Universitas Sumatera Utara

Transformation Towards the Ultimate

Kampus Merdeka INDONESIA JAYA

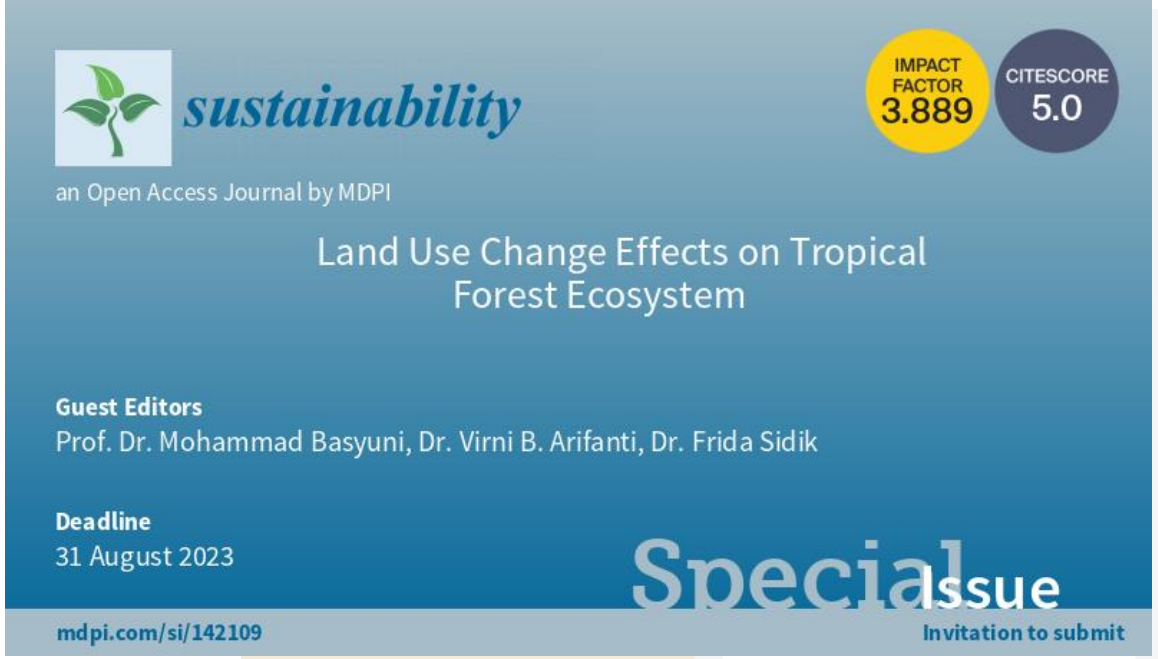
Review Article

Mohammad Basyuni

Center of Excellence for Mangrove, Universitas Sumatera Utara, Medan, Indonesia
Department of Forestry, Faculty of Forestry, Universitas Sumatera Utara, Indonesia
Section Editor: Science and Technology Indonesia (Scopus Indexed, Sinta 1, Q3), Editor: Journal of Sylva Indonesiana (JSI, Sinta 3), Islamic Research (DOAJ), Guest Editor (Sustaianability), JPT, JEDS (Talenta USU), Reviewer di MDPI, Frontiers, Elsevier, Springer, Wiley

Pengalaman menulis review article

- 2X Systematic review: (1) Illian, D. N., Hafiz, I., Meila, O., Utomo, A. R. H., Nuryawan, A., Siregar, G. A., & Basyuni, M. (2021). Current status, distribution, and future directions of natural products against colorectal cancer in Indonesia: a systematic review. Molecules, 26(16), 4984. (2) Sasmito, S.D., Basyuni, M., Kridalaksana, A. et al. Challenges and opportunities for achieving Sustainable Development Goals through restoration of Indonesia's mangroves. Nat Ecol Evol 7, 62–70 (2023). https://doi.org/10.1038/s41559-022-01926-5
- 1x Narrative review: Hafiz, I.; Illian, D.N.; Meila, O.; Utomo, A.R.H.; Susilowati, A.; Susetya, I.E.; Desrita, D.; Siregar, G.A.; Basyuni, M. Effectiveness and Efficacy of Vaccine on Mutated SARS-CoV-2 Virus and Post Vaccination Surveillance: A Narrative Review. Vaccines 2022, 10, 82. https://doi.org/10.3390/vaccines10010082.
- 2x Mini review: (1) Illian, D. N., Siregar, E. S., Sumaiyah, S., Utomo, A. R., Nuryawan, A., & Basyuni, M. (2021). Potential compounds from several Indonesian plants to prevent SARS-CoV-2 infection: a mini-review of SARS-CoV-2 therapeutic targets. Heliyon, 7(1). (2) Wee, A. K., Salmo Iii, S. G., Sivakumar, K., Then, A. Y., Basyuni, M., Fall, J., ... & Kajita, T. (2023). Prospects and challenges of environmental DNA (eDNA) metabarcoding in mangrove restoration in Southeast Asia. Frontiers in Marine Science, 10, 1033258.
- 1 Systematic review under revision Estuarine, Coastal and Shelf Science, 1 in preparation to Egyptian Journal of Aquatic Research/Regional Studies in Marine Science
- 2x Bibliometric Analysis: 1 published (Sumardi, S., Masfria, M., Basyuni, M., & Septama, A. W. (2022). Potential of Polyisoprenoid of Mangroves as Antimicrobial and Anticancer: A Bibliometric Analysis. Science and Technology Indonesia, 7(1), 22-28.) dan 1 in preparation to Biomedicenes





volume

A special issue of *Sustainability* (ISSN 2071-1050). This special issue belongs to the section "Sustainability, Biodiversity and Conservation".

Deadline for manuscript submissions: **31 August 2023** | Viewed by 200

Share This Special Issue

Special Issue Editors

Prof. Dr. Mohammad Basyuni E-Mail Website SciProfiles
Guest Editor
1. Center of Excellence for Mangrove, Universitas Sumatera Utara, Medan 20155, Indonesia
2. Department of Forestry, Faculty of Forestry, Universitas Sumatera Utara, Medan 20155, Indonesia
Interests: marine ecology and restoration; eDNA metabarcoding; DNA barcode; forest engineering and biotechnology



Dr. Virni B. Arifanti E-Mail Website SciProfiles
Guest Editor
Research Center for Ecology and Ethnobiology, National Research and Innovation Agency Republic of Indonesia, Cibinong 16911, Indonesia
Interests: mangrove ecology; forest carbon dynamics; greenhouse gas inventory; climate change mitigation and adaptation



Dr. Frida Sidik E-Mail Website SciProfiles
Guest Editor
Research Center for Oceanography, National Research and Innovation Agency, Jakarta 14430, Indonesia
Interests: mangrove ecology; climate change; conservation and restoration; coastal geomorphology



Special Issue Information

Dear Colleagues,

Due to both anthropogenic and non-anthropogenic disturbance, tropical forests are being disturbed and converted to non-forest land uses. Functional diversity and ecosystem processes have undergone considerable alterations as a result, with repercussions for local, regional, and global biogeochemical cycles. Researchers have been working to understand how anthropogenic and non-anthropogenic interventions affect biodiversity, ecosystem structure, or biogeochemistry since the advent of land-use change, but it has only been more recently that they have started to investigate the additive or synergistic effects of land-use change and biodiversity loss on tropical ecosystem function. Deforestation and fragmentation, over-exploitation, invasive species and climate change are the main drivers of tropical forest biodiversity loss. Tropical deforestation has had great impacts on the global carbon

ensure you get the best experience.
Accept

https://www.mdpi.com/journal/sustainability/special_issues/VN20OQXW42

Types of Review Articles

What makes review articles different than other articles?

Universitas Sumatera Utara

Transformation Towards the Ultimate

Kampus Merdeka INDONESIA JAYA

A review is…

an overview or summary of existing research

Systematic review

Realist review

Literature review

Meta-analysis

Scoping review

Rapid review

Bibliometric analysis

Narrative review

Systematic literature review

Integrative review

Mini review

Universitas Sumatera Utara

Transformation Towards the Ultimate

Kampus Merdeka INDONESIA JAYA

THE ROLE OF A LITERATURE REVIEW

- To explain how and why you chose your research question.
- To identify the problem from which your research emerges.
- To identify a gap or problem in the literature.
- To explain why you chose the proposed study and research method.
- To demonstrate how the literature supports and explains the choices you have made about your study.
- To synthesize and critique this literature.

Terminology

- Overview = sometimes used to denote a systematic review
- Narrative reviews = summaries of research that lack explicit descriptions of systematic methods

Systematic VS Narrative reviews

Feature	Narrative review	Systematic Review
Question	Broad in scope	Focused question
Sources and Search	Not usually specified, potentially biased	Comprehensive sources and explicit search strategy
Selection	Not usually specified, potentially biased	Criterion-based selection, uniformly applied
Appraisal	Variable	Rigorous critical appraisal
Synthesis	Often a qualitative summary	Qualitative or Quantitative summary
Inferences	Sometimes evidence-based	Usually evidence-based

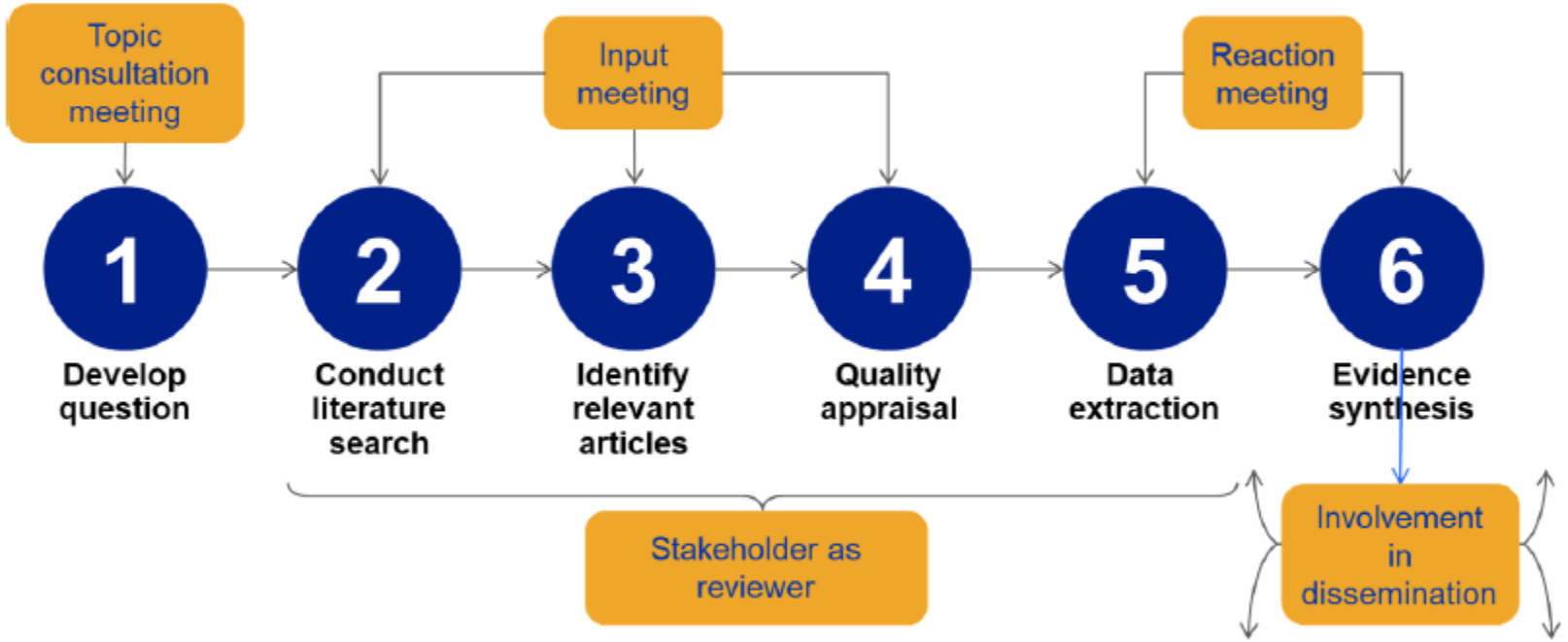
Review Characteristics	Literature Review	Scoping Review	Systematic Review
Research team	No	Usually	Yes
Predefined Protocol	No	No	Yes
Abstract	Yes	Yes	Yes
Introduction	Yes	Yes	Yes
Methods include Search methodology (allowing search to be replicable)	Rarely	Yes	Yes
Filtering (Study selection using inclusion/exclusion criteria)	No	Yes	Yes
Data extraction	No	Yes	Yes
Charts data into themes	No	Yes	No
Meta-analysis	No	No	Optional
Results	Rarely	Yes	Yes
Discussion/Conclusio	Yes	Yes	Yes

WHY NOT JUST A NARRATIVE REVIEW?

Cook DJ et al. Ann intern med. 1997 Mar 1;126(5):376-80.

FEATURE	NARRATIVE	SYSTEMATIC
Question	Often broad in scope	Often focused clinical Q
Search method	Not usually specified Potentially biased	Predefined protocol-based Explicit search strategy
Inclusion of studies	Not usually specified Potentially biased	Predefined selection criteria Uniformly applied
Search media	Mainly PubMed or Medline	Diverse
Data extraction	Simple descriptions	Protocol based Statistical values
Data quality	Descriptive	Grading by guidelines
Synthesis	Descriptive	Based on guidelines such e.g. PRISMA
Inferences	Easily biased	Based on data included

Systematic review framework: (from previous presentation)



https://www.iwh.on.ca/systematic-review-program/methods



Discuss...

- Systematic review step-wise protocol
  - Defining research questions and review scope
  - Literature search
  - Literature screening
  - Critical appraisal
  - Data extraction and synthesis (i.e.: meta-analysis)
- Findings reporting

Step in SR

1. Formulate research question
2. Determine inclusion and exclusion criteria
3. Literature search
4. Pilot test inclusion criteria
5. Screening – Title/Abstract
6. Screening – Full-text
7. Develop and test data abstraction form
8. Abstract data
9. Study appraisal
10. Analysis (meta-analysis)
11. Synthesis
12. Prepare Manuscript
13. Disseminate Findings

When do we need a systematic review?

- There is a need to measure the **effectiveness** of an intervention or relative effectiveness of interventions.
- There is a need to **measure the impact** of an activity on a non-target population.
- There is a need to know the **quantity and quality of research** that has been conducted on a specific question.
- There are **opposing views** about the effectiveness of interventions or impact of actions.
- There is a need to consider the relative effectiveness and **cost of interventions**.

Scope of the systematic review

Table 2.3. Elements of a reviewable PICO/PECO question: normally a permutation of 'does intervention/exposure I/E applied to populations of subjects P produce a measurable amount of outcome O when compared with comparator C?'.

Question element	Definition
Population (of subjects)	Unit of study (e.g. ecosystem, species) that should be defined in terms of the statistical populations of subject(s) to which the intervention will be applied.
Intervention/exposure	Proposed management regime, policy, action or the environmental variable to which the subject populations are exposed.
Comparator	Either a control with no intervention/exposure or an alternative intervention or a counterfactual scenario.
Outcome	All relevant outcomes from the proposed intervention or environmental exposure that can be reliably measured

Source: http://www.environmentalevidence.org/

Universitas Sumatera Utara

Transformation Towards the Ultimate

Kampus Merdeka INDONESIA JAYA

Systematic Review (SR) Methods

How do you do one??

The team

- SRs can be done by one person, but are then subject to bias.
- At least two people on a review; may need the influence of a third.
- But, too many cooks….
- Consider:
  - Methodologist
  - Someone with clinical expertise
  - Statistician (some-one who has been trained to do or has done systematic reviews)

The Team

- Meet to discuss interests
- Decide on roles and responsibilities
- Consider funding
  - Internal (academic institutions)
  - Collaborator
  - Other?

Parts in the Manuscript

- Abstract
  - Background, methods, results, discussion, conclusions
- Background
- Methods
- Results
- Discussion
- Conclusions

Protocol

- Should start with writing a complete protocol
- Required by Cochrane and Campbell collaborations
  - Submit for review by relative review groups
    - http://www2.cochrane.org/contact/entities.htm
  - May take 3-6 months to approve
- Helps to clearly organize your rationale and methods

Steps

1. Formulate a question
2. Define inclusion/exclusion criteria
3. Locate studies
4. Select studies
5. Assess study quality
6. Extract data
7. Analyze and present results
8. Interpret results

Question

- Start broad then narrow it.
- Broadly search the literature to become familiar with what types of studies exist
  - What has and hasn't been done
  - Is a new SR needed?
- Ideally, you will want to summarize top level evidence
  - Randomized trials, cohort studies, case control studies
    - Depends on your question

The question

Involve every potential collaborator on the question: Don’t rush it!

- P.I.C.O.T.
- P) Populations
- I) Intervention
- C) Comparator Group
- O) Outcomes of Interest
- T) Timing element for all ??

Examples of Questions of Interest

Do this…….

- P) Population
- I) Intervention
- C) Comparator
- O) Outcomes of Interest

Requirements for Protocol

- Title:
  - Intervention for condition/problem in population
  - Consider adding the term systematic review or meta-analysis if publishing in peer-reviewed journal

Protocol

- Background:
  - Description of the condition/problem and its significance
    - Biology, diagnosis, prognosis, epidemiology
    - Impact (financial, economic etc)
  - Describe intervention/exposure
    - What is it?
    - Place in context of competing alternatives

Background

- How the intervention/exposure may work
  - Components, mechanism, delivery methods etc
  - Create rationale for how connected to the specific condition
- Why is it important to do this review
  - Why this question is important; this should be clearly established from above
  - Might be an update of an older review

Objectives

- Precise statement of the primary objective of the review
- Single sentence
- Format
  - “to assess the effects of [intervention/exposure or comparison] for [health problem/condition] for/in [types of people, disease or problem and setting if specified]”
- Can be followed by a series of specific objectives
  - relating to different participant groups, different comparisons of interventions, or different outcome measures
- Hypotheses are not necessary
  - SRs are observational in nature

Conflicts of Interest

- State conflicts of interest and sponsorship statements
  - Involvement in included studies, other reviews
  - Working for a private company that manufactures the intervention
- Could bias the SR

Define Inclusion/exclusion criteria

- Decide a priori what your inclusion and exclusion criteria will be.
  - just as you wouldn't include just anyone in a trial, you won't include just any information into a SR.
  - What to consider
    - Derives from your question (PICO)
      - have the type of patients with a particular characteristics (condition/exposure) and outcomes we are interested in
    - Study design
    - published since a specific date
  - Note: excluding studies due to methodological flaws is inappropriate; biases the SR; must include ALL

Inclusion/Exclusion

- Exclusion criteria:
  - any other study design
  - other examples?
- Defining the criteria for inclusion and exclusion a priori reduces the likelihood of bias.
  - Decide what studies to include based on their methods, not on their results

Inclusion/Exclusion

- Typically done by two individuals
  - Separately and independently
  - Use checklist of inclusion/exclusion criteria
    - Use excel spreadsheet
  - Useful to pilot the checklist on a small number of included papers
    - Then revise and assess all trials
  - Meet for consensus
    - Include 3rd party of consensus not met

Table 3. List of questions used for studies inclusion and exclusion during combined title and abstract, and full-text screenings.

Screening Stages	Questions	Screening Outcome
Title and abstract screening	• Is the study located in Indonesia and is the natural resource from Indonesia? • Does the study focus on colorectal cancer? • Does the study present an assessment of natural products?	Studies are included if satisfy all questions
Full-text screening	• Does the study present an anticancer agent? • Does the study present any dataset related to colorectal cancer? • Does the study consider cytotoxic activity? • Does the study consider a compound target of natural products? • Does the study contain positive/negative control? For included studies, additional following open questions are given to identify general information of the studies: • Publication type (e.g., J: journal article, P: proceeding conference, T: thesis, B: book chapter, R: report) • What is the type of study? (L: Laboratory, R: review, RS: remote sensing, O: Opinion) • What datasets presented in the study are relevant to review?	Studies are included if satisfy at least two screening questions

Protocol Development

- Work on
  - Individual questions
  - Background
  - Objectives
  - Inclusion exclusion

Systematic reviews: Benefits

- Can detect small but clinically significant treatment effects
- Save us time (quicker than a new or observational study)
- Have clear methods and results
- Define the boundaries of what is known and not known
- Systematic reviews can help clinicians/scientists keep abreast of the literature by:
  - summarizing large bodies of evidence
  - helping to explain differences among studies on the same question

Systematic reviews: Benefits

- Save time and money for researchers, clinicians, policy makers, funding bodies, reviewers
- Considered a very high level of evidence
- Influences decision makers
- Influences the design of future trials
- Notes the limitations of current research
- Appraises the quality of existing information
- Costs very little, if anything

Systematic Review: Examples

- Protein restriction decreases the progression of renal disease
- Bed rest is not effective for low back pain
- Supplemental Vitamin D prevents cancer and cardiovascular disease in women

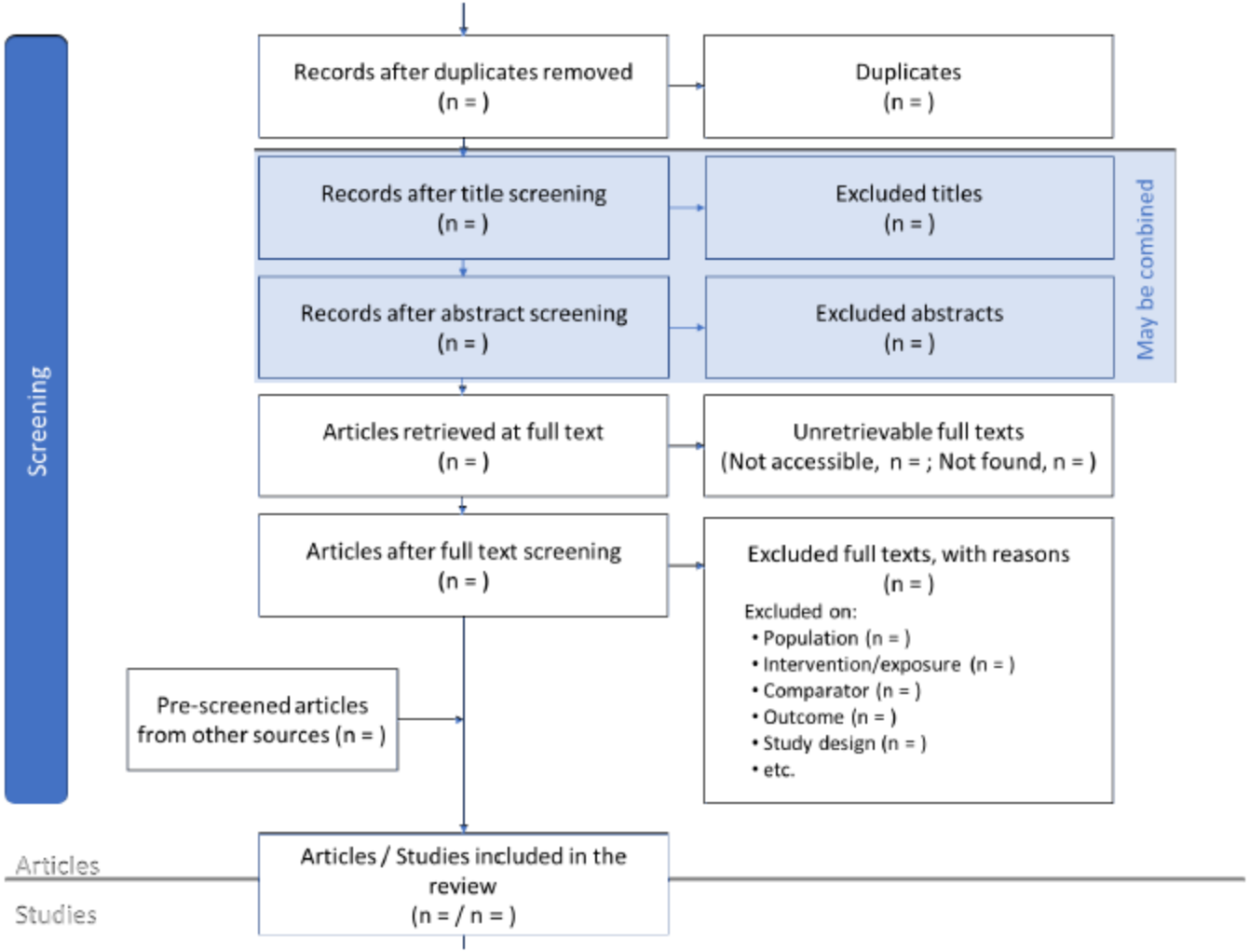
Example of systematic review

- Quantitative synthesis:
  - Sasmito and Taillardat et al. (2019). Effect of land-use and land-cover change on mangrove blue carbon: A systematic review. Global Change Biology, 25(12), 4291-4302. https://onlinelibrary.wiley.com/doi/abs/10.1111/gcb.14774
- Qualitative synthesis:
  - Lo, M., Reed, J., Castello, L., Steel, E. A., Frimpong, E. A., & Ickowitz, A. (2020). The Influence of Forests on Freshwater Fish in the Tropics: A Systematic Review. BioScience, 70(5), 404-414. https://academic.oup.com/bioscience/article/70/5/404/5810708
  - Bahar, N. H., Lo, M., Sanjaya, M., Van Vianen, J., Alexander, P., Ickowitz, A., & Sunderland, T. (2020). Meeting the food security challenge for nine billion people in 2050: What impact on forests? Global Environmental Change, 62, 102056. https://www.cifor.org/publications/pdf_files/articles/ABahar2001.pdf

Costs

- The major costs associated with a sys review are labour:
  - Yours
  - Statistician (if required)
  - Collaborating reviewer(s)
- Additional costs are related to obtaining articles
  - Ordering, Copying, translating etc

Screenings



Source: Haddaway NR, Macura B, Whaley P, and Pullin AS. 2017. ROSES flow diagram for systematic reviews. Version 1.0. DOI: 10.6084/m9.figshare.5897389

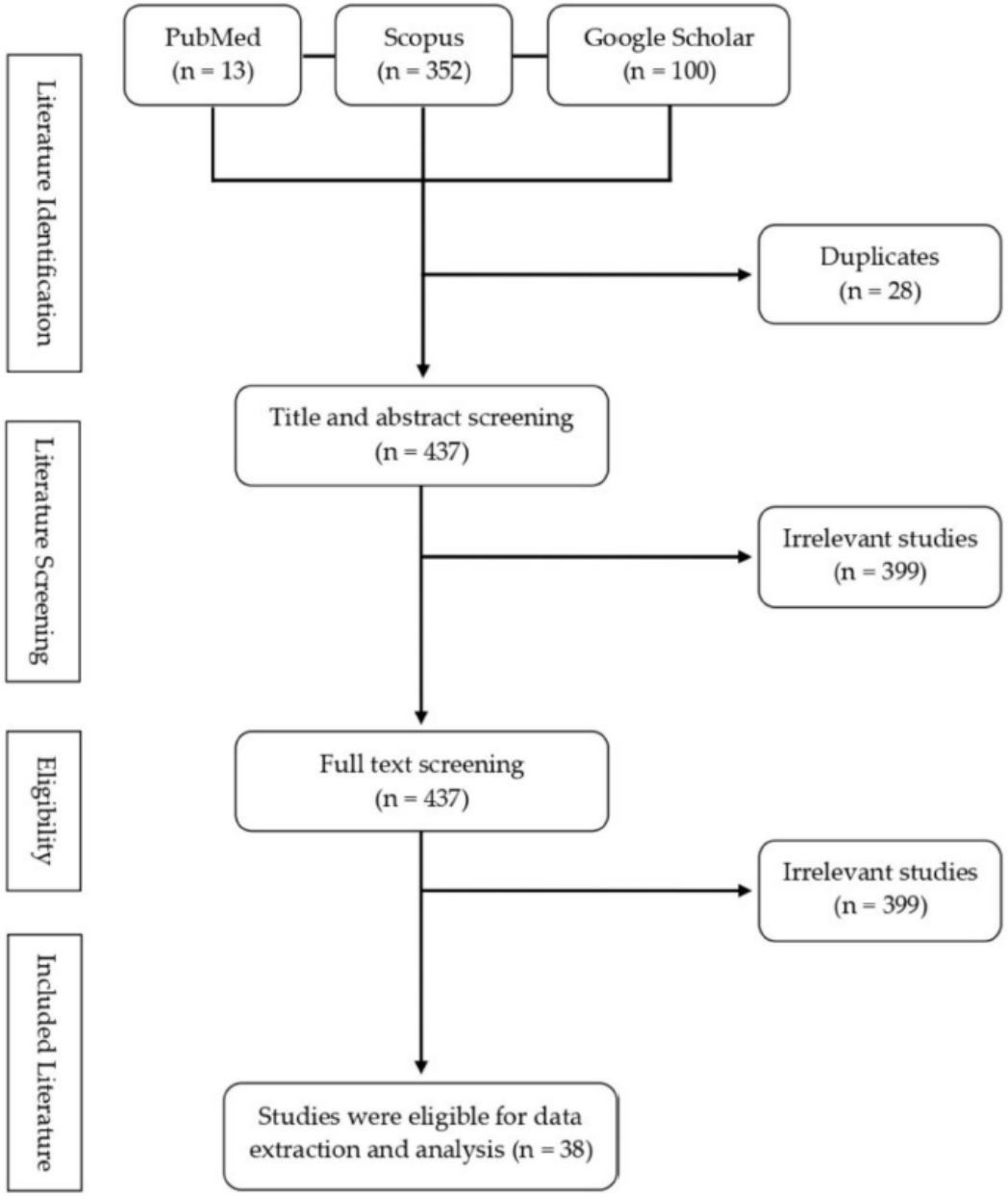
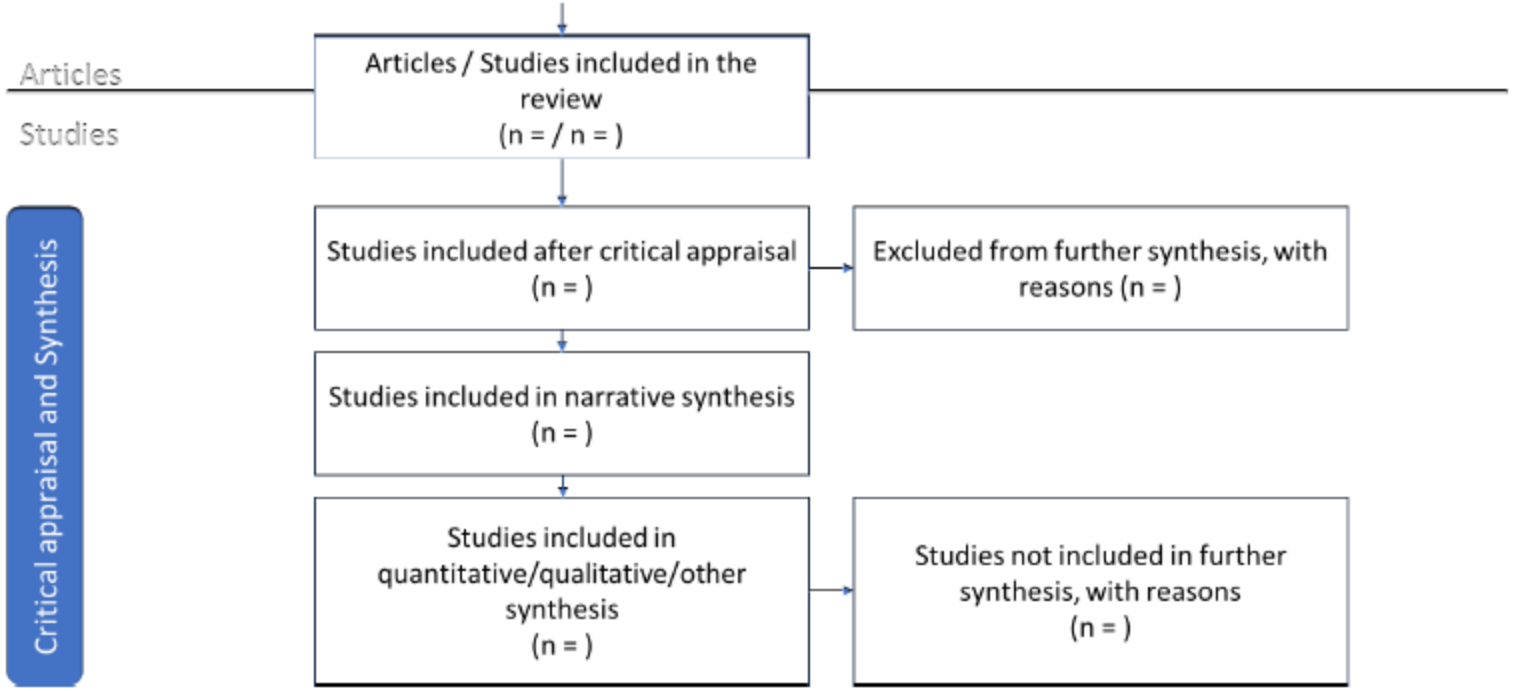


Figure 1. The PRISMA flow diagram showing the selection of eligible studies.

Illian, et al. Current Status, Distribution, and Future Directions of Natural Products against Colorectal Cancer in Indonesia: A Systematic Review. Molecules 2021, 26, 4984. https://doi.org/10.3390/molecules26164984

Critical appraisal



Source: Haddaway NR, Macura B, Whaley P, and Pullin AS. 2017. ROSES flow diagram for systematic reviews. Version 1.0. DOI: 10.6084/m9.figshare.5897389

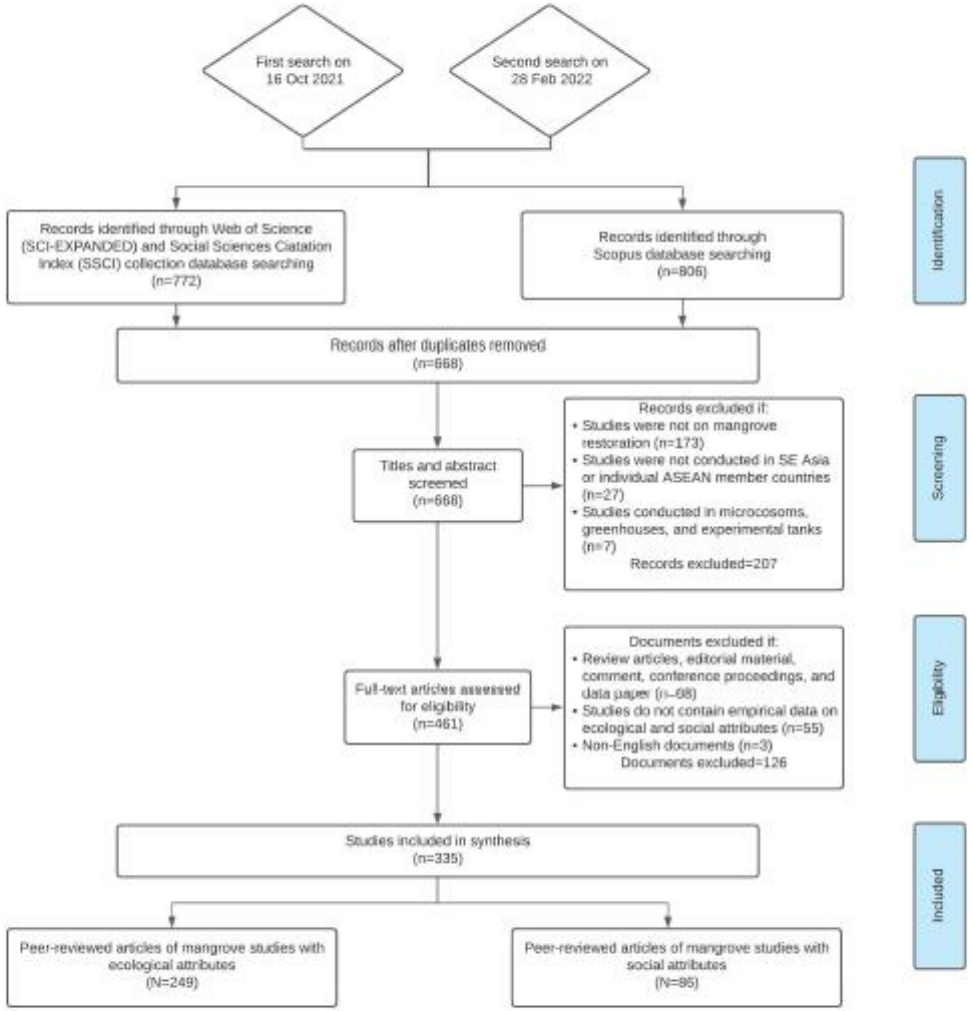


FIGURE 1
PRISMA (Preferred Reporting Items for Systematic Reviews) flow diagram of bibliographic analysis in the systematic review.

Gerona-Daga, M. E. B., & Salmo III, S. G. (2022). A systematic review of mangrove restoration studies in Southeast Asia: Challenges and opportunities for the United Nation's Decade on Ecosystem Restoration. Frontiers in Marine Science, 1865.



Data extraction

- Data coding and extraction strategy
- Data categories
  - Study population, intervention, comparator, outcome
  - Study aim and main findings
  - Study site information (i.e.: geographical location, climate, etc.)
  - Measured variables and unit (mean, SD, SE, N)

Data analysis and synthesis

- Search statistics
- Eligibility and study validity assessment
- Data extraction
- Reasons for variability in the results found and potential confounding factors
- Summary statistics
- Qualitative or quantitative analysis approach
- Review limitation
- Review conclusion and recommendation

Universitas Sumatera Utara

Transformation Towards the Ultimate



molecules

MDPI

Review

Current Status, Distribution, and Future Directions of Natural Products against Colorectal Cancer in Indonesia: A Systematic Review

Didi Nurhadi Illian [1], Ihsanul Hafiz [2], Okpri Meila [1], Ahmad Rusdan Handoyo Utomo [3], Arif Nuryawan [4,5], Gontar Alamsyah Siregar [5,6] and Mohammad Basyuni [4,5,*]

1 Department of Pharmacy, Faculty of Mathematics and Natural Sciences, Universitas Syiah Kuala, Banda Aceh 23111, Indonesia; illian.didinurhadi@unsyiah.ac.id (D.N.I.); okprimeila@unsyiah.ac.id (O.M.)
2 Department of Pharmacology, Faculty of Pharmacy and Health, Institut Kesehatan Helvetia, Medan 20124, Indonesia; ihsanulhafiz@helvetia.ac.id
3 Faculty of Medicine, Universitas YARSI, Jakarta 10510, Indonesia; ahmad.rusdan@yarsi.ac.id
4 Department of Forestry, Faculty of Forestry, Universitas Sumatera Utara, Medan 20155, Indonesia; arif5@usu.ac.id
5 Center of Excellence for Mangrove, Universitas Sumatera Utara, Medan 20155, Indonesia; gontar@usu.ac.id
6 Department of Internal Medicine, Division of Gastroenterology-Hepatology, Faculty of Medicine, Universitas Sumatera Utara, Medan 20155, Indonesia
* Correspondence: m.basyuni@usu.ac.id; Tel.: +62-61-8201920

check for updates

Citation: Illian, D.N.; Hafiz, I.; Meila, O.; Utomo, A.R.H.; Nuryawan, A.; Siregar, G.A.; Basyuni, M. Current Status, Distribution, and Future Directions of Natural Products against Colorectal Cancer in Indonesia: A Systematic Review. *Molecules* **2021**, *26*, 4984. https://doi.org/10.3390/molecules26164984

Academic Editors: Nadine Kretschmer and Maurizio Battino

Received: 30 June 2021
Accepted: 13 August 2021
Published: 17 August 2021

Abstract: In 2020, an estimated 19.3 million new cancer cases and nearly 10 million cancer deaths have occurred worldwide, with colorectal cancer ranking as the third most frequently diagnosed (10.0%). Several attempts have been conducted against cancer, including surgery, radiation, monoclonal antibodies, and chemotherapy. Many people choose natural products as alternatives against cancer. These products will not only help in human life preservation but also work as a source of up-to-date information, leading people away from incorrect information. We discuss the current status, distribution, and future implications of protecting populations with natural products as an alternative against colorectal cancer in Indonesia. Thirty-eight studies were included in this review for data extraction. The distribution of natural products in Indonesia that have potential activity against colorectal cancer cells was predominated by terpenoids, followed by phytosterols, phenolics, alkaloids, and polyisoprenoids. The type of cell line utilized in the cytotoxic activity analysis of natural products was the WiDr cell line, followed by HT-29 cells and HCT-116 cells. This review showed that MTT in vitro assay is a general method used to analyze the cytotoxic activity of a natural product against colorectal cancer cells, followed by other in vitro and in vivo methods. The systematic review provided predictions for several secondary metabolites to be utilized as an alternative treatment against colorectal cancer in Indonesia. It also might be a candidate for a future co-chemotherapy agent in safety, quality, and standardization. In addition, computational methods are being developed to predict the drug-likeness of compounds, thus, drug discovery is already on

SYSTEMATIC REVIEW article

Front. Mar. Sci., 29 September 2022
Sec. Marine Conservation and Sustainability
Volume 9 - 2022 | https://doi.org/10.3389/fmars.2022.987737

This article is part of the Research Topic
The Mangroves of Southeast Asia in the United Nation's Decade on Ecosystem Restoration
View all 7 Articles >

A systematic review of mangrove restoration studies in Southeast Asia: Challenges and opportunities for the United Nation's Decade on Ecosystem Restoration

 Maria Elisa B. Gerona-Daga[1,2*]  Severino G. Salmo III[1]

[1] Institute of Biology, College of Science, University of the Philippines Diliman, Quezon City, Philippines
[2] Division of Natural Sciences and Mathematics, University of the Philippines Visayas Tacloban College, Tacloban City, Philippines

Mangroves provide valuable ecological and socio-economic services. The importance of mangroves is particularly evident in Southeast (SE) Asia where the most extensive and diverse forests are found. To recover degraded mangroves, several SE Asian countries have implemented restoration programs. However, to date, there has been no systematic and quantitative synthesis on mangrove restoration studies in the region. Here, we provide a bibliometric-based analysis of mangrove restoration to provide understanding on trends and future directions needed to meet biodiversity and restoration targets in the region. Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol, we analyzed 335 articles (249 articles with ecological attributes; 86 articles with social attributes) published until February 2022 from Scopus and Web of Science databases. Mangrove restoration studies with ecological and social attributes started around the early 1990s mostly from Indonesia, Thailand, Malaysia, Vietnam, and the Philippines. Majority of SE Asian countries have stronger collaboration to western countries rather than within the region. Reasons for restoration vary per country, but mostly were intended to rehabilitate damaged mangroves. Direct planting was

Download Article

6,082 Total views
877 Downloads
View article impact >

 View altmetric score >

Edited by

 Free Espinosa Torre
Sevilla University, Spain

Reviewed by

 Alexander C. Ferreira
Federal University of Ceara, Brazil

 Mohammad Basyuni
University of North Sumatra, Indonesia

TABLE OF CONTENTS

Abstract
Introduction

We use cookies

Our website uses cookies that are necessary for its operation and to improve your experience. You can review and control your cookies by clicking on "Accept Cookies" or on "Cookies Settings".

Cookies Settings Accept Cookies

Population: Coastal mangrove forests in Indonesia;
Intervention: Rehabilitation on abandoned ponds, silvicultural management, restoration on degraded mangrove;
Comparator: ecological restoration, hydrological restoration, planted mangrove;
Outcome: ecosystem service, restored mangrove, mangrove recovery.

Findings from this research will be of interest to several different audiences, with academic researchers, mangrove practitioners and managers, NGO, and mangrove restoration policy makers in Indonesia and international.

Universitas Sumatera Utara

Current status, distribution, and future directions of natural product in colon cancer in Indonesia: a systematic review

TITLE-ABS-KEY (((indonesia) AND (natural product OR secondary metabolite) AND (colon cancer OR Colorectal cancer OR rectum OR colon OR bowel cancer OR adenocarsinoma)))
Scopus: 352 (MB), GS English: IH, GS Bahasa Indonesia, MO, Pubmed: DNI

(((indonesia) AND (natural product OR secondary metabolite) AND (Colorectal cancer OR colon cancer OR rectum OR colon OR bowel cancer))) GS Bahasa Inggris

(((indonesia) AND (produk alami OR matabolit sekunder) AND (kanker kolon OR kanker usus besar OR usus besar OR kolorektal OR kanker rektum))) GS Bahasa Indonesia

Current status, distribution, and future directions of natural product in colon cancer in Indonesia

To determine the scope of the review, this study used a globally applied standard approach for systematic review, by first defining the Population, Intervention, Comparator, and Outcome (PICO) of the review. The details description of PICO used for this systematic review are:

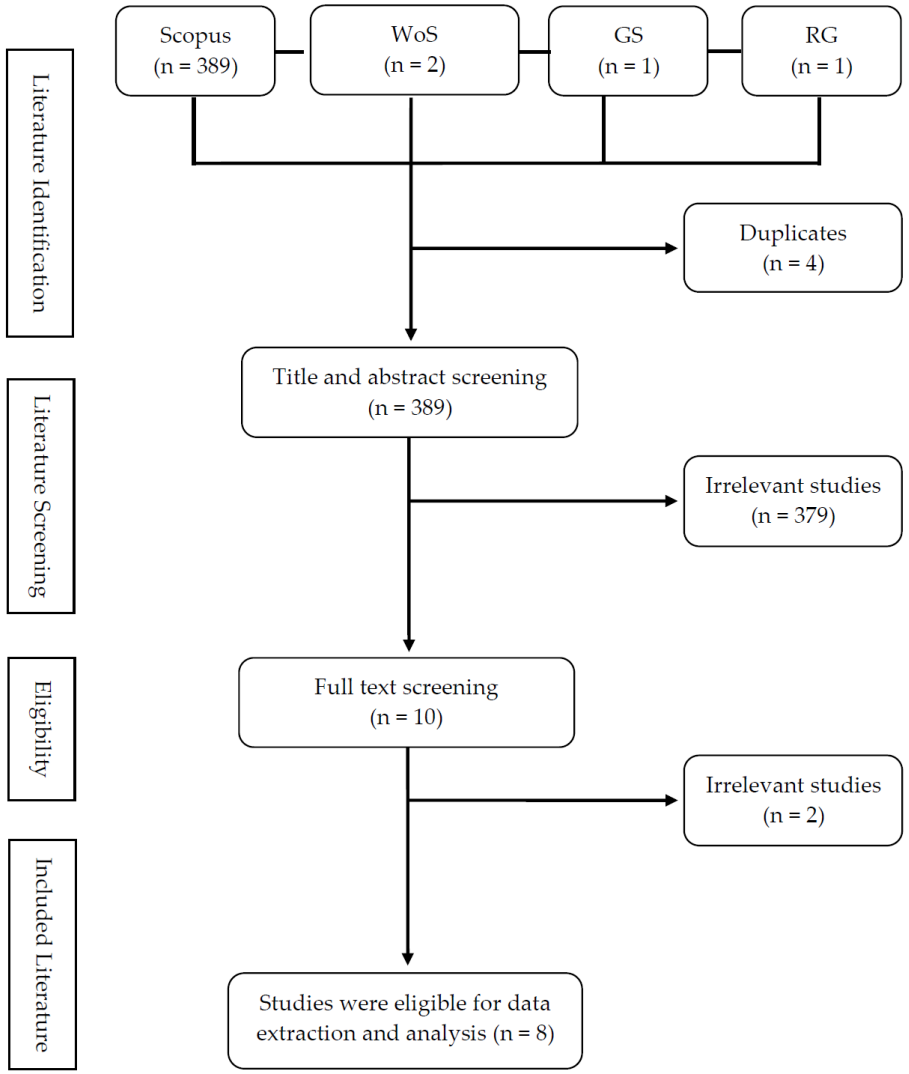
- *Population*: colon cancer studies in Indonesia;
- *Intervention*: any approaches and efforts used for natural product. These common approaches include colon cancer treatment, anticancer agents, anticancer activity
- *Comparator*: any indicators used to monitor the successful natural product to treat colon cencer, such. gene expression, early apaptosis phase, selectivity index, tumor diameter,
- *Outcome*: inhibiting cancer cell, inhibiting angiogenesis, antiproliferative

Full text Scopus
1-117 : MB
118-184: IH
185-251: MO
252-352: DNI

Systematic review of surface elevation change and soil accretion rate

In June 2022, the systematic review was performed by two reviewers to evaluate previously published studies on mangrove surface elevation change and soil surface accretion rates in Indonesia through various bibliographic databases and platforms, such as Scopus, Web of Science, Google Scholar, and ResearchGate. Google Scholar and ResearchGate were also used to generate database of Indonesian-based literatures. We defined surface elevation

(mangrove OR "coastal wetland*" OR "mangrove forest*") AND ("surface elevation*" OR "accretion rate*" OR "sediment accretion*" OR "elevation change*") AND (estuarine OR riverine OR fringe OR overwash OR "open coast" OR "mud volcano") AND (Indonesia*).*



Scope of the review —The systematic review was focused on studies that have reported on restoration or rehabilitation from degraded, converted mangroves, abandoned ponds, and advances in restoration approaches, for example those that examine ecological and hydrological factors. Data were gathered from published literature obtained through searches in preselected bibliographic databases, including Scopus and Web of Science, as well as the search engine Google scholar. To determine the scope of the review, this study used a globally applied standard approach for systematic review, by first defining the Population, Intervention, Comparator, and Outcome (PICO) of the review. The details description of PICO used for this systematic review are:

- Population: Seaweed in Indonesia;
- Intervention: any approaches and efforts used for seaweed habitat and species composition/diversity.
- Comparator: any indicators used to monitor biodiversity (transect and satellite)
- Outcome: updated distribution and biodiversity of seaweed

((Indonesia AND seaweed) OR (habitat OR composition) AND (field AND satellite) OR (distribution AND biodiversity))

Indonesia AND seaweed and habitat OR composition AND field AND satellite AND distribution AND biodiversity

Table S10. Search string composition adopted from defined Population, Intervention, Comparator, Outcome with desired focus on studies from Indonesia in both English and Bahasa Indonesia.

Language	Geographical location	Population search terms	Intervention search terms
English	Indonesia	mangrove* OR "coastal forest*"	rehabilita* OR silvicultur* OR restor* OR plant* OR enrichment OR revegetation
Bahasa Indonesia	Indonesia	mangrove* OR bakau OR "hutan payau" OR "api-api"	rehabilitasi OR restorasi OR penanaman OR pengayaan OR silvikultur OR revegetasi

Sasmito-Basyuni et al. 2023. Nat Eco Evo. DOI: 10.1038/s41559-022-01926-5

Table S11. Literature search record that resulted from the literature search from four databases.

No	Database	Search string	Date of literature search	Search results
1	Scopus	TITLE-ABS-KEY (((indonesia) AND (mangrove* OR "coastal forest*") AND (rehabilita* OR silvicultur* OR restor* OR plant* OR revegeta*)))	20/10/2020	291
2	Web of Science	TS=((indonesia) AND (mangrove* OR "coastal forest*") AND (rehabilita* OR silvicultur* OR restor* OR plant* OR revegeta*))	20/10/2020	148
3	Google scholar English	((indonesia) AND (mangrove* OR "coastal forest*") AND (rehabilita* OR silvicultur* OR restor* OR plant* OR revegeta*))	20/10/2020	50
4	Google scholar Bahasa Indonesia	((indonesia) DAN (mangrove* OR bakau OR “hutan payau” OR “api-api”) DAN (rehabilitasi OR restorasi OR penanaman OR pengayaan OR silvikultur OR revegetasi))	20/10/2020	50

Sasmito-Basyuni et al. 2023. Nat Eco Evo.
DOI: 10.1038/s41559-022-01926-5

Table S12. List of questions used for studies inclusion and exclusion during combined title and abstract, and fulltext screenings.

Screening stages	Questions	Screening outcome
Title and abstract screening	• Is the study located in Indonesia? • Does the study focus on mangrove? • Does the study present assessment on mangrove revegetation?	Studies are included if satisfy all questions
Full text screening	• Does the study present mangrove revegetation study/project? • Does the study present any dataset related to mangrove revegetation? • Does the study consider the spatial scale of mangrove revegetation? • Does the study consider the temporal scale of mangrove revegetation? For included studies, additional following open questions are given to identify general information of the studies: • What is the time since revegetation? • What is the relevant dataset presented in the study? • Publication type (e.g., J=journal article, P=Proceeding Conference, T=thesis, B=Book chapter, R=Report) • What is the type of the study? (F: field measurement, R: review, RS: remote sensing, O: Opinion)	Studies are included if satisfy at least two screening questions

Sasmito-Basyuni et al. 2023. Nat Eco Evo.
DOI: 10.1038/s41559-022-01926-5

Table S13. The Preferred Reporting in Systematic Review and Meta-Analysis (PRISMA) systematic review workflow for publication screening, inclusion, and exclusion.

Process	Inclusion	Exclusion
Literature identification	n = 287 (Scopus) n = 148 (Web of Science) n = 50 (Google scholar Bahasa Indonesia) n = 50 (Google scholar English)  n = 423 (Remaining literature)	n = 112 (Duplicates)
Literature screening	n = 423 (Title and abstracts screening)  n = 100 (Full text screening) 	n = 323 (irrelevant studies) n = 34 (irrelevant studies)
Included literature	n = 66 studies were eligible for data extraction and analysis	

Sasmito-Basyuni et al. 2023. Nat Eco Evo.
DOI: 10.1038/s41559-022-01926-5

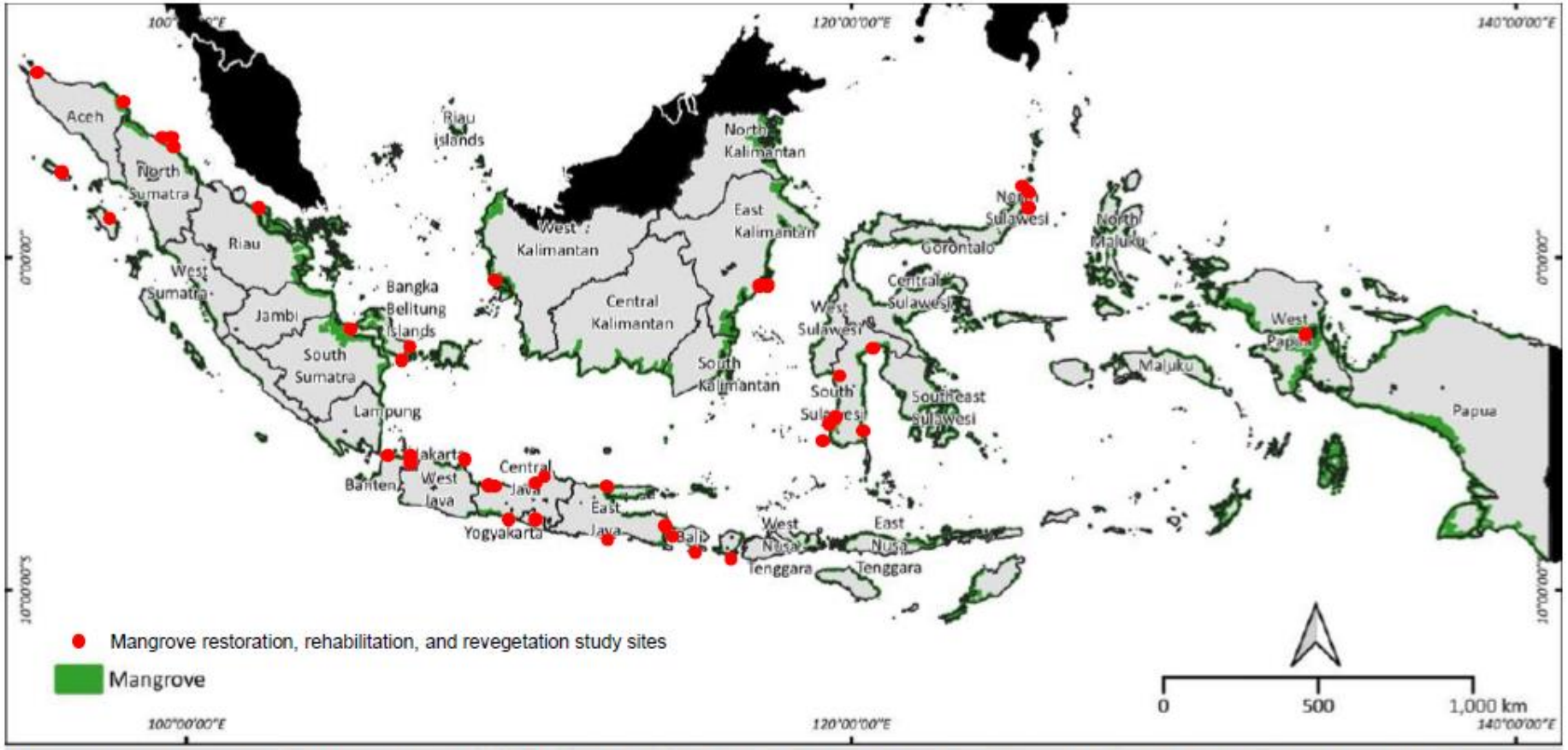
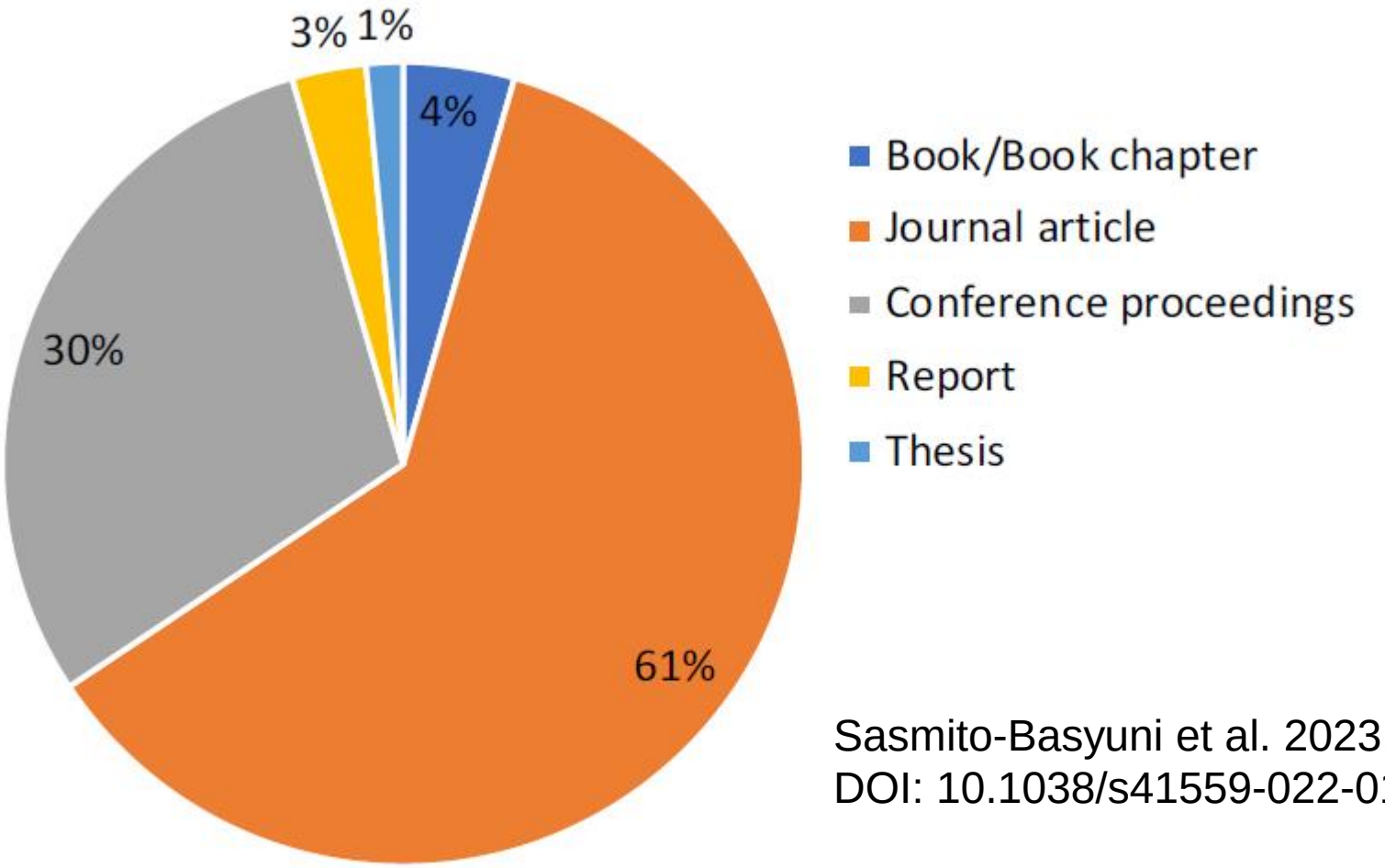


Figure S7. Geographical distribution of mangrove revegetation, restoration, and rehabilitation studies between 1990 - 2020 in Indonesia.

Sasmito-Basyuni et al. 2023. Nat Eco Evo.
DOI: 10.1038/s41559-022-01926-5



Sasmito-Basyuni et al. 2023. Nat Eco Evo.
DOI: 10.1038/s41559-022-01926-5

Figure S8. Types of publication reporting outlet for mangrove revegetation, restoration, and rehabilitation in Indonesia.

2. Objective of the Review

The systematic review has the following primary review question:

- What evidence literature and data exist on the application of natural products from Indonesian plants in colorectal cancer?

The secondary review questions are:

- What are the available trends and study distribution of colorectal cancer in Indonesia?
- What are the used approaches and indicators for colorectal cancer derived from natural products in Indonesia?
- What are the challenges and gaps in the science and application of natural products in colorectal cancer in Indonesia?

3. The Scope of the Review

The systematic review is focused on studies that have reported the utilization of natural products in colorectal cancer in Indonesia. The data was gathered from published literature obtained through preselected bibliographic databases such as Scopus and PubMed, as well as search engines such as Google Scholar. To determine the scope of the review, this study used a globally applied standard approach for systematic review, by first defining the Population, Intervention, Comparator, and Outcome (PICO) of the review [15]. The detailed description of PICO used for this systematic review is as follows:

- *Population*: Colorectal cancer in Indonesia.
- *Intervention*: Any secondary metabolites and natural products used for colorectal cancer from Indonesian plants. These common approaches include in vitro and in vivo.
- *Comparator*: Any indicators used to monitor the success of anti-colorectal cancer activity by the use of natural products or secondary metabolites.
- *Outcome*: Inhibited colorectal cancer or no proliferation activity of colorectal cancer.

Table 1. Search string composition adopted from defined PICO with desired focus on studies from Indonesia in both English and Bahasa Indonesia.

Language	Geographical Location	Population Search Terms	Intervention Search Terms
English	Indonesia	Colorectal cancer* OR "colorectal cancer*"	Secondary metabolite* OR natural product*
Bahasa Indonesia	Indonesia	"Kanker kolon" atau kanker usus besar*	Produk bahan alam* atau metabolit sekunder*

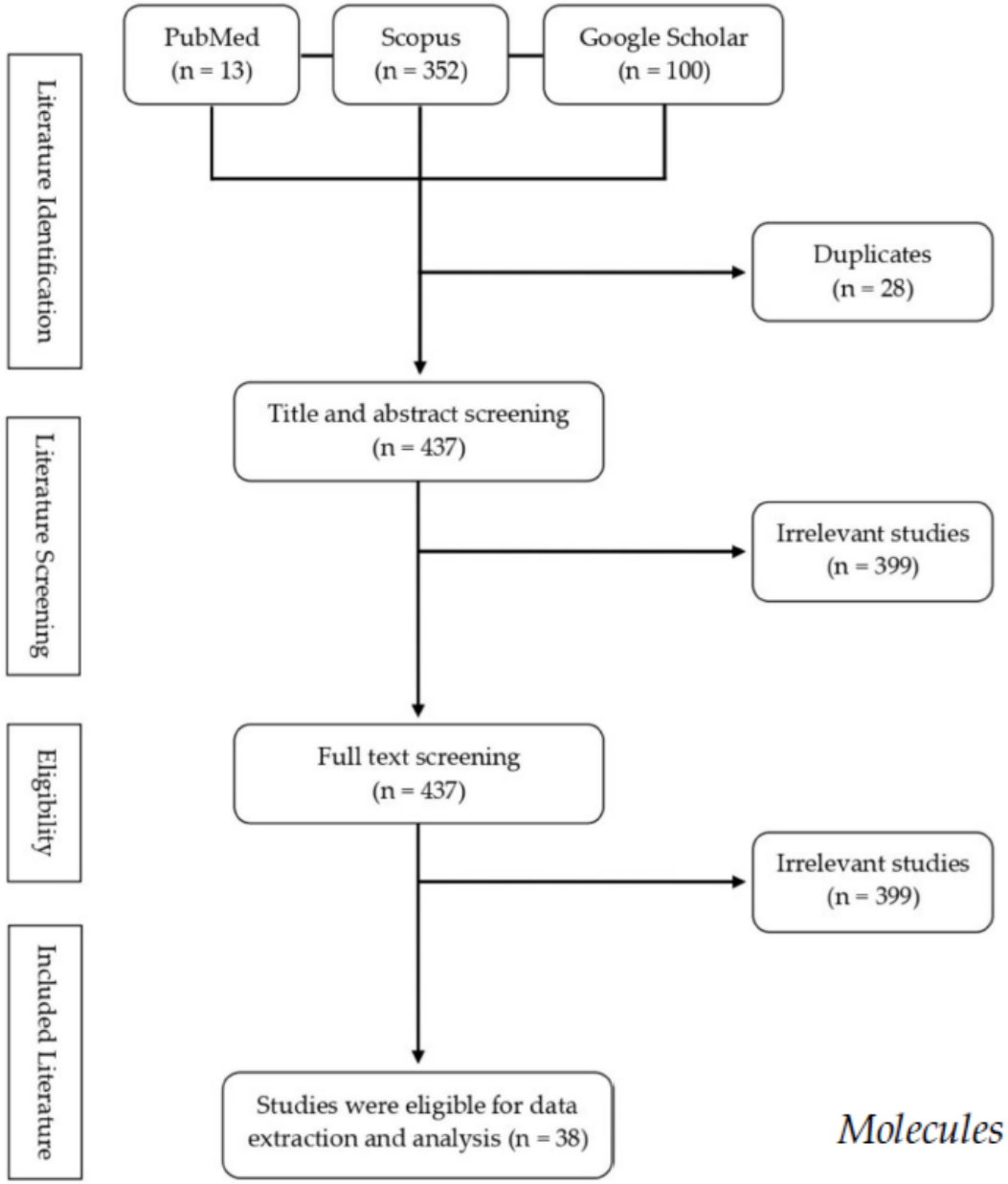
Molecules **2021**, *26*, 4984. https://doi.org/10.3390/molecules26164984

Table 2. Literature search record.

No.	Database	Search String	Date of Literature Search	Search Results
1	Scopus	((Indonesia) AND (natural product OR secondary metabolite) AND (colorectal cancer OR rectum OR colon OR bowel cancer OR adenocarsinoma))	13/02/2021	291
2	PubMed	((Indonesia) AND (natural product OR secondary metabolite) AND (colorectal cancer OR rectum OR colon OR bowel cancer OR adenocarsinoma))	13/02/2021	13
3	Google Scholar English	((Indonesia) AND (natural product OR secondary metabolite) AND (colorectal cancer OR rectum OR colon OR bowel cancer OR adenocarsinoma))	13/02/2021	50
4	Google Scholar Bahasa Indonesia	((Indonesia)AND (Produk alami OR matabolit sekunder) AND (Kanker kolorektal OR kanker usus besar OR usus besar OR kolorektal OR kanker rektum))	13/02/2021	50

Table 3. List of questions used for studies inclusion and exclusion during combined title and abstract, and full-text screenings.

Screening Stages	Questions	Screening Outcome
Title and abstract screening	• Is the study located in Indonesia and is the natural resource from Indonesia? • Does the study focus on colorectal cancer? • Does the study present an assessment of natural products?	Studies are included if satisfy all questions
Full-text screening	• Does the study present an anticancer agent? • Does the study present any dataset related to colorectal cancer? • Does the study consider cytotoxic activity? • Does the study consider a compound target of natural products? • Does the study contain positive/negative control? For included studies, additional following open questions are given to identify general information of the studies: • Publication type (e.g., J: journal article, P: proceeding conference, T: thesis, B: book chapter, R: report) • What is the type of study? (L: Laboratory, R: review, RS: remote sensing, O: Opinion) • What datasets presented in the study are relevant to review?	Studies are included if satisfy at least two screening questions



Molecules **2021**, *26*, 4984. https://doi.org/10.3390/molecules26164984

Figure 1. The PRISMA flow diagram showing the selection of eligible studies.

Table 4. The trend of publication on natural products in colorectal cancer in Indonesia: (**a**) year vs the number of publications; (**b**) types of publications reported.

Year	Number of Publication [(a)]
1990	1
2007	1
2008	2
2012	2
2013	1
2015	2
2016	4
2017	5
2018	8
2019	7
2020	5
Types of Publication	**Publication Reported [(b)]**
Book/Book Chapter	1
Journal Article	35
Thesis	2

Narative Review

Research to find vaccines, clinical trials, and vaccinations on a large scale to defeat the SARS-CoV-2 virus have been carried out to date, but many questions are still unanswered, including: What is the effectiveness and efficacy of the COVID-19 vaccine? What is the people's attitude towards vaccination? Someone must answer people's doubts, and refute antivax by providing objective and balanced information accompanied by concrete evidence. [A1]Is the vaccine effective against the mutant SARS-CoV-2? What are the chances of what happens after vaccination? And what should be conducted?

This article was prepared to answer these problems by: [A2]Data on vaccine of mutated Sars-Cov-2 virus and post vaccination surveillance were searched and collected for this the narrative review. We used prominent search engines, namely, Google Scholar, PubMed, Scopus and BMC. The search keywords used consisted: effective and efficacy vaccine, mutated SARS-CoV-2 virus, COVID-19 variant, post vaccination, and surveillance strategy. After the search was complete and all duplicates were removed, then to review the abstracts of the remaining articles to ensure they address the review question. The authors appraised, evaluated, and interpreted the selected articles. This narrative is reflected the literature search (e.g. years considered, language, publication status, study design, and databases of coverage). We summarized and synthesized the findings from the selected articles, and integrated them into narrative review.

vaccines

MDPI

Review

Effectiveness and Efficacy of Vaccine on Mutated SARS-CoV-2 Virus and Post Vaccination Surveillance: A Narrative Review

Ihsanul Hafiz [1,2,†], Didi Nurhadi Illian [3,†], Okpri Meila [3,4], Ahmad Rusdan Handoyo Utomo [5], Arida Susilowati [6,7], Ipanna Enggar Susetya [6,8], Desrita Desrita [6,8], Gontar Alamsyah Siregar [6,9] and Mohammad Basyuni [6,7,*]

1 Department of Pharmacology, Faculty of Pharmacy and Health, Institut Kesehatan Helvetia, Medan 20124, Indonesia; ihsanulhafiz@helvetia.ac.id
2 Doctoral Program in Pharmacy, Department of Pharmaceutical Biology, School of Pharmacy, Institut Teknologi Bandung, Bandung 40132, Indonesia
3 Department of Pharmacy, Faculty of Mathematics and Natural Sciences, Universitas Syiah Kuala, Banda Aceh 23111, Indonesia; illian.didinurhadi@unsyiah.ac.id (D.N.I.); okprimeila@unsyiah.ac.id (O.M.)
4 Doctoral Program of Clinical Pharmacy and Pharmacology, Faculty of Pharmacy, Universitas Indonesia, Depok 16424, Indonesia
5 Faculty of Medicine, Universitas YARSI, Jakarta 10510, Indonesia; ahmad.rusdan@yarsi.ac.id
6 Center of Excellence for Mangrove, Universitas Sumatera Utara, Medan 20155, Indonesia; arida.susilowati@usu.ac.id (A.S.); ipannaenggar@gmail.com (I.E.S.); desrita@usu.ac.id (D.D.); gontar@usu.ac.id (G.A.S.)
7 Department of Forestry, Faculty of Forestry, Universitas Sumatera Utara, Medan 20155, Indonesia
8 Department of Aquatic Resource Management, Faculty of Agriculture, Universitas Sumatera Utara, Medan 20155, Indonesia
9 Division of Gastroenterology-Hepatology, Department of Internal Medicine, Faculty of Medicine, Universitas Sumatera Utara, Medan 20155, Indonesia
* Correspondence: m.basyuni@usu.ac.id; Tel.: +62-61-8201920
† These authors contributed equally to this work.

check for updates

Citation: Hafiz, I.; Illian, D.N.; Meila, O.; Utomo, A.R.H.; Susilowati, A.; Susetya, I.E.; Desrita, D.; Siregar, G.A.; Basyuni, M. Effectiveness and

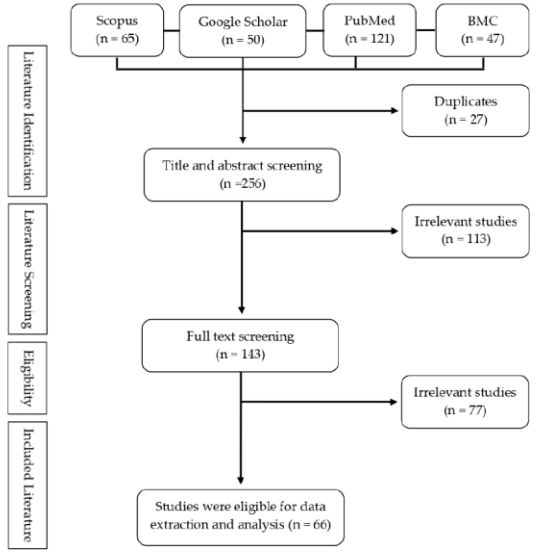


Table 1. List of questions used for studies inclusion and exclusion during combined title and abstract, and full-text screenings.

Screening Stages	Questions	Screening Outcome
Title and abstract screening	• Does the study focus on SARS-CoV-2? • Does the study focus on mutation in the SARS-CoV-2? • Does the study present COVID-19 vaccines?	Studies are included if they satisfy all questions

Table 1. *Cont.*

Screening Stages	Questions	Screening Outcome
Full-text screening	• Do the study present effective or efficacy vaccines? • Does the study contain vaccines containing a percent of efficacy? • Does the study provide the effectiveness of vaccines to reduce infection? • Does the study present the effectiveness of vaccines to reduce severe/death? For included studies, additional following open questions are given to identify general information of the studies: • What is the percent of effectiveness and efficacy of a vaccine? • What is the post-vaccination surveillance strategy? • Publication type (e.g., J = journal article, P = Proceeding Conference, T = thesis, B = Book chapter, R = Report) • What is the type of study? (L: lab measurement, R: review, O: Opinion, or P: preprint)	Studies are included if they satisfy at least two screening questions

Mini Review

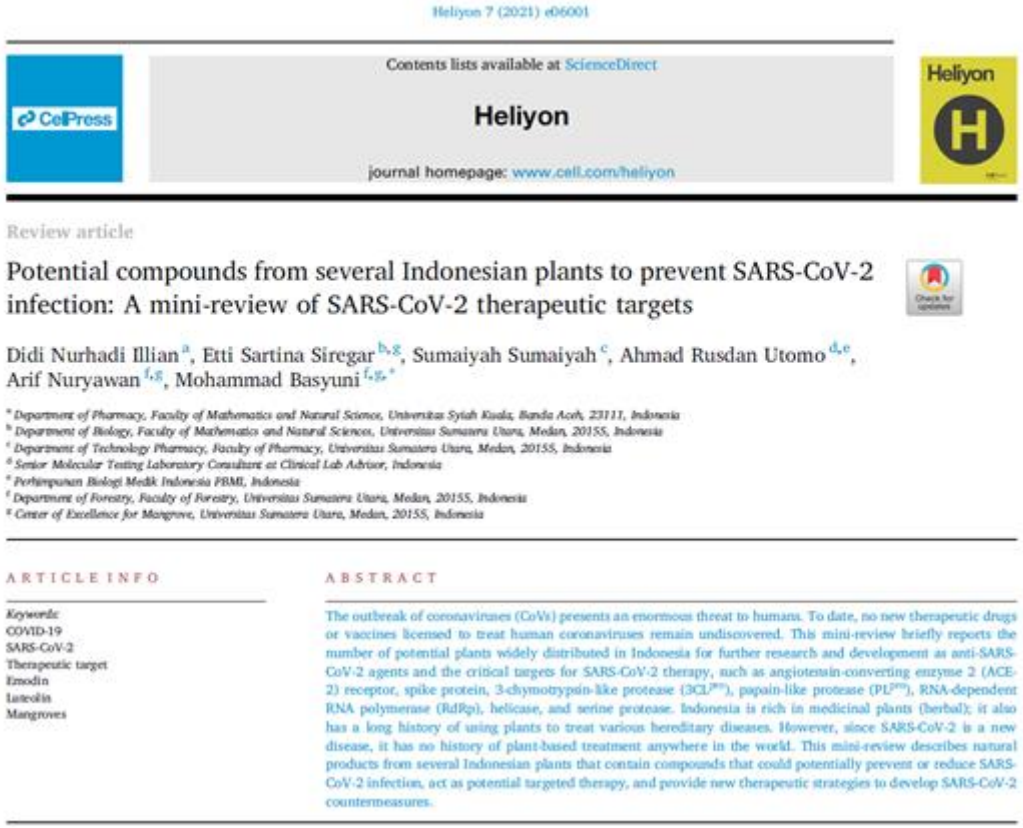
- Mini-reviews are summarized descriptions based on one or more recent findings and significant developments at particular subject area of research considering the Journal's scope. It is usually commissioned to create interest on the work and warrant further commentaries on the published articles.
- Mini-reviews should be balanced and an excessive focus on the authors' own work should be avoided. Mini-reviews should be no longer than 3,000 words, contain no more than two figures or tables, and contain about 60 references. The mini-review abstract should not exceed 200 words.

Universitas Sumatera Utara

Transformation Towards the Ultimate

Kampus Merdeka INDONESIA JAYA

Contoh Mini Review



Heliyon 7 (2021) e06001

Contents lists available at ScienceDirect

Heliyon

journal homepage: www.cell.com/heliyon

Review article

Potential compounds from several Indonesian plants to prevent SARS-CoV-2 infection: A mini-review of SARS-CoV-2 therapeutic targets

Didi Nurhadi Illian [a], Etti Sartina Siregar [b,g], Sumaiyah Sumaiyah [c], Ahmad Rusdan Utomo [d,e], Arif Nuryawan [f,g], Mohammad Basyuni [f,g,*]

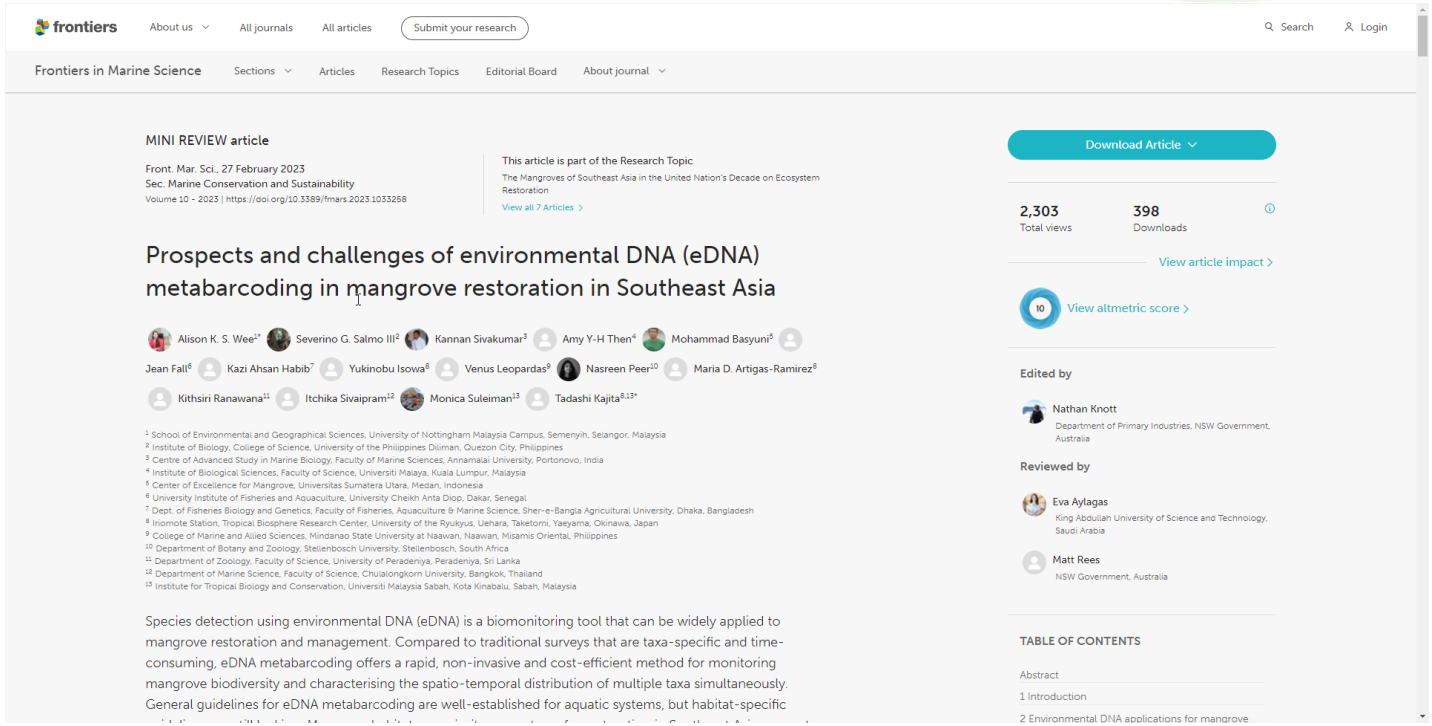
[a] Department of Pharmacy, Faculty of Mathematics and Natural Science, Universitas Syiah Kuala, Banda Aceh, 23111, Indonesia
[b] Department of Biology, Faculty of Mathematics and Natural Sciences, Universitas Sumatera Utara, Medan, 20155, Indonesia
[c] Department of Technology Pharmacy, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155, Indonesia
[d] Senior Molecular Testing Laboratory Consultant at Clinical Lab Advisor, Indonesia
[e] Perhimpunan Biologi Medik Indonesia PBMI, Indonesia
[f] Department of Forestry, Faculty of Forestry, Universitas Sumatera Utara, Medan, 20155, Indonesia
[g] Center of Excellence for Mangrove, Universitas Sumatera Utara, Medan, 20155, Indonesia

ARTICLE INFO

Keywords:
COVID-19
SARS-CoV-2
Therapeutic target
Emodin
Luteolin
Mangroves

ABSTRACT

The outbreak of coronaviruses (CoVs) presents an enormous threat to humans. To date, no new therapeutic drugs or vaccines licensed to treat human coronaviruses remain undiscovered. This mini-review briefly reports the number of potential plants widely distributed in Indonesia for further research and development as anti-SARS-CoV-2 agents and the critical targets for SARS-CoV-2 therapy, such as angiotensin-converting enzyme 2 (ACE-2) receptor, spike protein, 3-chymotrypsin-like protease ($3CL^{pro}$), papain-like protease (PL^{pro}), RNA-dependent RNA polymerase (RdRp), helicase, and serine protease. Indonesia is rich in medicinal plants (herbal); it also has a long history of using plants to treat various hereditary diseases. However, since SARS-CoV-2 is a new disease, it has no history of plant-based treatment anywhere in the world. This mini-review describes natural products from several Indonesian plants that contain compounds that could potentially prevent or reduce SARS-CoV-2 infection, act as potential targeted therapy, and provide new therapeutic strategies to develop SARS-CoV-2 countermeasures.



frontiers About us All journals All articles Submit your research Search Login

Frontiers in Marine Science Sections Articles Research Topics Editorial Board About journal

MINI REVIEW article

Front. Mar. Sci., 27 February 2023
Sec. Marine Conservation and Sustainability
Volume 10 - 2023 | https://doi.org/10.3389/fmars.2023.1033258

This article is part of the Research Topic
The Mangroves of Southeast Asia in the United Nation's Decade on Ecosystem Restoration
View all 7 Articles

Prospects and challenges of environmental DNA (eDNA) metabarcoding in mangrove restoration in Southeast Asia

Alison K. S. Wee[1*] Severino G. Salmo III[2] Kannan Sivakumar[3] Amy Y-H Then[4] Mohammad Basyuni[5] Jean Fall[6] Kazi Ahsan Habib[7] Yukinobu Isowa[8] Venus Leopardas[9] Nasreen Peer[10] Maria D. Artigas-Ramirez[8] Kithsiri Ranawana[11] Itchika Sivaipram[12] Monica Suleiman[13] Tadashi Kajita[8,13*]

[1] School of Environmental and Geographical Sciences, University of Nottingham Malaysia Campus, Semenyih, Selangor, Malaysia
[2] Institute of Biology, College of Science, University of the Philippines Diliman, Quezon City, Philippines
[3] Centre of Advanced Study in Marine Biology, Faculty of Marine Sciences, Annamalai University, Portonovo, India
[4] Institute of Biological Sciences, Faculty of Science, Universiti Malaya, Kuala Lumpur, Malaysia
[5] Center of Excellence for Mangrove, Universitas Sumatera Utara, Medan, Indonesia
[6] University Institute of Fisheries and Aquaculture, University Cheikh Anta Diop, Dakar, Senegal
[7] Dept. of Fisheries Biology and Genetics, Faculty of Fisheries, Aquaculture & Marine Science, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh
[8] Iriomote Station, Tropical Biosphere Research Center, University of the Ryukyus, Uehara, Taketomi, Yaeyama, Okinawa, Japan
[9] College of Marine and Allied Sciences, Mindanao State University at Naawan, Naawan, Misamis Oriental, Philippines
[10] Department of Botany and Zoology, Stellenbosch University, Stellenbosch, South Africa
[11] Department of Zoology, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka
[12] Department of Marine Science, Faculty of Science, Chulalongkorn University, Bangkok, Thailand
[13] Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia

Species detection using environmental DNA (eDNA) is a biomonitoring tool that can be widely applied to mangrove restoration and management. Compared to traditional surveys that are taxa-specific and time-consuming, eDNA metabarcoding offers a rapid, non-invasive and cost-efficient method for monitoring mangrove biodiversity and characterising the spatio-temporal distribution of multiple taxa simultaneously. General guidelines for eDNA metabarcoding are well-established for aquatic systems, but habitat-specific

Download Article

2,303 Total views 398 Downloads

View article impact

View altmetric score

Edited by

Nathan Knott
Department of Primary Industries, NSW Government, Australia

Reviewed by

Eva Aylagas
King Abdullah University of Science and Technology, Saudi Arabia

Matt Rees
NSW Government, Australia

TABLE OF CONTENTS

Abstract
1 Introduction
2 Environmental DNA applications for mangrove

Deadline: 8th July 2022
https://www.frontiersin.org/research-topics/32830/the-mangroves-of-southeast-asia-in-the-united-nations-decade-on-ecosystem-restoration

Mini Review: Prospects and challenges of environmental DNA (eDNA) in mangrove restoration (conservation?)

Alison K.S. Wee, Mohammad Basyuni, Itchika Sivaipram, Venus Leopardas, Severino Salmo III, Tadashi Kajita

(Nasreen Peer (South Africa), Kannan Sivakumar (India), Kazi Ahsan Habib (Bangladesh) Juan Nunez-Farfan (Mexico), Gustavo Mori (Brazil), Norman Duke (Australia), Jean Fall (Senegal)?)

Introduction

Mangrove restoration and challenges

Application of eDNA in ecosystem restoration

3. Build on foundational studies - basic data on both native intact forest vs disturbed forest
    a. Determine the ideal sampling design and work load
    b. Limitations of using eDNA in species-rich environments
    c. Spatio-temporal difficulties

==========

Some emerging questions:

1. Variables in evaluating species diversity in mangrove ecosystems using eDNA
    - Species richness?
    - Abundance?
    - Species distribution?
    - Ecosystem functions based on species listed from the eDNA….
2. eDNA to supplement forest structure
3. Only presence data (not presence-absence data)
    a. But still useful if very little info about species diversity
4. What about unidentified OTUs? Still valuable?
5. Value to the community? Science communication?
    a. Species list is an evidence of natural resources
    b. Species list linked to conservation status

Action points:

- Coauthors to add papers into the framework until 12th June
- Alison to email potential contributors
- Alison to complete first draft by 24th June
- Sev, Basyuni, Kajita sensei, Itchika will discuss in person in June

eDNA metabarcoding in mangrove restoration

Prospects

1. To track functional recovery in ecological restoration
    a. https://onlinelibrary.wiley.com/doi/full/10.1002/edn3.200
    b. Help ID cryptic species or larvae and juvenile that hard to ID by morphology https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0163596 , https://link.springer.com/article/10.1007/s10592-018-1063-x
    c.
    d.
2. To prioritize conservation area
   Environmental DNA – An emerging tool in conservation for monitoring past and present biodiversity - ScienceDirect
   Applications of environmental DNA (eDNA) in ecology and conservation: opportunities, challenges and prospects | SpringerLink

3. To monitor threats (invasive or indicator species) - early alert
   https://onlinelibrary.wiley.com/doi/full/10.1111/rec.13614
   https://link.springer.com/article/10.1007/s10531-016-1276-6
   A rapid environmental DNA method for detecting white sharks in the open ocean - Truelove - 2019 - Methods in Ecology and Evolution - Wiley Online Library
   REVIEW: The detection of aquatic animal species using environmental DNA – a review of eDNA as a survey tool in ecology - Rees - 2014 - Journal of Applied Ecology - Wiley Online Library
4. To Long-term monitoring
   https://www.publish.csiro.au/MF/pdf/MF19175

5. Past, present, and future perspectives of environmental DNA (eDNA) metabarcoding: A systematic review in methods, monitoring, and applications of global eDNA - ScienceDirect
6.

Challenges

1. Technical challenge
    a. Lack of comprehensive reference database
    b. eDNA capture - ***turbid water***
    c. PCR inhibitors
2. Limitations of using eDNA in species-rich environments
    a. https://onlinelibrary.wiley.com/doi/full/10.1111/1755-0998.12929
    b. Solutions: rarefaction curve
3. Spatio-temporal difficulties in defining community
4. Capacity building

Future perspectives

1. International collaboration
    a. Establish comprehensive reference database
    b.
2. Develop mangrove-specific methodology
    a. eDNA capture

Guidelines: Article type

Mini Review

Mini Review articles cover focused aspects of a current area of investigation and its recent developments. They offer a succinct and clear summary of the topic, allowing readers to get up-to-date on new developments and/or emerging concepts, as well as discuss the following: 1) Different schools of thought or controversies, 2) Current research gaps, 3) Potential future developments in the field. Mini Reviews articles are peer-reviewed, have a maximum word count of 3,000 and may contain no more than 2 Figures/Tables. Authors are required to pay a fee (B-type article) to publish a Mini Review article. Mini Review articles should have the following format: 1) Abstract, 2) Introduction, 3) Subsections relevant for the subject, 4) Discussion. Mini Review articles must not include unpublished material (unpublished/original data, submitted manuscripts, or personal communications) and may be rejected or reclassified, at a significant delay, if found to include such content.

Universitas Sumatera Utara

Transformation Towards the Ultimate

Kampus Merdeka INDONESIA JAYA

THANK YOU





