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Banana Study Publications: A Scientometric Evaluation on Cab Direct for the Period 1978-2018

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***Abstract* - The analysis within the field of banana during the period 1978-2018, obtained from the CAB Direct Online database through Scientometric analysis. The analysis revealed that 2,420 papers have been published during the period 1978 to 2018 and the greatest quantity of publications was 244 papers published during 2013. Asian Journal of Horticulture is the most effective ranking journal with 67 papers (2.77%) in the most effective 10 journals are published their research papers. India could be the leading Country in the global world which contributed 399 papers (16.49%) followed by South Africa (10.91%) and Brazil (5.75%). The sorts of archives, most popular journals, ranking authors, rank-wise countries and predominant languages, positioning on nations dependent on their productions yield are displayed.**
Keywords: **Scientometric Analysis, Banana, CAB Direct Online, Agricultural Crop, Relative Growth Rate, Doubling Time**

I. INTRODUCTION

Banana is one of the most crucial commercial enterprise tropical fruits traded. Eve became stated to have used banana leaves to cowl he modesty in the Garden of Paradise as located from antiquity. Banana is consequently referred to as "Apple of Paradise". It is also referred to as "Adam Fig". Banana is a sort of fruit from herbaceous plants of the genus Musa. Musa species develop in a huge sort of environments and feature diverse human makes use of, ranging from the secure to eat bananas and plantains of the tropics to cold-hardy fiber and ornamental plant life. They have been a staple of the human eating regimen since the dawn of recorded records [1].

These massive, perennial herbs, 2–9 m in top, advanced in Southeast Asia, New Guinea, and the Indian subcontinent, developing in modern time is secondary loci of genetic range in Africa, Latin America, and the Pacific. Bananas are grown in at least 107 countries.

Although the wild species have end result with several large, tough seeds; definitely all culinary bananas have seedless culmination. Bananas are classified both as dessert bananas (that means they may be yellow and absolutely ripe whilst eaten) and as inexperienced cooking bananas. Almost all export bananas are of the dessert sorts; but, excellent about 10-15% of all manufacturing is for export, with the United States and European Union being the dominant shoppers.

II. OBJECTIVES OF THE STUDY

The main objective of this study is to research, the analysis output in banana research, as reflected in its publication output throughout 1978-2018 in CAB Direct Online database. In exacting, the study focuses on the subsequent objectives

1. To examine the overall range of publication output of banana analysis supported CAB Direct Online database for the period 1978-2018.
2. To study the highest 10 journals publishing more research papers on banana analysis.
3. To identify the highest 10 authors within the field of banana analysis.
4. To identify the highest rank-wise countries in banana analysis.
5. To examine the share of foreign contribution, i.e. languages within the field of banana analysis.

III. METHODOLOGY

The CAB Direct Online has been used to retrieve the data for 40 years (1978-2018) by looking out the keyword 'banana' within the title field. The whole range of records retrieved from the CAB Direct Online database is 2,420.

IV. RESULTS AND ANALYSIS

The banana data collected through the CAB Direct Online database has been analyzed and presented. For the presentation of data, different kinds of statistical tools such as tables and diagrams are used.

A. Growth Rate and Doubling Time in Banana Research Output: A study of the growth rate of banana research output is an important factor in analyzing the research and development in the field. Table I shows that the relative growth rate or research output in the banana [3]. The Relative Growth Rate and Doubling Time of citations are derived and presented in table I. It can be noticed that the relative growth rate of publication decreased from the rate 0.69 in 1983 to 0.23 in 1992. The mean relative growth for the 40 years (1978-2018) showed a growth rate of 0.26 whereas the corresponding doubling time for different year gradually increased from 1.25 in 1993. The mean doubling time for the 40 years (1978-2018) was only 555.47 which was increased in the corresponding doubling time was increased.

TABLE I RELATIVE GROWTH RATE [R(C)] AND DOUBLING TIME [DT(C)] OF OVERALL RESEARCH OUTPUT

S. No.	Year	No. of Publications	Cumulative No. of Output	Log_e1^p	$Loge2^p$	[R(c)]	Mean [R(c)]	[Dt(C)]	Mean [Dt(C)]
1	1978	1	1	-	0	-		-	
2	1983	1	2	0	0.69	0.69		100.80	
3	1984	1	3	0.69	1.09	0.40		173.63	
4	1985	2	5	1.09	1.60	0.51		136.26	
5	1986	1	6	1.60	1.79	0.19		365.16	
6	1990	2	8	1.79	2.07	0.28		247.90	
7	1992	2	10	2.07	2.30	0.23		301.71	
8	1993	25	35	2.30	3.55	1.25		55.80	
9	1994	1	36	3.55	3.58	0.03		2310.84	
10	1996	2	38	3.58	3.63	0.05		1386.64	
11	1998	1	39	3.63	3.66	0.03		2310.84	
12	2000	6	45	3.66	3.80	0.14		495.45	
13	2001	2	47	3.80	3.85	0.05		1386.64	
14	2002	6	53	3.85	3.97	0.12		577.97	
15	2003	50	103	3.97	4.63	0.66	0.26	105.37	555.47
16	2004	39	142	4.63	4.95	0.32		216.95	
17	2005	78	220	4.95	5.39	0.44		157.88	
18	2006	69	289	5.39	5.66	0.27		257.07	
19	2007	89	378	5.66	5.93	0.27		257.07	
20	2008	110	488	5.93	6.19	0.26		266.94	
21	2009	151	639	6.19	6.45	0.26		266.94	
22	2010	137	776	6.45	6.65	0.20		346.92	
23	2011	175	951	6.65	6.85	0.20		346.92	
24	2012	207	1158	6.85	7.05	0.20		346.92	
25	2013	244	1402	7.05	7.24	0.19		364.016	
26	2014	235	1637	7.24	7.40	0.16		433.56	
27	2015	202	1839	7.40	7.51	0.11		630.48	
28	2016	233	2072	7.51	7.63	0.12		577.97	
29	2017	226	2298	7.63	7.73	0.10		693.49	
30	2018	162	2460	7.73	7.80	0.07		990.56	
Total		2460							

B. Most Popular Journals: The most popular journals by the scientists concerned with banana analysis were: Asian Journal of Horticulture with 67 papers (2.77%) followed by International Food Research Journal with 57 papers (2.36%). The study revealed that out of high five most popular journals by the banana researchers, three journals viz., Journal of Southern Agriculture 55 papers (2.28%) and Environment and Ecology 39 papers (1.62%) and South west China Journal of Agricultural Sciences 38 papers (1.57%) are published [2] from India which clearly indicates that the contribution of India in banana analysis is the major role in Asian Journal of Horticulture. The highest 10 most popular journals are listed in Table II. With the amount of papers revealed.

TABLE II POPULAR JOURNALS

S. No.	Journal Name	No. of Papers	Percentage
1.	Asian Journal of Horticulture	67	2.77
2.	International Food Research Journal	57	2.36
3.	Journal of Southern Agriculture	55	2.28
4.	Environment and Ecology	39	1.62
5.	South west China Journal of Agricultural Sciences	38	1.57
6.	Journal of Horticultural Sciences	33	1.37
7.	International Journal of Tropical Agriculture	31	1.28
8.	Agronomia Mesomeriana	30	1.24
9.	Corbana	28	1.16
10.	Philippine Journal of Crop Science	28	1.16

C. Prolific / Ranking Authors: The study reveals that Blomme G is that the most prolific / Ranking authors of banana analysis who revealed 70 papers (2.90%) followed by Bergh l Van den with 38 papers (1.57%). It's observed that out of the highest five authors who contributed a lot of papers in banana analysis, [4] there are world ranking author contributed a paper level of 31 to 77 viz., Escalant J.V. 38 papers (1.57%), Picq C 38 papers (1.57%), and Lepoivre P 34 Papers (1.41%). Most of the authors have been published same number of papers [8]. Table III lists the highest 10 prolific/ranking authors within the field of banana analysis.

TABLE III TOP 10 PROLIFIC / RANKING AUTHORS

S. No.	Name of Author	No. of Papers	Percentage
1.	Blomme G	70	2.90
2.	Bergh l Van den	38	1.57
3.	Escalant J.V	38	1.57
4.	Picq C	38	1.57
5.	Lepoivre P	34	1.41
6.	Ortiz R	34	1.41
7.	Asten P Van	32	1.33
8.	Molina A.B	32	1.33
9.	Vanlauwe B	32	1.33
10.	Jacome L	31	1.28

D. Rank-Wise Countries Distribution of Publications: The study reveals that India is the top country in banana research with its contribution of 399 papers which is nearly (16.49%) of the global research output of banana research followed by South Africa with 264 papers (10.91%). Brazil ranks [4] third position with 139 papers (5.75%), China got the fourth position with 72 (2.98%) and fifth place of Uganda with 66 papers (2.73%) out of the 10 countries India is a top rank. The top 10 countries based on a number of publications are furnished in Table IV.

TABLE IV RANK-WISE COUNTRIES

S. No.	Location	No of Articles	Cumulative Publications	Cumulative Percentage of Articles
1.	India	399 (16.49)	399	16.49
2.	South Africa	264 (10.91)	663	27.40
3.	Brazil	139 (5.75)	802	33.15
4.	China	72 (2.98)	874	36.13
5.	Uganda	66 (2.73)	940	38.86
6.	Costa Rica	55 (2.28)	995	41.14
7.	Nigeria	48 (1.99)	1043	43.13
8.	Philippines	43 (1.78)	1086	44.91
9.	Colombia	42 (1.74)	1128	46.65
10.	Indonesia	39 (1.62)	1167	48.27

E. Predominant Languages: It is observed that English is the most predominant language used by the researchers for communication in banana research with 1,927 papers (79.63%) followed by [6] Spanish with 192 (7.94) and Portuguese with 151 (6.24%). The top 10 predominant languages are furnished in Table V.

TABLE V TYPES OF LANGUAGE

S. No.	Language	No. of Papers	Percentage
1.	English	1927	79.63
2.	Spanish	192	7.94
3.	Portuguese	151	6.24
4.	Chinese	141	5.83
5.	French	30	1.24
6.	Thai	26	1.08
7.	Persian	9	0.38
8.	Turkish	9	0.38
9.	Indonesian	7	0.29
10.	German	3	0.13

V. CONCLUSION

The Scientometric study of banana research based on CAB Direct Online database reveals that India is the major producer of scientific research output with 399 publications. During forty years, of time duration typical duty in conveyances is basically prolonged within the area of banana examine. An examination [5, 7] of the banana research asks approximately yield is a count of Relative Growth Rate and Doubling Time of overall research output of as a rule setting apart the inventive work in the subject [2]. It can be noticed that the relative growth rate of publication decreased from the rate 0.69 in 1983 to 0.23 in 1992. The mean relative growth for the 40 years (1978-2018) showed a growth rate of 0.26 whereas the corresponding doubling time for different year gradually increased from 1.25 in 1993. The mean doubling time for the 40 years (1978-2018) was only 555.47 which was increased in the corresponding doubling time was increased [8]. The India is the best country in banana survey, with its dedication number of papers of the overall research yields of Agricultural research. An Indian researcher ought to be the banana investigate field so the dedication of India in this examination locale could be in a general sense extended.

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