ABSTRACT

In the present study, the investigator has attempted Social Network Analysis of author collaboration in Biotechnology literature of selected ten journals indexed in web of knowledge for ten years from 2003-2012.

The data from ten journals were collected in two modes i.e. the preliminary data was collected from web of knowledge for Scientometric analysis and secondary data was collected from each journal website for full text access of author details, total 18623 articles were collected from ten journals. The collected data was analysed in two modes i.e. Scientometric analysis for understanding the basics of collaboration and Social Network Analysis was carried to understand the collaboration ties between Biotechnology authors. Hypotheses were tested and findings were drawn in the light of the objectives of the investigation. Following statistical techniques were used like Frequency, Percentage, Pearson correlation coefficient analysis, degree of collaboration, growth rate, citation analysis, collaborative index, Lotka’s law of author productivity and Kolmogorov –Smirnov test. The significance values that fall below the 0.05 level are accepted.

The text of the thesis has been designed as a logical progression in the following six chapters. The first chapter introduces the topic of research, establishes the need and importance of the present study. It states the research problem, definition of concepts, its objectives and hypotheses. Further, it presents the methodology adopted for data collection, data collection instrument and techniques used in data analysis, delineate the scope and limitation of the study. It also explains the organisation of the thesis briefly.

The second chapter gives glimpses of studies of Social Network Analysis of author collaboration. The reviews are presented under the following categories like Collaboration studies, Scientometric studies, co-authorship studies, Social Network Analysis and Social Network Analysis of author studies. These studies are presented in a descending chronological order to highlight the changes in collaboration studies from scientometrics to the present Social Network Analysis.
The third chapter presents the theatrical aspects of Social Network Analysis like formal methods involved in SNA, Matrices, cliques, closeness, degree of centrality, erod’s number etc. This highlights the actual theoretical background Social Network Analysis for further data analysis and interpretation of data.

The fourth chapter deals with Scientometric analysis of Biotechnology literature collected from ten journals from 2003-2012 years. The data analysed for various criteria’s like growth of literature, doubling time, citation analysis, country-wise contribution, institute-wise collaboration, prolific authors, authorship pattern, and degree of collaboration, collaborative index, Lotka’s law and Kolmogorov – Smirov test to understand the collaboration pattern among authors.

The fifth chapter presents the social network analysis of author collaboration in Biotechnology journals. The data is analysed in four major criteria’s like Country-wise collaboration, Institute-wise collaboration, ego network analysis and the major focus is on author collaboration using UCINET, Pajek XXL Software for analysing SNA data.

The sixth chapter provides the summary of major findings and suggestions for further research and records the conclusion. The bibliography is provided at the end of the thesis.