

# Books Authored by Dr. Raghunath A. Mashelkar: A Scientometric Portrait

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**Abstract:** *Dr. Raghunath A. Mashelkar, an outstanding and leading scientist of Indian scientist, he honored with the Padma Vibhushan, The Padma Bhushan and fellow of various institutes of India as well as abroad. The present study attempts to highlights the various bibliographical attributes of him. He had published 26 books either singly or collaboratively during the period 1980-2019. The data for the present study were taken from his personal web portal (<http://www.mashelkar.com/work/books>). A. S. Mujumdar is the most prominent collaborator. The highest number of 4 was published in 1987.*

**Keywords:** Scientometric Portrait, Scientometric, Authorship Pattern, Raghunath A. Mashelkar Author Productivity

## 1. Introduction

The concept of Scientometric emerged as a one of the techniques for documenting, collecting work of eminent scientists and research<sup>1</sup>. Scientometric term was derived from the Russian term 'Naukometriya'<sup>2</sup>. Russian mathematician-philosopher-polymath V. V. Nalimov was coined in 1969<sup>3</sup>. Scientometrics is an application of quantitative methods to the history of Science<sup>4</sup>. A dedicated academic journal, Scientometrics, was established by Tibor Braun in 1977, after that Scientometric became common in the LIS field<sup>5</sup>. According to Tague-Sutcliffe<sup>6</sup>, Scientometrics is 'the science of quantitative aspects of science as a discipline or economic activity'. Scientometric is part of science and has application to science policy-making. It involves quantitative studies of scientific activities, including, among others publication, and so overlaps bibliometrics to some extent<sup>7</sup>. Scientometrics is also belonging to the terms bio-bibliometrics<sup>8</sup>, Scientometrics portraits<sup>9</sup>, infometrics, bibliographic on publication activities<sup>11</sup>, microbibliometrics, and information career<sup>10</sup>.

Scientometric portrait studies on the works of Nobel laureates had done by many scholars. However this study based on the journal articles of the laureates. Although scientometric studies on books authored by Indian scientists are very rare and hence this study on Dr. Raghunath A. Mashelkar was undertaken.

### Objective of the study

To analyze an attributes of books authored by Dr. Raghunath A. Mashelkar.

### Dr. Raghunath Mashelkar, a short biographical sketch

Dr. Raghunath A. Mashelkar was born on January 1<sup>st</sup>, 1943 in the state of Goa, India. He was pursued his bachelor's degree in Chemical Engineering, he joined UDCT (Institute of Chemical Technology), Mumbai. He was completed his doctorate degree under the guide of Prof. M. M. Sharma. His contributions to the nation and to science at large have been honored by a plethora of awards, the most significant being

The Padma Vibhushan (2014), The Padma Bhushan (2000), The Padma Shri (1991).<sup>41</sup> India and foreign universities have honored him with D. Sc.

Dr. Raghunath A. Mashelkar is currently National Research Professor, Chairman of India's National Innovation Foundation and President of Global Research Alliance. He was the Director General of Council of Scientific and Industrial Research (CSIR), a chain of 38 national laboratories for over a decade. He was also the President of Indian National Science Academy<sup>12</sup>.

## 2. Methodology

The data presented in the paper has been taken from 'Dr. Raghunath A. Mashelkar' (<http://www.mashelkar.com/work/books>) personal web portal. All the basic data, relating to the bibliographic attributes has been collected organized, analyzed and calculated using Microsoft Excel software. He has written 26 books singly or in collaboration during 1980-2019. He has authored 13 (50%) books either singly or collaboratively. Out of 13 books, he has authored 5 (19.23) books singly and 8 (30.76) books with collaboratively. Hence he edited 13 (50%) books singly

## 3. Results and Discussion

### Authorship and editorship pattern:

Figure-1 shows that the authorship pattern of Dr. Raghunath A. Mashelkar, he has authored 26 books singly or in collaboration. Out of 26 books he has written 5 (38) books as a single author whereas 8 (62%) books had double authors. Along with he edited 13 (100) books as a single editor.

Figure 2 presents the status of Dr. Raghunath A. Mashelkar as an author and editor of the 26 books. Out of 26 books 5 (38%) books created by him as a single author whereas he appeared as the second author in 8 (62%) books. Hence he edited 13 (100%) books as a single editor.

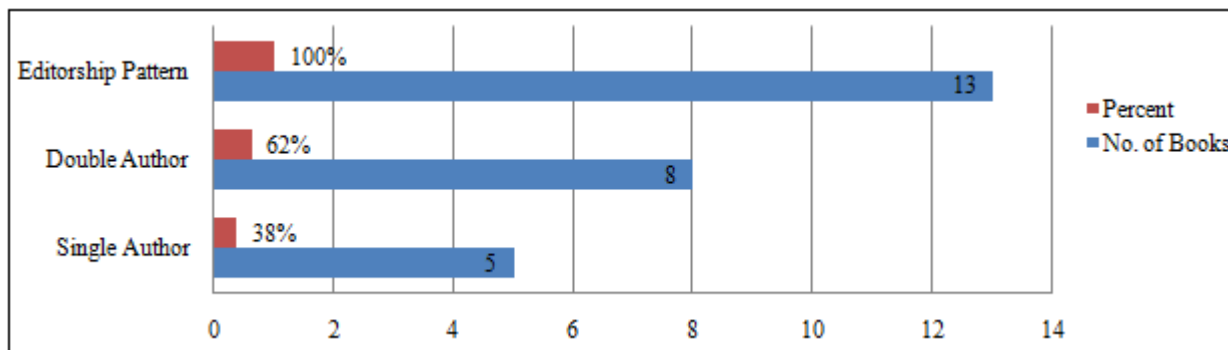


Figure 1: Authorship pattern/editorship pattern of Dr. Raghunath A. Mashelkar

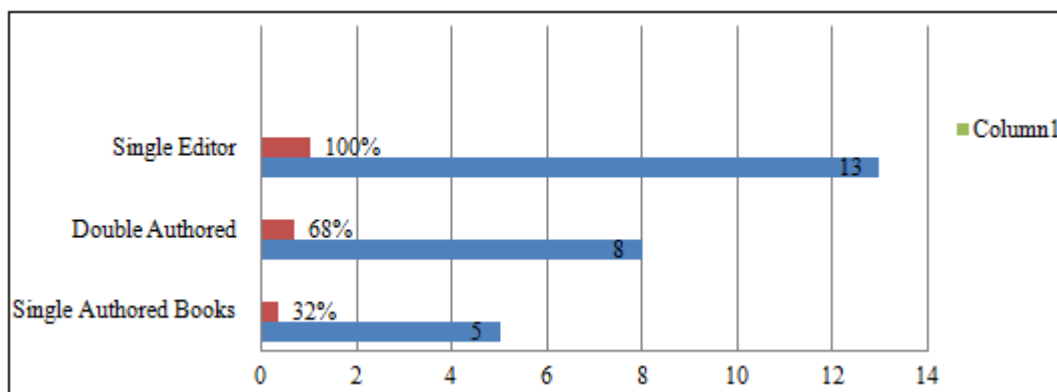


Figure 2: Status of Raghunath A. Mashelkar as author/editor

**Prominent Collaborators**

Figure 3 depicts that Dr. Raghunath A. Mashelkar worked with 2 co-authors during 1980-2019, one of them is Dr. A. S. Mujumdar is Mashelkar’s most prominent collaborator of him. They collaboratively publish 3 (60%) books whereas with Dr. S. A. Khan and produced 2 (40%) books.

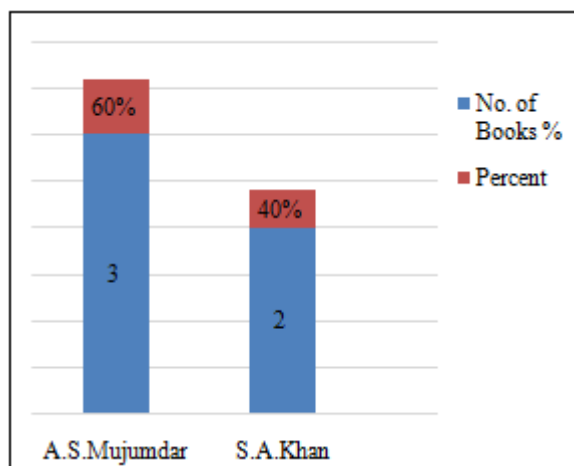


Figure 3: Prominent collaborators

**Years-wise books distribution:**

Table 1 shows the year-wise distribution of books. Dr. Raghunath A. Mashelkar has started his productive career with A. S. Mujumdar in 1980, with the publication of the book titled ‘*Advances in Transport Processes: Vol-1*’, when he was 37 years. During 1987-1988 the highest number of books 4 was published.

Dr. Raghunath A. Mashelkar’s productive life covers the time span of 40 years (1980-2019). At the age of 77 years, in 2019 he was publish his 26<sup>th</sup> book-‘*Leapfrogging to Pole-vaulting: Creating the Magic of Radical and Sustainable Transformation*’, Penguin Random House India, Mumbai.

Table 1: Year-wise books distribution

Biological age (DOB: 1943)	Publication Year	No. of publications	Percent	Cumulative total	Cumulative percent	Publishing career age
37	1980	1	3.84	1	3.84	1
39	1982	1	3.84	2	7.68	3
40	1983	1	3.84	3	11.53	4
41	1984	2	7.70	5	19.23	5
43	1986	1	3.38	6	23.07	7
44	1987	4	15.46	10	38.46	8
45	1988	1	3.84	11	42.30	9
46	1989	1	3.84	12	46.15	10

47	1990	1	3.84	13	50	11
49	1992	1	3.84	14	53.84	13
50	1993	1	3.84	15	57.69	14
51	1994	1	3.84	16	61.53	15
55	1998	1	3.84	17	65.38	19
56	1999	1	3.84	18	69.23	20
61	2004	2	7.70	20	76.92	25
63	2006	2	7.70	22	84.61	27
65	2008	1	3.84	23	88.46	29
67	2010	1	3.84	24	92.30	31
68	2011	1	3.84	25	96.15	32
76	2019	1	3.84	26	100	40

Table 2 depicts that the first block is the peak period of him; he was produce 13 books (50%), during the time span of 1986-1989 at the age of 37-46. The next productive is the

block second and third, with the production of 5-5 (19.23-19.23) books respectively.

**Table 2:** Block-wise productivity

Block No	Block period	No. of Published books	Percent	Cumulative total	Publishing career age (year: 1980)	Biological age (DOB-1943)
1	1980-1989	13	50	13	1-9	37-46
2	1990-1999	5	19.23	18	10-19	47-56
3	2000-2009	5	19.23	23	20-29	57-66
4	2010-2019	3	11.54	26	30-39	67-76

#### Distribution of books according to publishers:

From Table 3, it is seen that 12 native and as well as foreigner publishers have published Dr. Raghunath A. Mashelkar's books. Out of 26 books, Wiley Eastern (U. K.) had published eleven books followed by Elsevier Publishing Co., Netherland, Royal Society Imperial College Press, (U. K.) and Kluwer Publications (U. K.) and Prabhat Prakashan (India) with two books each and seven publishers published one book.

**Table 3:** Publisher-wise distribution of books

Sr. No	Name of publisher	Number of books	Country
1	Wiley Eastern	11	UK
2	Indian Academy of Science	1	India
3	Hemisphere Publishing Co	1	UK
4	Elsevier Publishing Co	2	Netherland
5	World Scientific Publication	1	Singapore
6	Royal Society Imperial College Press	2	UK
7	Kluwer Publications	2	UK
8	Samayak Prakashan,	1	India
9	Prabhat Prakashan	2	India
10	Sakal Publications	1	India
11	Sahyadri Publications	1	India
12	Penguin Random House	1	India

#### 4. Conclusion

Dr. Raghunath A. Mashelkar had an active publication career from his first publication of his book 'Advances in Transport Processes-Vol.1' in 1980 till his 26<sup>th</sup> book in 2019. Hence, he plays an important role in various national and international organizations as the President, Chairman and Member. The present study has been emphasized and considered only books published authored Dr. Mashelkara. Analysis of his publications including more than 258 research articles would show his complete bibliometric portrait.

#### References

- [1] Dixit G P & Jange S, The Scientometric Portrait of Prof. S. R. Niranjana, *International Journal of Library Science and Research*, 8 (3) (2018) 13-20.
- [2] Sinha A K, Scientometric study of books authored by Nobel laureate Amartya Sen, *Annals of Library and Information Studies*, 64 (1) (2017) 9-15.
- [3] Garfield E, From the science of science to Scientometrics: Visualizing the history of science with Hist Cite software, *Journal of Infometrics*, 3 (2009) 173-179.
- [4] Tague-Sutcliff J, An introduction to infometrics, *Information Processing and Management*, 28 (1) (1992) 10-13.
- [5] Sen S K and Samyak K G, Bio-bibliometrics: Concept and application in the study of productivity of scientists, *International Forum on Information and Documentation*, 15 (3) (1990) 13-21.
- [6] Kalyane V L and Kalyane S V, Scientometric portrait of Vinodini Reddy, *Journal of Information Sciences*, 4 (1) (1993) 25-45.
- [7] Kamble P S, Bibliographics on publication productivity of J. V. Narlikar and his collaborators. Available at <http://eprints.rclis.org/4805/> (Accessed on 10 July 2021).
- [8] Muddiman D, Red information scientist: The information career of J. D. Bernal, *Journal of Documentation*, 59 (4) (2003) 387-409.
- [9] Kademani B S, Kalyane V L & Jange S, Scientometric Portrait of Nobel Laureate Dorothy Crowfoot Hodgkin, *Scientometrics*, 45 (2) (1999) 233-250.
- [10] Chellappandi P and Vijaykumar C S, Bibliometrics, Scientometrics, Webometrics/ Cybermetrics, Infometrics and Altmetrics-An Emerging Field in Library and Information Science Research, *Shanlax International Journal of Education*, 7 (1) (2018) 5-8.

- [11] Blümel C and Schniedermann A, Studying review articles in scientometrics and beyond: a research agenda, *Scientometrics* 124 (2020) 711–728.
- [12] Mitragotri S, Introduction to Editorial Board Members: Dr. Raghunath Mashelkar, *Bioengineering & Translational Medicine*, 2 (3) (2017) 236–237.