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RESEARCH ARTICLE

Visualization of the Stingless Bee Research in Southeast Asia Region through Bibliometric Analysis using Scopus Database from 1984 to 2022

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Abstract The increasing activity of meliponiculture which plays a role as a natural agricultural pollinator as well as the production of stingless bee honey over time has encouraged high-impact research efforts around the world. Stingless bee honey is well known as a "superfood" product and has received significant attention due to its various applications such as the treatment of various diseases both traditionally and clinically. In this context, understanding interesting topics and expanding the network of collaborations is desirable to advance research towards integrated efforts, moreover, the Southeast Asia region (SEA) is one of the major revenue contributors to the global market, especially stingless bees. The purpose of this paper is to evaluate the research literature on stingless bee honey in the SEA region by conducting a bibliometric analysis of research papers in the Scopus database. A total of 543 journal articles published between 1984–2022 were obtained. The results have shown that since 2008, the average number of publications has increased by 35 articles per year, resulting in a steady increase in the number of publications accumulated until 2022. Only six countries are listed and almost 60% of total SEA publications are contributed by researchers from Malaysia, followed by Indonesia and Thailand which contribute 21% and 15%, respectively. In addition, among the top 10 most productive affiliates from every country in SEA, seven are universities in Malaysia, while Indonesia and Thailand have only one. The intellectual structure of research on stingless honey has been studied to offer a basic insight into the latest developments in this field of research, which will provide researchers and academics with broad guidelines for conducting further research in related fields.

Keywords: Stingless bee, Southeast Asia, Bibliometric analysis, Scopus database.

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Introduction

Stingless beekeeping known as meliponiculture has developed in every corner of Southeast Asia; SEA, where 45 species of stingless bees were identified as well as the determination of their potential applications [1]. Every country in the region such as Malaysia, Thailand and Indonesia is very active in stingless bee research, in addition to efforts to introduce its uniqueness globally [2]. Locally known as kelulut, Trigona spp. in Malaysia, is one of the important natural pollinators in the production of agricultural products such as durian [3], watermellon [4], and cucumber [5]. At the same time, the honey and propolis produced also provide a lucrative income to its entrepreneurs. Generally, honey is used as a seasoning for some food products. In addition, its nutrients are able to treat various types of diseases

such as wound healing, anti-diabetes, anti-cancer, and the prevention of pathogenic microbial infections [6, 7]. Due to its outstanding medicinal value, stingless bee honey has been exported and imported globally. Like other supplements, its therapeutic effect also depends on its quality. Thus, in order to understand the content of stingless bee honey in more depth, the profiling process is done in terms of physiochemical, phytochemical, and biochemical determination [8–10]. In this context, follow-up studies were conducted to identify its broader application in modern medicine, and even as a basic source for beauty and cosmetic products [11, 12]. Research on stingless bees is in line with its demand and production which can be said to be increasing from time to time [13].

However, very few studies are dedicated to measuring and analysing scientific publication trends from a global perspective especially in the SEA region. Saludin *et al*. [14] present the honey consumption trends of Malaysians of various races. In contrast, Salatino *et al*. [15] have focused specifically on the emergence of new market trends for propolis kelulut in tropical countries. Both studies use Scopus as a source of data analysis to strengthen the findings of their respective studies. Scopus is recognised as the largest database of abstracts and citations for peer review literature covering a wide range of scientific fields. Therefore, the objectives of this paper are as follows: i) to analyse the temporal distribution patterns of stingless bee-themed journal articles; ii) to showcase the research contributions of the most productive countries in SEA region, academic institutions, and authorship; (iii) to highlight general terms and topics of research; and (iv) to provide insights into the potential of the stingless bee species studied and how they can be utilised for research purposes in support of global marketing strategies. This paper will benefit researchers, policymakers, and individuals to understand research trends in stingless bees as well as to discover potential and opportunities for future research.

Materials and Methods

Data Collection and Screening

The study of bibliometric analysis is a mechanistic approach to understanding global research trends in a particular field based on the output of academic literature databases. This type of approach distinguishes bibliometric analysis papers from review papers that aim primarily to discuss the latest developments, challenges, and future direction of a particular topic especially in this present study about stingless bee. Search strategies in the Scopus database were conducted via the process of selection, screening, and restriction of several data (Figure 1).

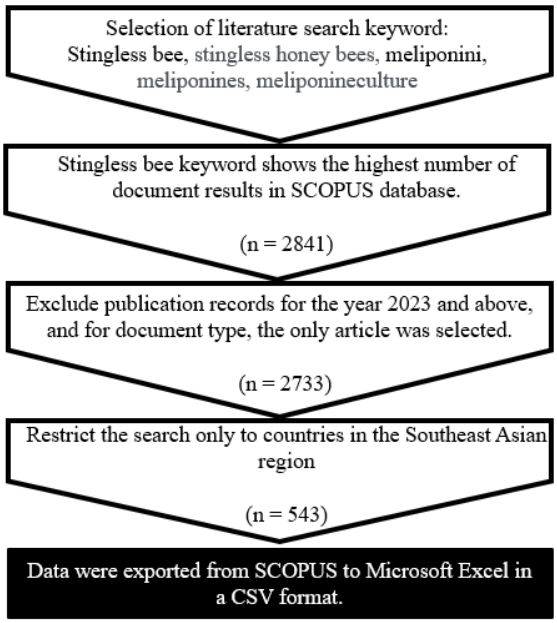

Figure 1. Flow chart of data collection and screening vetting via MS Excel and data for bibliometric analysis using VosViewer before descriptive and evaluatives result and analysis

Data mining using the Scopus literature search was conducted in May 2023. The main theme in this study is a research article related to stingless bees, filled in English that is "stingless bee" in the search

space for title, abstract and keywords. The oldest publication was in 1984 and the most recent is from 2022. However, the search method was limited to only the articles that were published at year 2022 and earlier, and the series of queries yielded 2841 documents. In the next filtering method, only countries from the SEA are selected and the "Limit to" button is clicked. The search results showed a total of 543 articles filtered by countries in SEA. Central theme search results are analysed based on year, source, author, affiliation, country/region, subject area and document type. Bibliometric indicators such as the number of publications, number of citations, CiteScore and H-index from the Journal Citation Report database were used for ranking purposes.

Bibliometric Analysis

The criteria such as the citation keyword information, bibliography, author, country and affiliation for the 543 articles were downloaded in a csv file and then exported to VOSviewer software (version 1.6.7, developed by the School of Science and Technology, Leiden University, Netherlands) as a visualisation tool for bibliometric map generation. A thesaurus was made to deal with the occurrence of different words that have the same meaning. Maps were created using some of the items found in VOSviewer. In this study, the item is the object of interest i.e. the country or keyword of the author. Between any pair of items, there can be a link — a connection or relationship between two items. Each link has a strength, represented by a positive numerical value. The higher this value, the stronger the link. In the case of co-author analysis, the strength of inter-country links indicates the number of publications that two affiliated countries have co-authored, while total link strength indicates the total strength of a particular country's co-author links with other countries. Similarly, in the case of co-occurrence analysis, the strength of the link between the author's keywords indicates the number of publications in which the two keywords occur together. Details on VOSviewer features can be found in the user manual [16]. In the bibliographic coupling analysis, we included all listed SEA countries while in the incident analysis, we co-authored and filtered keywords to remove repetitive, or irrelevant keywords. Search output flows between central themes (shared occurrence keywords) and sub-themes (number of publications) were compared. Several stingless bee species were identified through VOSviewer records, and subsequently analysed all species with the highest number of publications.

Results and Discussion

Annual Publications, Citations, and the Diversity of Research

For a period of 39 years, a total of 543 research articles from SEA regions related to stingless bees were published (Figure 2), contributing 20.05 % of global publications. The earliest publication was identified from Indonesia in 1984 by [17] followed by Inoue *et al*. (1985). Then, the first publication from Malaysia by Yong *et al*., (1986), followed the following year [20]. While from the Philippine first publication by Starr and Sakagami, (1987). However, for the 20 years record from 1984 to 2003, only 23 articles were published with a total cumulative citation of 129. Fortunately, beyond 2015 there was a sudden increase in the total annual publication which was more than 10 articles. In fact, when compared to that year, the number of publications increased by more than 300% and the cumulative number of publications increased 8.2 fold in 2022. The average number of publications increased for five years; 2018 - 2022, and 10 years; 2013-2022, to 85.4 and 50.1 %, respectively. It is expected that the annual publication will increase continuously in line with the rapid increase in the number of outstanding publications. However, most of these articles are not freely available and users have to pay to access the information in them. Most likely a published article will receive more citations if it is published in an open-access journal.

The diversity of research fields on stingless bees has increased its popularity, driven by several research groups around the world that are actively involved in this research. Analysis of the subject field showed that the production of stingless bee-based products was the main focus of the study. This is evidenced by the number of publications recorded in Scopus, classified under the 26 subject areas as displayed in Figure 3. The areas of agricultural and biological science dominate almost 50% of the total 39 years of publication, followed by the areas of biochemistry, genetics and molecular biology medicine area, and the area of environmental science are with 108 and 77 articles, respectively. 14 research areas have less than 10 published articles sorted in descending order namely Business, Management and Accounting > Energy > Neuroscience > Decision science > Veterinary > Arts and Humanities = Dentistry = Health Professions. However, all these disciplines have shown their potential roles to increase social acceptance, as well as expand marketing strategies while improving the economic status of locals who are involved in stingless bee breading.

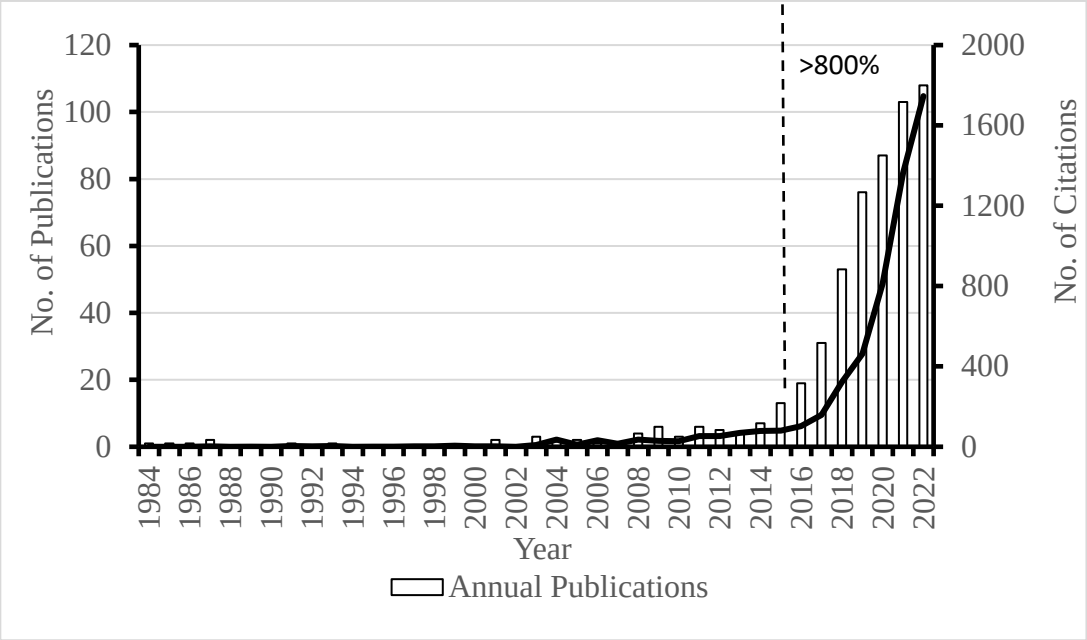

Figure 2. Number of annual publications and citations on stingless bee research articles from the SEA region indexed in SCOPUS from 1984 to 2022. The vertical dash line shows the starting point of the increasing number of publications in 2015

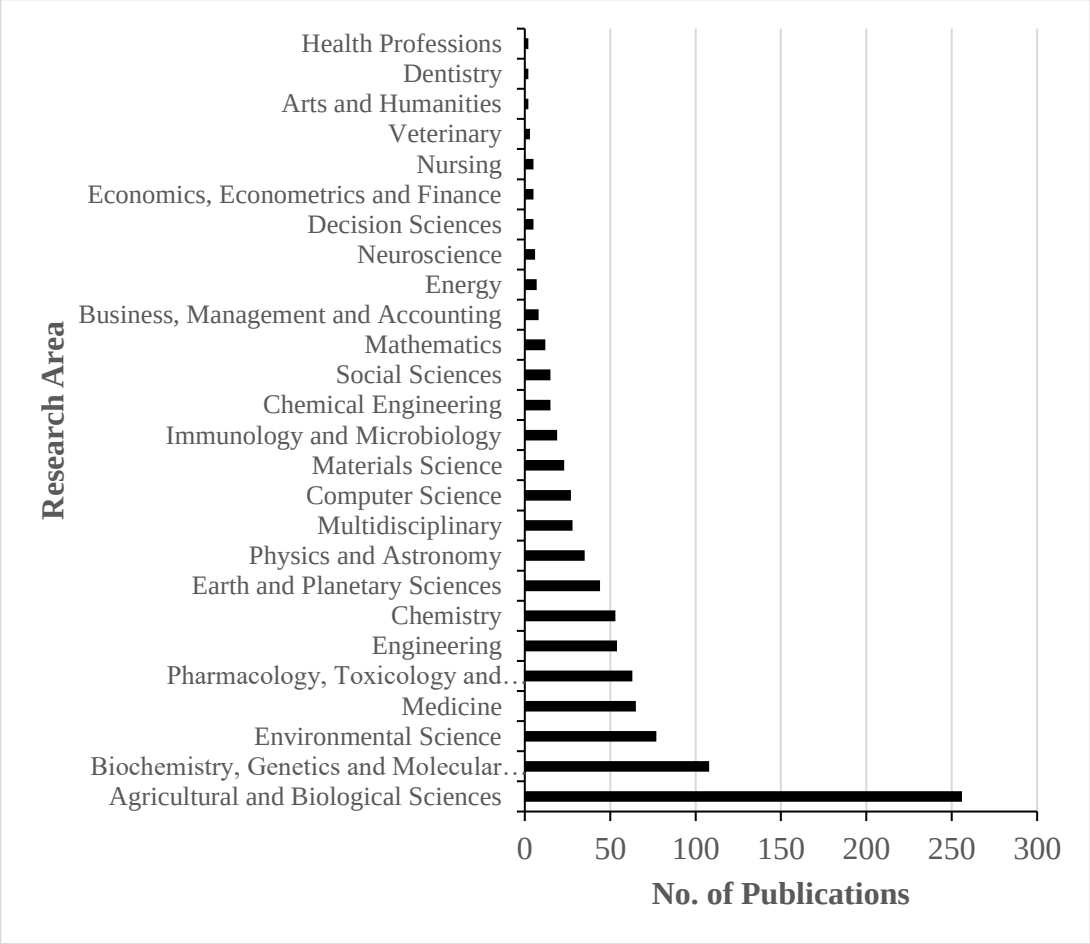

Figure 3. Types of fields related to the study of stingless bees in the SEA region based on a total of 543 publications from 1984 to 2022

Publication Contributing Countries and Institutions in Southeast Asia

Figure 4A shows the number of productive countries contributing to the growth of 39 years of stingless bee research activities in Southeast Asia. More than 55% of the publications are contributed by Malaysia which shows this is a major player in the progress of kelulut honey research in Southeast Asia. Malaysia ranks third in the world after Brazil and the United States with 182 publications in a total of 2442 journals (excluding publication years 2022 - 2024), accounting for 7.45% of total global publications. Malaysia's closest competitor, Indonesia has been listed as the second country followed by Thailand the third most productive country in Southeast Asia with 132 and 79 articles, respectively, and is also listed in the top 10 globally. VOSviewer software was used to generate a network map to explore the scientific literature co-authored between SEA countries. In Figure 4B, the circle represents a country, while the size of the circle is denoted as the number of articles or activities that are proportional to each other. The lines linked between two or more countries show a strong collaborative relationship in term of cooperation and the number of publications between countries which reflect the thickness of each line. We set the threshold as a minimum of 1 to ensure all the countries in the SEA regions meet the requirement. The VOSviewer software divides these 20 frames into 7 clusters, and unfortunately, Viet Nam was showing no collaboration detected with other countries in SEA. The different colour groups are denoted as the different clusters created by sets of countries. Malaysia is the biggest node with 16 link countries followed by Indonesia and Thailand both of which have 9 link countries with different total link strengths of 33 and 36, respectively. The thickness line between Indonesia and Malaysia shows the high cooperation strength of both countries compared to the others.

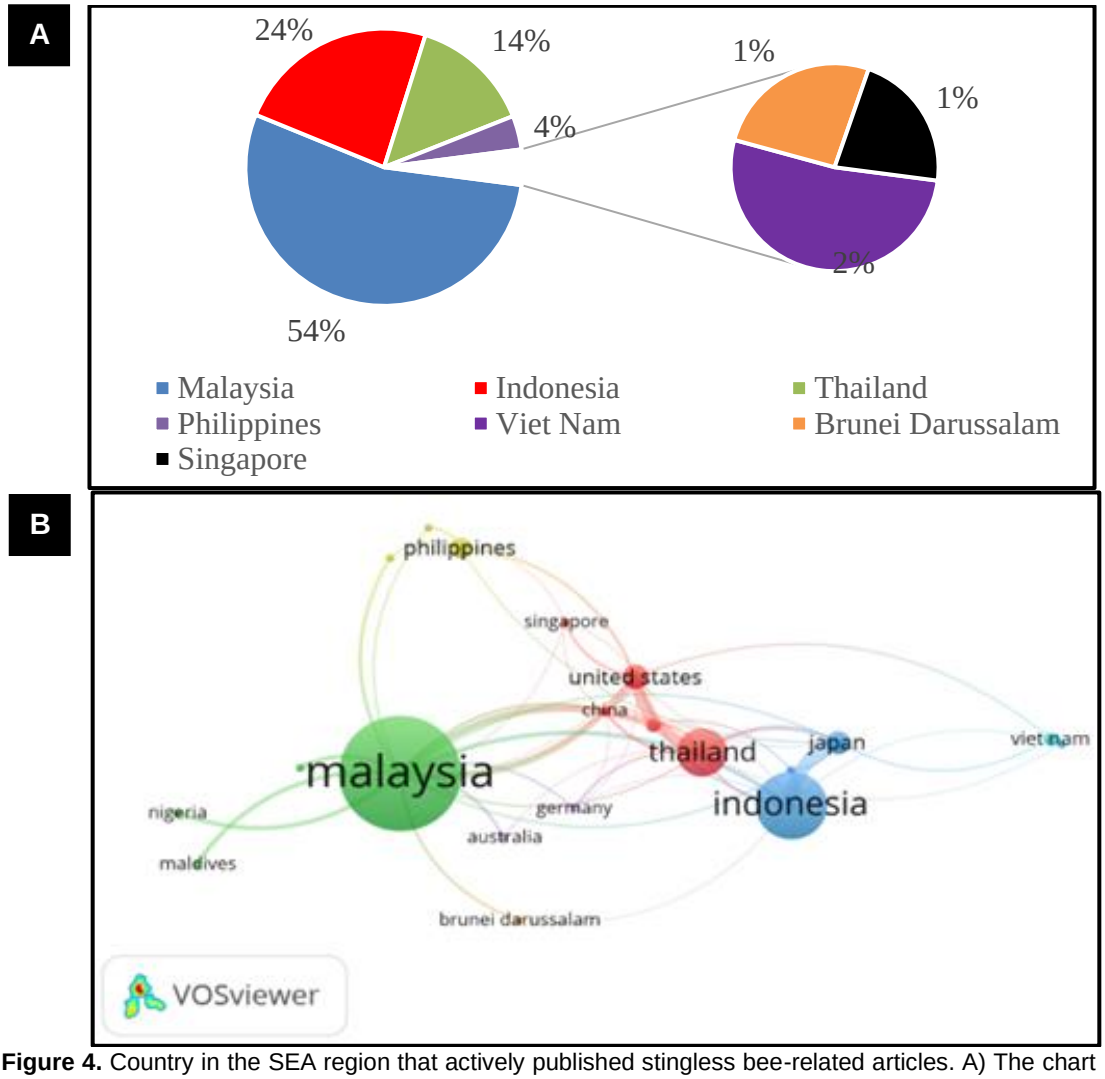

Figure 4. Country in the SEA region that actively published stingless bee-related articles. A) The chart represents the percentage of 543 publications in the Scopus database, and B) The country co-authorship network map with 20 nodes and 7 clusters

Analysis on Top 10 institutions Conducting Research on Stingless Bee in SEA Region

The number of publications and citations in an affiliation, organisation, and institution is reflected in the frequent activity and visibility of stingless bee research, respectively. Table 1 lists the results for the top 10 organisations and institutions ranked by the number of total publications, followed by citations. 7 institutions from Malaysia, while Indonesia and Thailand have 2 and 1 recorded, respectively. UPM shows the highest number of publications as well as the number of citations. Although IPB University and USM are in the third and fourth ranks, their citations are much lower compared to UTM and CMU. 3 institutions share a similar number of publications, which is 15 articles, but we rearrange based on citations: CMU > UTHM > UMP. Citation analysis is by far the most conventional method used in bibliometrics as an approximation of scientific quality, notably for individual scholars, affiliation rankings, or simply measuring the significance of publications [22–24].

Table 1. Ranking of the top 10 institutions conducting research on stingless bees in the SEA region. The ranking is based on the publications followed by citations from the highest to the lowest number recorded in the Scopus database

Rank	Affiliation (Abbreviation)	No. of Publications	Citations	Country
1	Universiti Putra Malaysia (UPM)	71	929	Malaysia
2	Universiti Malaysia Terengganu (UMT)	52	338	Malaysia
3	IPB University	41	154	Indonesia
4	Universiti Sains Malaysia	34	243	Malaysia
5	Universiti Teknologi Malaysia (UTM)	30	328	Malaysia
6	Universitas Gadjah Mada	30	96	Indonesia
7	Universiti Kebangsaan Malaysia (UKM)	24	155	Malaysia
8	Chiang Mai University (CMU)	20	264	Thailand
9	Universiti Tun Hussein Onn (UTHM)	20	251	Malaysia
10	Universiti Malaysia Pahang (UMP)	20	141	Malaysia

Analysis on top 10 journals Published Stingless Bee Research

All the 543 articles were published in 148 journals. The top 10 core journals were displayed in Table 2, with each total paper being more than 8. The ranking was arranged based on the number of publications, followed by the number of citations and journal CiteScore score, which were obtained from the Scopus database. H index and Quartile rank were obtained from the data from the 2022 edition of Scimago journal and country rank. These top 10 journals have produced 139 (25.6%) articles out of a total of 543 papers. The IOP Conference Series on Earth and Environmental Science was the most productive journal, with 35 published articles (6.44%), followed by the Journal of Apicultural Research and Biodiversity, both with 15 articles. Also, both molecules and serangga contribute 2.4%. According to this result, authors can strategize to increase the visibility of their research and select the ideal journal to publish papers related to this research area.

Table 2. The top 10 most prolific journals for stingless bee research top competitive papers

Rank	Journals (Publisher)	Publication (Citation)	CiteScore*	H Index (Quartile Rank)[#]
1	IOP Conference Series Earth and Environmental Science (IOPscience)	35 (54)	0.6	41 (-)
2	Journal of Apicultural Research (Taylor & Francis Ltd)	15 (184)	4.6	66 (Q2)
3	Biodiversitas (Biology department, Sebelas Maret University Surakarta)	15 (45)	1.7	22 (Q3)
4	Molecules (Multidisciplinary Digital Publishing Institute (MDPI))	13 (64)	5.9	199 (Q1)
5	Serangga (Universiti Kebangsaan Malaysia Press)	13 (34)	1.1	8 (Q4)
6	Malaysian Applied Biology (Malaysian Society of Applied Biology)	11 (46)	0.8	11 (Q4)
7	Journal of Physics Conference Series (IOPscience)	11 (8)	0.8	91 (-)
8	AIP Conference Proceedings (AIP Publishing)	9 (52)	0.8	80 (-)
9	Food Research (Rynnye Lyan Resources)	9 (51)	1.2	15 (Q3)
10	Livestock Research For Rural Development (Centro para la Investigacion en Sistemas Sostenibles de Produccion Agropecuaria)	8 (56)	1.1	35 (Q3)

Note: (-) not yet assigned quartile
*from Scopus database
[#]from Scimago JR database – https://www.scimagojr.com/

With regards to CiteScore 2022, three journals have scored more than 1.0; Biodiversitas (1.7), Journal of Apicultural Research (4.6), Food Research (1.2), Livestock Research for Rural Development (1.1), Serangga (1.1), and Molecules (5.9). According to Khudzari *et al*.,[25], CiteScore is an important criterion when deciding which suitable journals to publish in and, at the same time, to increase the visibility of their research. Hence, to assist future researchers or scholars, the authors have listed out the leading journals with their CiteScore 2022 and H index, which is an analysis to measure the bibliometric impact of individual authors based on both the productivity (number of documents) and citation impact (number of citations) of the publications (Table 2).

Keywords Co-occurrence Analysis

A co-occurance type of analysis using all keywords as the unit of analysis was performed using VOSviewer software (Figure 5). Of all 3550 keywords, only 118 met the threshold of more than four times the co-occurrence of a keyword included in the network map. The size of the circle is proportional to the number of keywords that frequently appear. While the colour denotes the cluster in which the keyword is included based on the number of co-occurrences. Moreover, the distance between two keywords represents a large number of co-occurrences of the keywords when they are close to each other. There are 10 main clusters that were illustrated based on five distinct colours that denoted five different viewpoints on stingless bee research themes. “Stingless bee” had the highest number of co-occurance; 231 occurance, and closely linked to “*Heterotrigona itama*”, “*Staphylococcus epidermis*”, “*Streptococcus pyrogenes*”, “lactic acid”, "probiotics," and so on. From the keyword “bee”, the research theme branched out into another cluster consisting of “meliponinae”, "insects,", “honey bees,", "nest,” and a few others that are relevant to the study and comparison with other types of bees. Different with the keyword “animals”, the research theme branched out to “anti-infective agents”, “antineoplastic agents”, “cell survival”, “microbial sensitivity test,” and so on, where all this cluster related to the development of alternative medicine using the natural product of the stingless bee. Throughout the years, the application of stingless bee products such as honey and pollen has been proven to inhibit the development of certain diseases, and hence, more advanced methods and technology were employed to identify another application and at the same time achieve optimal results in terms of quality and productivity.

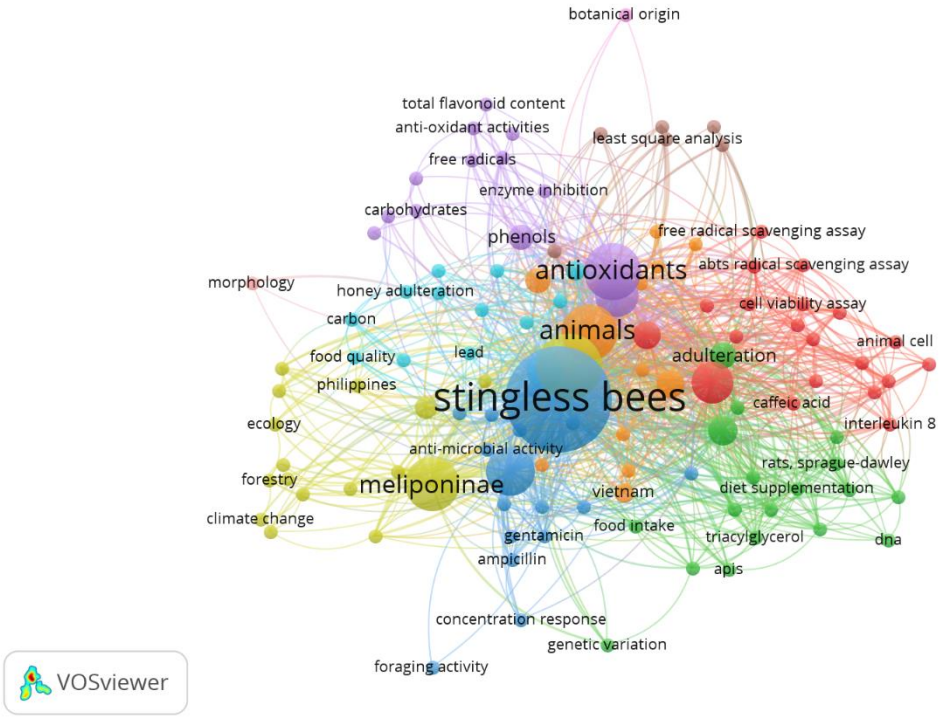

Figure 5. Co-occurrence network map in the stingless bee research field. Co-words are mapped into five major clusters implying the research themes

Keywords Co-occurrence Analysis

The top 10 most productive authors were listed in Table 3. The ascending arrangement was conducted based on the number of publications, followed by the number of citations. Sahlan, M., shows the highest number of publications with 15 articles. However, in terms of citation, Zawawi, N. was the highest with 197 citations, followed by Sahlan, M. with 119 citations, while the others were lower than 100 citations. Average document (AD) and citations (AC) are calculated based on the number of documents and citations per volume from the first publication until the year 2022, respectively. This parameter is crucial to assessing the performance and visibility of the author and their research from year to year. Sahlan, M., again shows the highest DC at 3.75, but in terms of AC, Zawawi, N., is the highest with a rate of 89.55.

Table 3. The top 10 most prolific authors for stingless bee research top competitive papers

Rank	Author	Affiation*	Documents	Citations	DC	AC
1	Sahlan, M.	Universitas Indonesia	15	119	3.75	31.73
2	Agus, A.	Universitas Gadjah Mada	14	55	3.50	15.71
3	Atmowidi, T.	IPB University	14	46	2.00	23.00
4	Agussalim, A.	Universitas Gadjah Mada	13	60	3.25	18.46
5	Kahono, S.	Badan Riset dan Inovasi Nasional	13	56	1.86	30.15
6	Razak, S.B.A.	Universiti Malaysia Terengganu	13	40	2.17	18.46
7	Azmi, W.A.	Universiti Malaysia Terengganu	11	19	1.38	13.82
8	Raffiudin, R.	IPB University	11	40	2.20	18.18
9	Zawawi, N.	Universiti Putra Malaysia	11	197	2.20	89.55
10	Cervancia, C.R.	University of the Philippines Los Banos	10	54	1.00	54.00

Note: AC = Average citation per year
DC = Average document per year

Analysis on Top 10 Highly Cited Article

Table 4 shows the top 10 articles with total citations more than 70 times, sorted in descending order; Science Advances > Revista Brasileira de Farmacognosia > Journal of Applied Ecology Food Chemistry > Skin Pharmacology and Physiology > Forest Ecology and Management > Lebensmittel-Wissenschaft & Technologie > International Journal of Food Properties > Food Control > BMC Complementary and Alternative Medicine > Journal of Food Composition and Analysis. Four publications in 2018, two in 2016 and 2017, while the other year has only one publication. The total citation count was obtained from Scopus, which indicated that a particular article was cited by the journals listed in the Scopus database. Even though many articles have been published, a small number of researchers account for a high proportion of the citations during the period. The 10 most frequently cited articles have been cited more than 1316 times since their first publication in February 2001. The total citations for each paper are shown in Table 4.

Frequency of Stingless bee Species Studied

A number of stingless bee species were identified in VOSviewer using co-occurrence as a type of analysis, followed by data screening to filter the same species name such as "*Heterotrigona itama*" and "*Trigona itama*", the lowest number of co-occurances was removed. Figure 6 shows only nine had more than four co-occurances more than four. *Heterotrigona itama* was the highest (45 co-occurences) followed by *Geniotrigona thoracica* (16 co-occurences), *Tetragonula laeviceps* (14 co-occurences), *Tetragonula pagdeni*, *Tetragonula biroi* (7 co-occurences), and *Tetragonula fuscobalteata* (6 co-occurance). *Trigona collina*, *Tetrigona apicalis* and *Lepidotrigona terminata* has five co-occurences. All the species are widely distributed in tropical forests, especially in Southeast Asia. Other species with lower than five co-occurance; not included in Figure 6, were also detected, such as *Tetrigona apicalis, Tetragonula fuscobalteata, Trigona ventralis, Trigona incisa, Trigona minor, Tetrigona binghami, Tetrigona melanoleuca, Melipona favosa, Lisotrigona furva, Trigona melanocephala, Trigona melina, Trigona Minangkabau, Trigona sirindhornae, Trigona canifrons, Trigona fimbriata, Scaptotrigona postica, Trigona fuscibasis, Tetragonisca angustula, Tetragonula carbonaria, Tetragonula hockingsi,* and *Lisotrigona cacciae*. However, another five species are

considered non-SEA region stingless bees. *S. postica, M. favosa* and *T. angustula* are south American stingless bee species [26–28], while species such as *T. carbonaria* and *T. hockingsi* are endemic to Australia [29, 30]. The presence of those species is related to several researchers who have done some comparison research with several stingless bee species in the SEA region.

Table 4. Top 10 highly cited papers with total citations more than 70 times in all top papers

Rank	Title	Author/s (PY)	Sources	Vol (issue)	TC
1	Dynamic microbiome evolution in social bees	Kwong W.K., *et al*., [31]	Science Advances	3 (3)	218
2	Biological and therapeutic effects of honey produced by honey bees and stingless bees: A comparative review	Rao P.V. *et al*., [32]	Revista Brasileira de Farmacognosia	26 (5)	195
3	Bee diversity along a disturbance gradient in tropical lowland forests of south-east Asia	Lee H.L. *et al*., [33]	Journal of Applied Ecology	38 (1)	152
4	Physicochemical profiles of stingless bee (Apidae: Meliponini) honey from South East Asia (Thailand)	Chuttong B., *et al*., [34]	Food Chemistry	192	140
4	Stingless bee honey, the natural wound healer: A review	Abd Jalil M.A. *et al*., [35]	Skin Pharmacology and Physiology	30 (2)	108
5	Nesting and nest trees of stingless bees (Apidae: Meliponini) in lowland dipterocarp forests in Sabah, Malaysia, with implications for forest management	Eltz T., *et al*., [36]	Forest Ecology and Management	172 (2-3)	91
6	Malaysian stingless bee and Tualang honeys: A comparative characterization of total antioxidant capacity and phenolic profile using liquid chromatography-mass spectrometry	Ranneh Y. *et al*., [37]	Lebensmittel-Wissenschaft & Technologie	-	89
7	Classification of entomological origin of honey based on its physicochemical and antioxidant properties	Kek S.P. *et al*., [38]	International Journal of Food Properties	20	87
8	Classical and novel approaches to the analysis of honey and detection of adulterants	Naila A. [39]	Food Control	90	83
9	In vitro antiproliferative activity of partially purified *Trigona laeviceps* propolis from Thailand on human cancer cell lines	Umthong S., *et al*. [40]	BMC Complementary and Alternative Medicine	11	77
10	Physicochemical properties of stingless bee honey from around the globe: A comprehensive review	Nordin A. *et al*., [41]	Journal of Food Composition and Analysis	73	76

Note: PY = Publication year
TC = Total citations

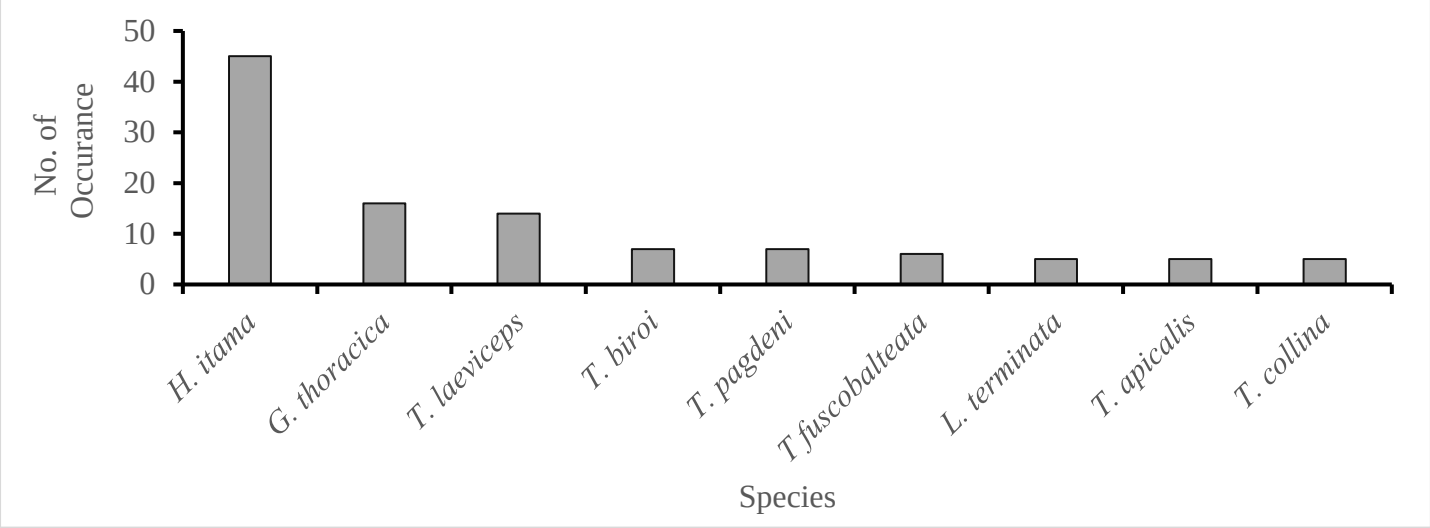

Figure 6. A total of nine stingless bee was identified that has higher than five co-occurance using VosViewer software

A study by Kelly *et al*., [42] mentioned that stingless bee species such as *G. thoracica, H. itama, L. terminata, T. fuscobalteata* and *T. leaviceps* are being commercialised in the meliponiculture industry for crop pollination as well as honey, resin, and pollen production in Malaysia. Syafrizal *et al*. [43] also found the activity of meliponiculture for all the stated species, especially in East and North Kalimantan. *G. thoracica* and *H. itama* also be found in Brunei Darussalam which is the same as Kalimantan on Borneo Island [2]. The potential for research on the species could have a broad impact on its application in multiple areas, such as medicine, agriculture, etc. From a different perspective, the information generated could be used by stingless bee entrepreneurs as a marketing strategy to attract tourism activity as well as generate local income.

Conclusions

The Scopus database is widely used to analyse and assess published articles from different timelines, countries, affiliations, and researchers. The present study has provided an overview of stingless bee research over 39 years (1984–2022) and trends based on 543 publications in the SEA region retrieved from the Scopus database. Since the past ten years, from 2013 to 2022, the number of articles published has grown rapidly, and this trend is expected to continue. It was discovered that countries and academic institutions (e.g., Malaysia, Thailand, and Indonesia) have a huge number of publications and strong international collaborations, particularly in the SEA region. On the other hand, researchers from various nations may be able to expand their research relationships through these entities. Co-occurrence network map analysis using all keywords as the unit of analysis shows that the stingless bee research field was separated into 10 clusters. This study displays more top authors, and papers come from journals with different numbers of publications, citations, CiteScore, SJR H-Index, and Q rank. Hence, authors can select their ideal journal based on those parameters to publish their papers related to this research field. From the VosViewer analysis, we have determined 30 stingless bee species were identified (nine species with higher than five co-occurances), and five species are non-endemic in the SEA region. Not to mention, continuous efforts to search for more species were implemented to study another alternative application of the stingless bee.

Conflicts of Interest

The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper.

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