

Analysis and Visualisation of Research Trends in Root resection: A General Review

Dr. Anand V Professor & HOD¹,

Dr. Amarendiran Senior Resident²

Meenakshi Academy of Higher Education and Research

anandv@mmchri.ac.in

Abstract

Root resection is a specialized surgery, focusing on face reconstructive surgery, facial trauma surgery, oral cavity, head, neck mouth, jaws, and facial cosmetic surgery. The bibliometric analysis had been conducted to understand the active authors, organizations, and countries involved in the research domain of “Root resection” by using the published articles from “Scopus”. The resources were analyzed using the VOS viewer to develop analysis tables and visualization maps. The most active country of the research domain was the United States of America. The leading organization engaged in the research regarding “Root resection” was the University of Bristol of United Kingdom. The most active authors were Haskell E.W., Loushine R.J., Weller R.N., Tay F.R., Pashley D.H., Berkovitz. B.K.B., Schwendicke F., and Graetz

Keywords: *Root resection, Bibliometric analysis, VOS viewer, Health*

1. Introduction

The root resection is a type of periradicular surgery and is often known by the name root amputation. The medical procedure by which one or more roots of a tooth are removed, untouched other roots and crown is called root resection¹. Root resection process is suggested in the cases where teeth with periodontal problems, endodontic problems, and root fractures². Similarly, the root resection procedure is suggested molars with periodontal, endodontic, restorative, or prosthetic problems³. In general, root resection treatment can be an option in cases with the decay of a single root, damage of root, persistent root infection, and bone loss due to gum disease⁴. Root resection procedure helps in conserving normal root structure⁵. This study focuses on consolidating literature regarding “Endodontic surgery” by identifying the leading authors, countries, journals, and organizations engaged in research regarding “Endodontic surgery”. The first section is the introduction, followed by the discussion of the methodology by which the research was conducted. The third section deals with results. The fourth section deals with the discussion and conclusion.

1.1 Research Objectives

- a) To consolidate the literature regarding the “Root resection”
- b) To find out the trends related to research in the “Root resection”

The following research questions are framed for conducting bibliometric analysis systematically.

1.2 Research Questions

- a) Whom are the active researchers working on “Root resection”?

b) Which are the main organizations and countries working on “Root resection”?

2. Research Methodology

This bibliometric analysis had drawn resources only from the Scopus. For the article selection, the Boolean used was TITLE-ABS (“Root resection”) on 31/12/2020. All the tables in this paper were created by using Microsoft Excel and VOS Viewer. Grammarly was used for spelling and grammar checks. Mendeley was used for article review and citation. This paper had been inspired by bibliometric analysis in its presentation style, analysis, and methodology from the works.⁶⁻¹⁰

3. Results

This first round of search produced an outcome of 317 documents, in thirteen languages, out of which 258 documents were in English. The classification of document categories is shown in Figure 1. For improving the quality of the analysis, we had selected only the peer-reviewed articles and all other documents had not been considered. Thus after using filters “Article” and “English” the second round search produced an outcome of 231 English articles (both open access and others) and had been used to conduct bibliometric analysis and visualization using VOS Viewer. The English research articles in this domain since 1943 had been shown in Figure 2.

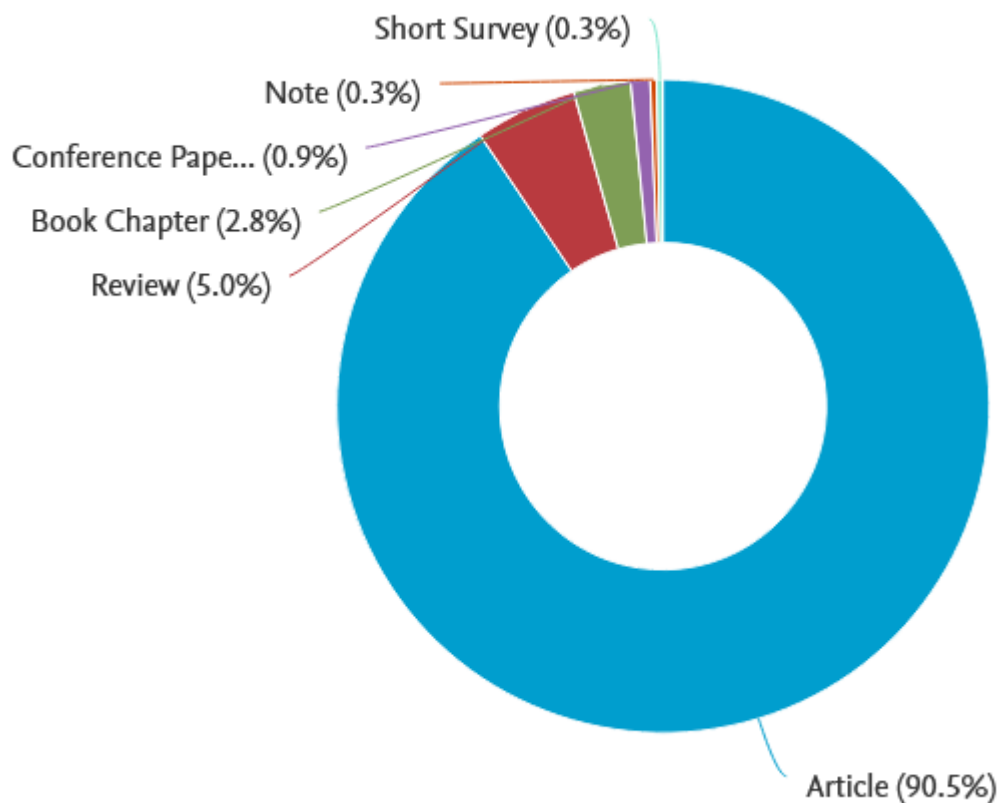


Figure 1: Classification of the documents on “Root resection”, Source: www.scopus.com

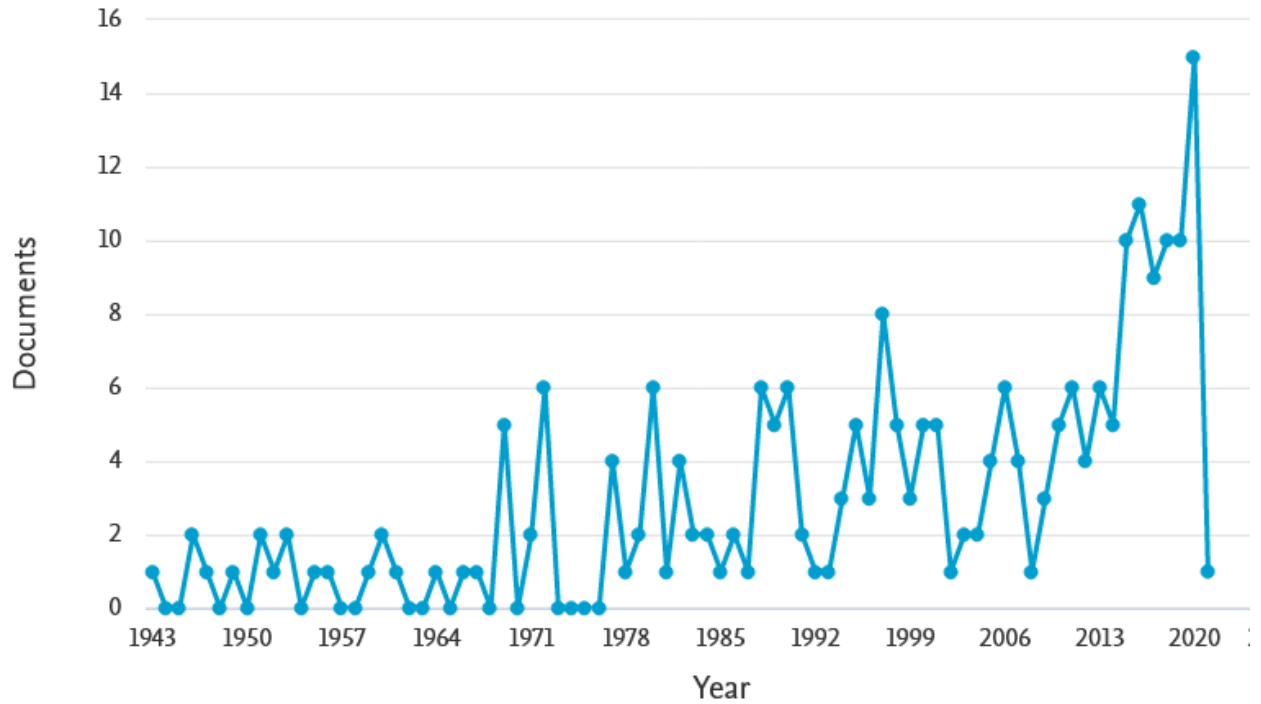


Figure 2: Period wise publication of English articles, Source: WWW.scopus.com

3.1 Who are the leading authors on “Root resection”?

Co-authorship analysis, publication volume, and citation analysis had been used to spot out the leading authors on Root resection. The results of co-authorship analysis and citation analysis using VoS viewer are shown in figure 3 and publication volume in figure 4. For a better presentation of the analysis, the parameters used were the minimum number of documents of an author as three and the minimum number of citations of authors as one. This combination plotted the map of 12 authors, in seven clusters.

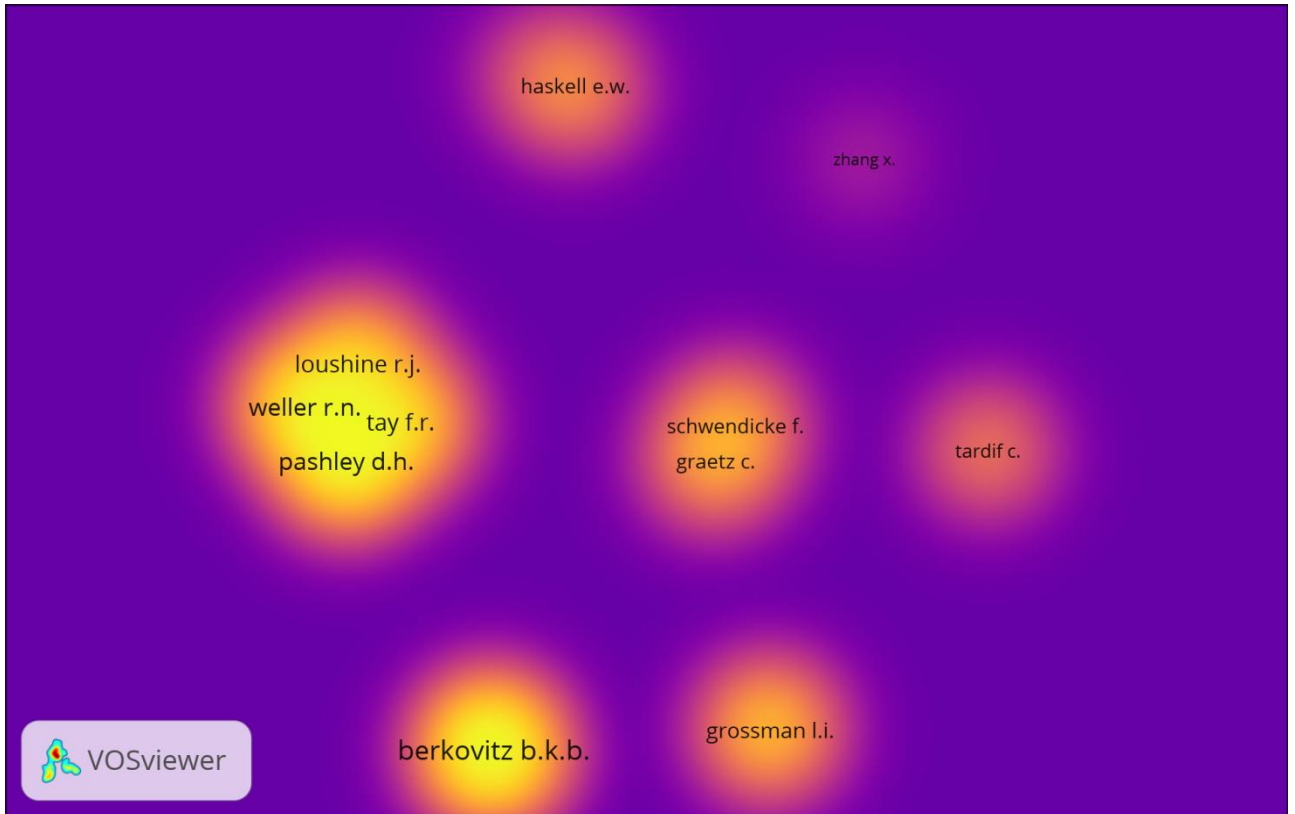


Figure 3: Co-authorship analysis and citation analysis on basis of authors

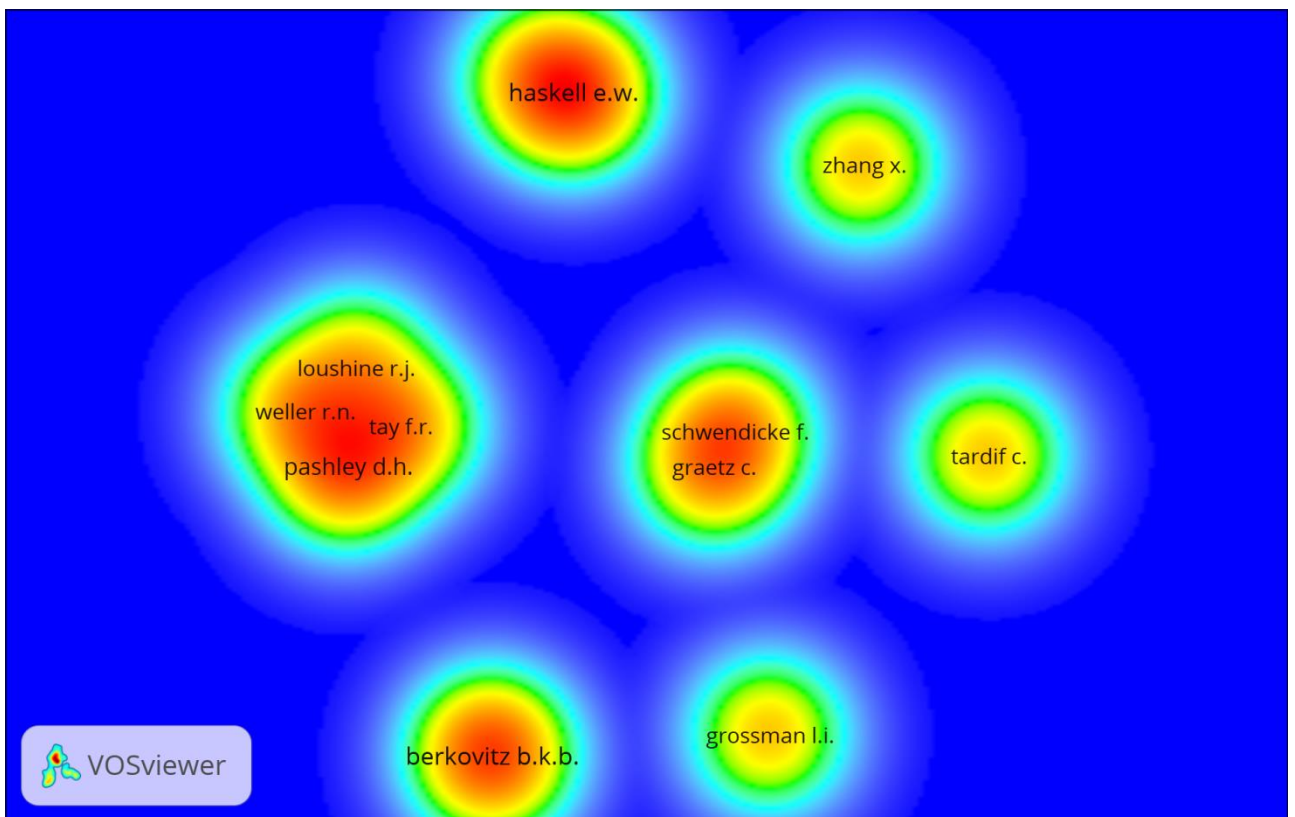


Figure 4: Publication volume analysis on basis of authors

In Co-occurrence analysis, we had used all keyword analyses, by keeping the minimum number of occurrences of a keyword as 20. This combination plotted the map of 34 thresholds, in three clusters. The overlay visualization of co-occurrence analysis of keywords has been shown in Figure 5.

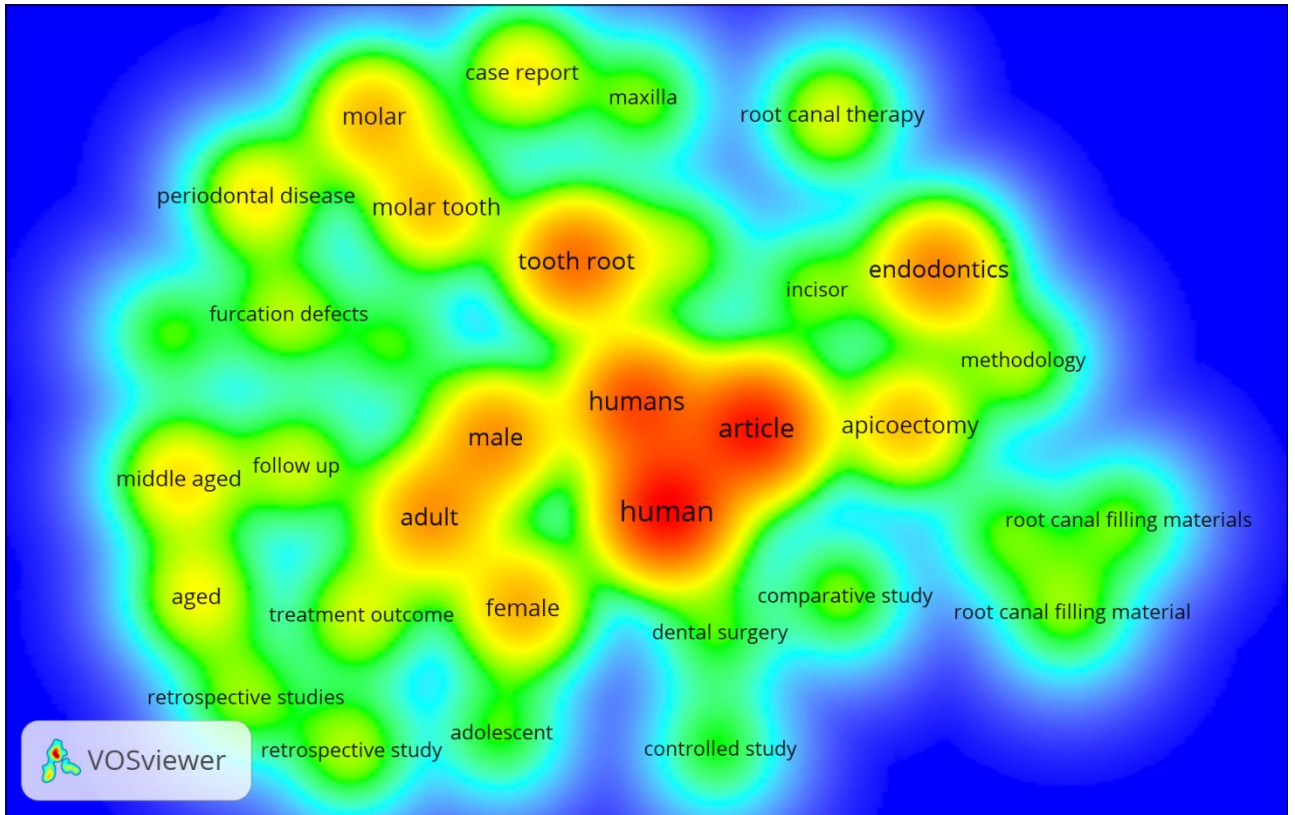


Figure 5: Co-occurrence analysis on basis of all keywords

3.2 Which are the top organizations and countries researching “Root resection”?

The most leading organizations engaged in research on “Root resection” had been found out by the citation analysis and basis of publication. The result of the above analysis is shown in table 1.

Table 1: Highlights of the most active organization

Organizations	Country	Documents	Citations	Average Citations per document
University of Bristol	United Kingdom	7	269	38.4

Co-authorship analysis and citation analysis of the countries engaged in the research on “Root resection” had been shown in Figure 5 and Figure 6. Volume analysis is shown in figure 7. For a better presentation of the analysis, the parameters used were the minimum number of documents of an author as one and the minimum number of citations of authors as one. This combination plotted the map of 38 countries, 25 clusters.

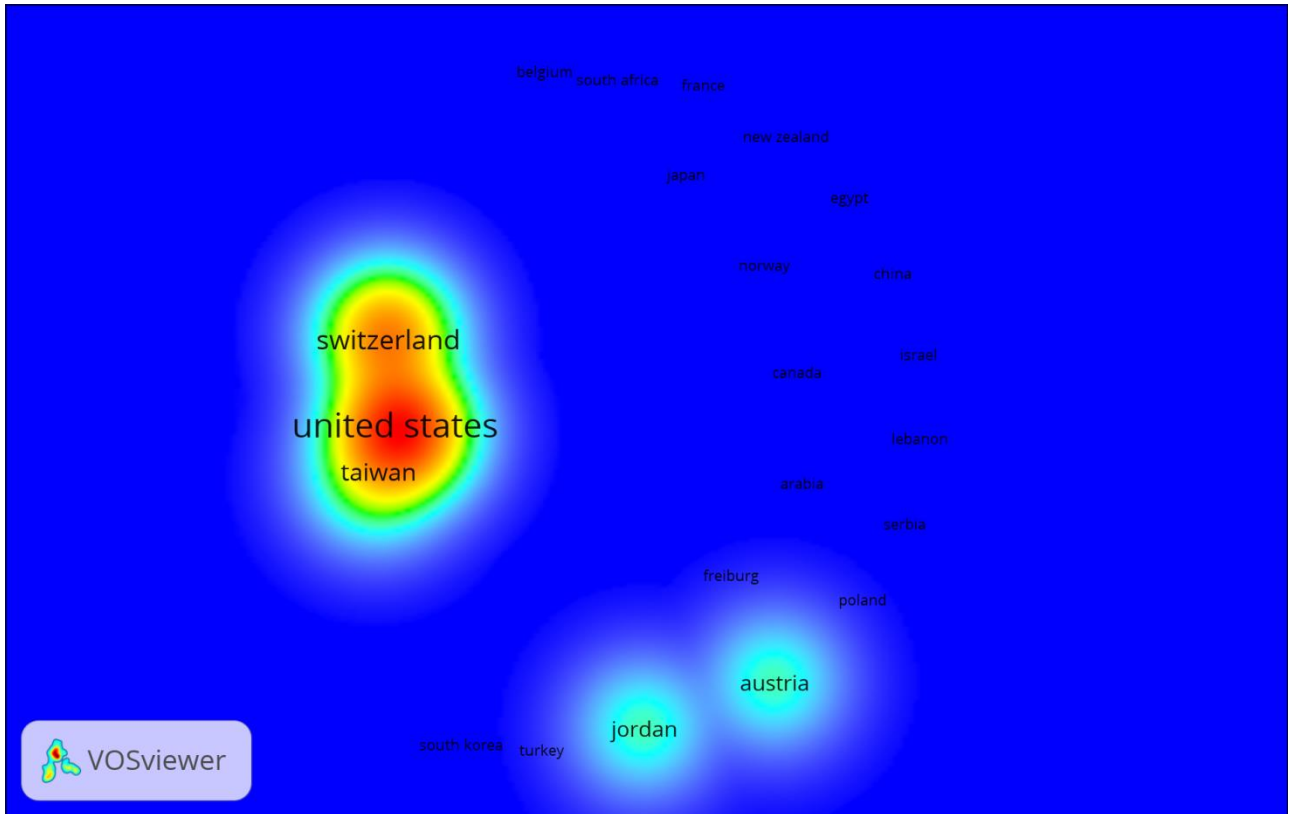


Figure 6: Co-authorship analysis on basis of countries

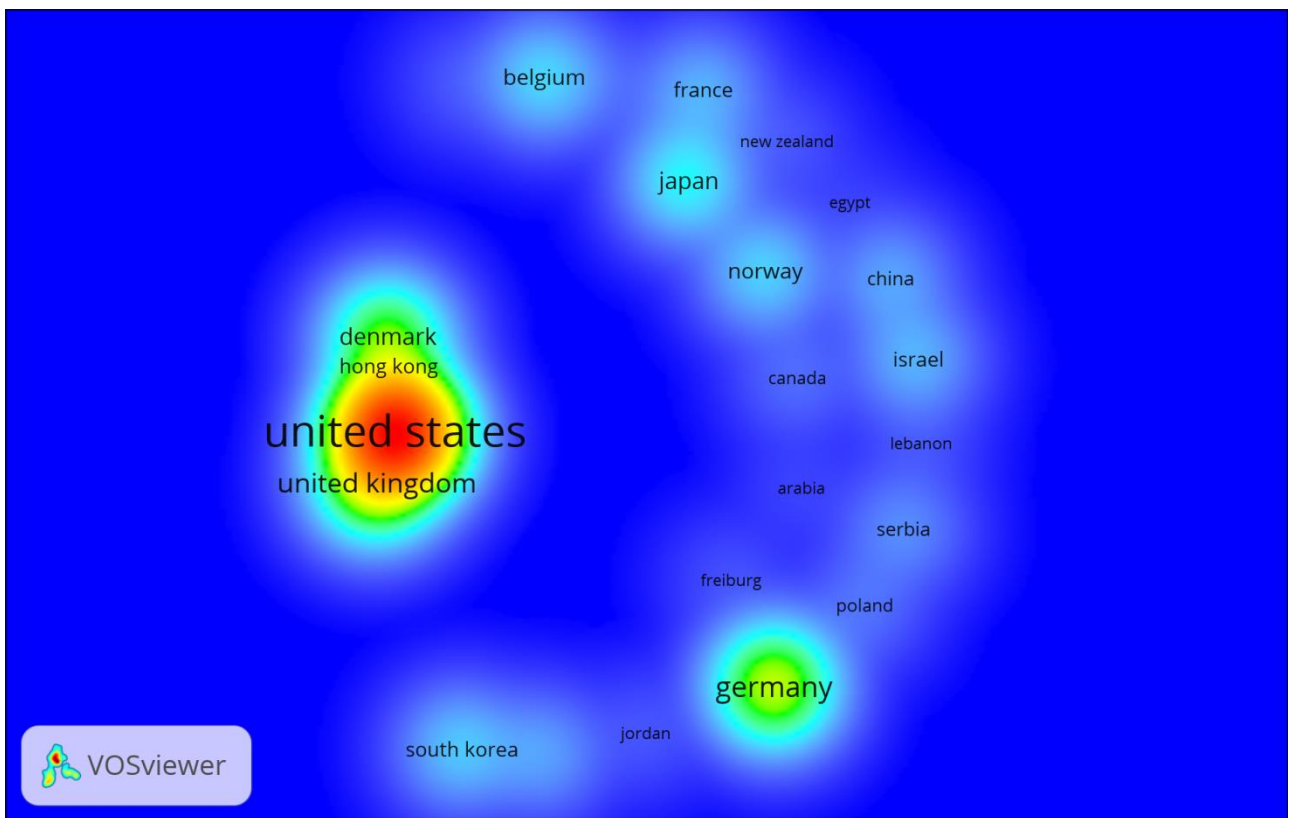


Figure 7: Citation analysis on basis of countries

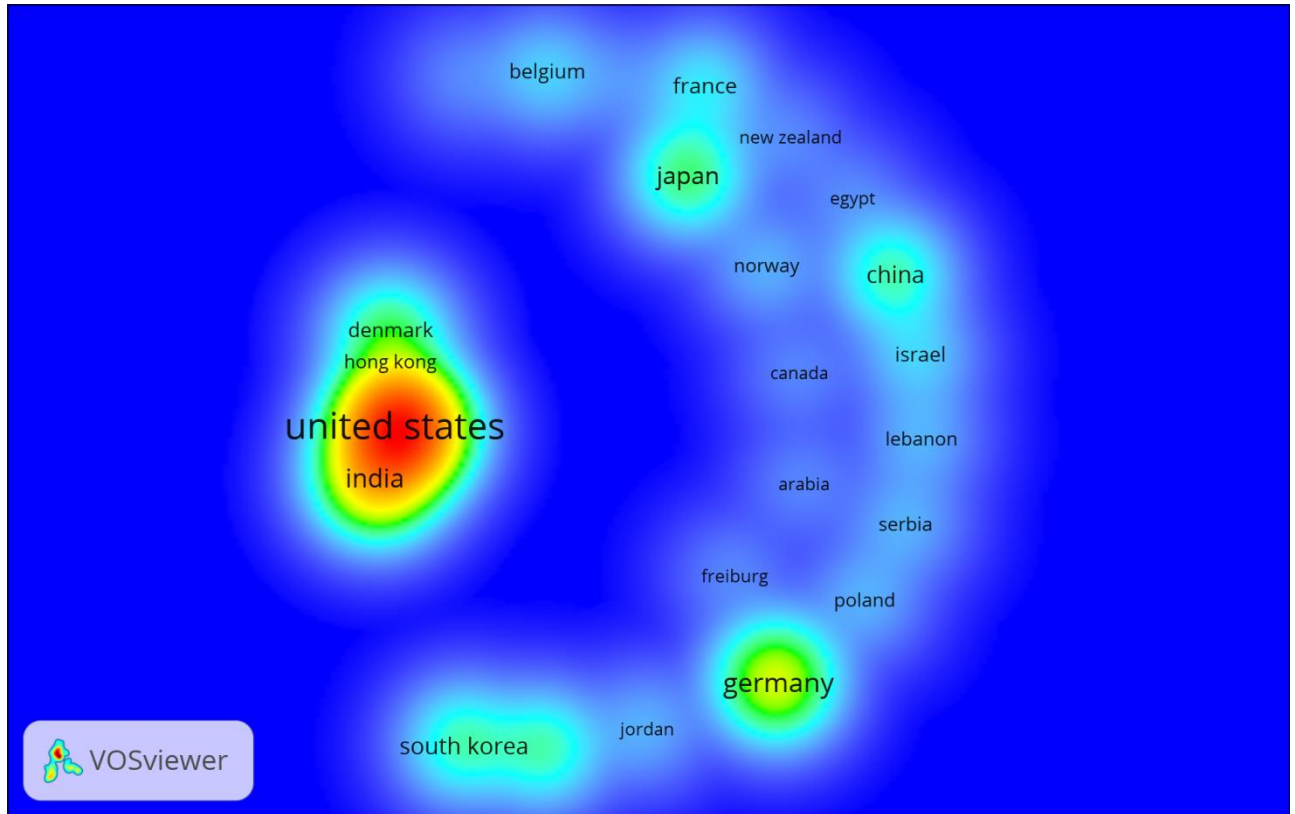


Figure 8: Leading countries in the publication of documents

4. Discussion and Conclusion

Root resection is an interesting research domain and the most active country of the research domain was the United States of America with the leading position in the citation, publication volume, and co-authorship links. The leading organization engaged in the research regarding “Root resection” was the University of Bristol of United Kingdom. The most active authors who had made valuable contributions related to “Root resection” were Haskell E.W., Loushine R.J., Weller R.N., Tay F.R., Pashley D.H., Berkovitz. B.K.B., Schwendicke F., and Graetz with the leadership in publications, citations, and co-authorship links. This research domain offers a new avenue for researchers regarding future research. From the above discussion regarding the bibliometric patterns in the research regarding the “Root resection”, this research had observed a gradual increase in research interest regarding the “Root resection” from the starting of the millennium and the momentum is going on positively. This points out the relevance and potential of this research domain (Refer to Figure 2).

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