak Dev University	68
119	Hankare P P	57	Shivaji University	68
120	Fun Hoong Kun	56	Anna University	69
121	Thiruvalluvar A	56	Annamalai University	69
122	Jain Rajeev	56	Jiwaji University	69
123	Drew MGB	56	University Calcutta	69
124	Fun HK	56	University Madras	69
125	Prasad KJR	55	Bharathiar University	70
126	Lakshmanan M	55	Bharathidasan University	70
127	Reddy CS	55	Sri Venkateswara University	70
128	Chinnakali K	55	University Madras	70
129	Murugesan V	54	Anna University	71
130	Gopalakrishnan M	54	Annamalai University	71
131	Chattopadhyay S	54	University Calcutta	71
132	Reddy PS	53	Sri Venkateswara University	72
133	Bhattacharya S	53	University Calcutta	72
134	Drew Michael G B	53	University Calcutta	72
135	Rao AV	52	Shivaji University	73
136	Chakrabarti S	52	University Calcutta	73
137	Anirudhan TS	52	University Kerala	73
138	Gaur NK	51	Barkatullah University (M.P)	74
139	Fun HK	51	Bengal Engn Sci University	74
140	Sharma GD	51	Jai Narain Vyas University	74
141	Patil PS	51	Shivaji University	74
142	Raju CN	51	Sri Venkateswara University	74
143	Jayachandran M	50	Alagappa University	75
144	Fun Hoong Kun	50	Bengal Engn Sci University	75
145	Shinde DB	50	Dr Babasaheb Ambedkar Marathwada University	75
146	Sharma G D	50	Jai Narain Vyas University	75
147	Pandurangan A	49	Anna University	76
148	Nalini N	49	Annamalai University	76
149	Sureshbabu VomminaV	49	Bangalore University	76
150	Muthiah PT	49	Bharathidasan University	76
151	Kaur D	49	Guru Nanak Dev University	76
152	Aminabhavi T M	49	Karnatak University	76
153	Mahadevan KM	49	Kuvempu University	76
154	Palanichamy M	48	Anna University	77
155	Kumar Subodh	48	Guru Nanak Dev University	77
156	Lobana TS	48	Guru Nanak Dev University	77
157	Athimoolam S	48	Madurai Kamaraj University	77
158	Muthusubramanian S	48	Madurai Kamaraj University	77
159	Madamwar D	48	Sardar Patel University	77
160	Govindwar SP	48	Shivaji University	77
161	Samiyappan R	48	Tamil Nadu Agr University	77
162	Ghosh Ashutosh	48	University Calcutta	77
163	Panneerselvam R	47	Annamalai University	78
164	Gaur N K	47	Barkatullah University (M.P)	78
165	Puri V	47	Shivaji University	78
166	Guchhait N	47	University Calcutta	78

167	Kamath PV	46	Bangalore University	79
168	Chattopadhyay S	46	Bengal Engn Sci University	79
169	Mahajan RK	46	Guru Nanak Dev University	79
170	Ali M	46	Jamia Hamdard	79
171	Singh B	46	Punjab Agr University	79
172	Jayasankar CK	46	Sri Venkateswara University	79
173	Vasudevan T	45	Alagappa University	80
174	Mangalaraj D	45	Bharathiar University	80
175	Kumar S	45	Kurukshetra University	80
176	Bandyopadhyay A	45	University Calcutta	80
177	Pillai VPM	45	University Kerala	80
178	Menon Venugopal P	44	Annamalai University	81
179	Yadav MR	44	Maharaja Sayajirao University Baroda	81
180	Joseph K	44	Mahatma Gandhi University	81
181	Singh M	44	Punjabi University	81
182	Nagini S	43	Annamalai University	82
183	Kumar KS	43	Sri Venkateswara University	82
184	Selvasekarapandian S	42	Bharathiar University	83
185	Rajanarendar E	42	Kakatiya University	83
186	Rao JL	42	Sri Venkateswara University	83
187	Sodha MS	42	University Lucknow	83
188	Khar RK	41	Jamia Hamdard	84
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194	Giridhar R	41	Maharaja Sayajirao University Baroda	84
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