

REVIEWER'S REPORT

Manuscript No.: IJAR-59480

Title: Polyherbal Approaches in the Management of Hypertension: A Review on Synergistic Effects of Medicinal Plants,

Recommendation:

Accept as it is

Accept after minor revision.....

Accept after major revision ...YES.....

Do not accept (*Reasons below*)

Rating

Originality

Techn. Quality

Clarity

Significance

Excel.	Good	Fair	Poor
		☐	
			☐
		☐	
	☐		

Reviewer's ID: JPR-094

Detailed Reviewer's Report

Reviewer's Report

Title: Polyherbal Approaches in the Management of Hypertension: A Review on Synergistic Effects of Medicinal Plants

Assessment based on the submitted manuscript.

1. Strengths of the manuscript

The manuscript addresses an important public health problem, hypertension, and explores medicinal plants as potential complementary therapeutic approaches.

It discusses four medicinal plants: Terminalia arjuna, Tribulus terrestris, Allium sativum, and Moringa oleifera.

REVIEWER'S REPORT

The review covers relevant phytochemicals, pharmacological activities, and proposed mechanisms of action.

The inclusion of tables summarizing phytochemical constituents and their potential antihypertensive effects improves readability.

The manuscript acknowledges important limitations, including lack of standardization, herb–drug interactions, and insufficient clinical evidence.

The topic has potential relevance to pharmacognosy, phytochemistry, and pharmaceutical formulation research.

2. Weaknesses of the manuscript

- The review methodology is not described. Databases searched, search terms, inclusion and exclusion criteria, and the period covered by the literature are not provided.
- The central claim of synergistic activity is not adequately demonstrated. Evidence concerning individual plants is presented, but direct evidence for the combined four-plant formulation is lacking.
- Several therapeutic claims, including reduced toxicity, improved patient compliance, and safety during long-term use, are stated too strongly without sufficient supporting evidence.

REVIEWER'S REPORT

- The "Few Research Works" section contains incomplete bibliographic information, making it difficult to identify and verify the cited studies.
- Several references appear repetitive, and the accuracy and relevance of some citations require verification.
- The manuscript contains grammatical errors, inconsistent spacing, formatting issues, and errors in table captions and scientific nomenclature.
- The discussion is predominantly descriptive and requires stronger critical comparison of existing studies, their limitations, and conflicting findings.

3. Key points requiring major revision

1. Review methodology: Add a transparent literature-search strategy, including databases, keywords, search period, and selection criteria.
2. Evidence for synergism: Provide direct experimental or clinical evidence for combinations of the selected plants. Clearly distinguish demonstrated synergy from a theoretical possibility.
3. Reference verification: Check every reference for author names, article title, journal, year, volume, pages, and DOI wherever available. Complete the citations for the studies published in 2022–2025.
4. Critical evaluation: Compare study designs, doses, extracts, outcomes, sample sizes, and limitations rather than merely listing reported activities.

REVIEWER'S REPORT

5. Safety assessment: Discuss potential interactions with conventional antihypertensive drugs and the need for clinical safety validation.
6. Scientific accuracy: Recheck phytochemical classifications, proposed mechanisms, and claims of clinical efficacy against the original sources.
7. Presentation: Correct grammar, scientific names, table numbering, figure captions, citation style, and overall manuscript formatting.

4. Significance of the study

The manuscript addresses a relevant area of natural-product research by bringing together information on four medicinal plants associated with cardiovascular and blood-pressure-related effects. Its potential contribution lies in organizing information about their phytochemicals and proposed complementary mechanisms.

However, the novelty and scientific contribution are currently limited because the manuscript does not establish a new formulation, demonstrate a synergistic interaction experimentally, or present a systematic and reproducible synthesis of the available evidence. Its significance would improve substantially through a critical evidence-based review and a clearer explanation of what this article adds beyond previous reviews.

5. Recommendation to the editor***Recommendation: Major Revision***

The manuscript addresses a relevant topic and may become suitable for publication after substantial revision. The authors should strengthen the review methodology, verify the references, critically assess the available evidence, and avoid unsupported claims concerning synergistic efficacy and safety. The manuscript should be reconsidered after these issues have been addressed.

REVIEWER'S REPORT

Confidential note to the editor: The manuscript is primarily descriptive and does not currently provide sufficient evidence to substantiate its central emphasis on synergistic effects. The references should be independently verified, and originality should be assessed using an appropriate similarity-checking service. The present assessment does not establish whether the manuscript has been published previously or contains plagiarism.

Justification for Major Revision

Manuscript title: Polyherbal Approaches in the Management of Hypertension: A Review on Synergistic Effects of Medicinal Plants

Recommendation: Major Revision

The recommendation for Major Revision is justified because the manuscript addresses a relevant topic, but its central claim—that combining *Terminalia arjuna*, *Tribulus terrestris*, *Allium sativum* and *Moringa oleifera* produces synergistic antihypertensive effects—is not adequately established by the evidence presented. The paper also contains unsupported safety and efficacy claims, incomplete descriptions of the literature reviewed, questionable or insufficiently documented references, and substantial scientific and editorial issues.

Why not accept as it stands? The main problems affect the scientific validity and reliability of the conclusions, not merely grammar or formatting.

Why not reject outright? The subject has potential value as a review article, and the weaknesses may be addressable through substantial evidence-based revision, provided the cited literature can be verified and supports the revised conclusions.

The following is a reviewer-style, line-by-line justification based on the manuscript's numbered lines. The line numbers refer to the supplied manuscript text.

1. Abstract and introduction

Manuscript line(s)	Issue identified	Reason for the issue	Required revision
6–10	Conventional antihypertensive drugs	This gives a one-sided comparison and may imply	Present a balanced comparison, acknowledging

REVIEWER'S REPORT

	are presented mainly in terms of adverse effects and poor compliance.	that herbal therapies are inherently preferable.	the established effectiveness of standard antihypertensive treatment and the limitations of available herbal evidence.
9–10	Herbal therapies are described as “safer and more effective alternatives.”	The manuscript does not present comparative clinical evidence establishing that the proposed herbal approaches are safer or more effective than standard therapy.	Remove or qualify the claim and support any comparative statement with appropriate clinical evidence.
10–17	Synergistic effects and reduced toxicity are presented as benefits of polyherbal formulations.	A theoretical rationale for combining plants does not demonstrate that a specific combination produces synergy or lower toxicity.	Distinguish theoretical mechanisms from experimentally or clinically demonstrated effects.
11–20	The abstract does not clearly identify the type of review or how literature was selected.	Readers cannot determine whether the article is a narrative review, a structured review or a systematic review, or how the evidence was chosen.	State the review type and briefly describe the literature-search approach, where applicable.
11–16	The four selected plants are discussed collectively under the concept of synergism.	Evidence that individual plants have biological activity does not prove that the four plants were tested together or act synergistically.	Clearly state whether direct studies of this exact combination exist. If none are identified, present the combination as a hypothesis for future research.
21–23	Keywords are presented under a separate “Keywords” heading with	This is a presentation issue rather than a scientific defect, but it reduces	Format the keywords according to the target journal's instructions.

International Journal of Advanced Research

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REVIEWER'S REPORT

	inconsistent formatting.	editorial consistency.	
		Some claims are broad and	
26–48	The introduction contains broad background claims about hypertension and herbal treatments.	need precise, relevant supporting citations; the balance between conventional treatment and herbal research is inadequate.	Update the background and ensure that each important factual or comparative claim is supported by an appropriate reference.
39–42	Conventional therapy is linked to adverse effects and limitations, with monotherapy discussed broadly.	The wording risks oversimplifying clinical hypertension management and does not distinguish treatment classes, individual adverse effects or combination therapy.	Use precise language and avoid implying that conventional treatment is generally inadequate.
43–48	Herbal medicine is introduced as an alternative or complementary method without adequately distinguishing the two.	Replacing prescribed treatment and using a product as an adjunct are clinically different propositions.	Specify whether the review concerns complementary use, potential drug development or replacement therapy; do not recommend replacement without strong evidence.
49–57	The review objective is stated, but the selection and evaluation of evidence are not explained.	The objective alone does not show how relevant studies were identified, compared or assessed for quality.	Add a review-methods section describing databases, search terms, date limits, eligibility criteria and evidence-assessment methods appropriate to the review type.

2. Pathophysiology and individual medicinal plants

Manuscript	Issue identified	Reason for the issue	Required revision
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International Journal of Advanced Research

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REVIEWER'S REPORT

line(s)			
59–90	The pathophysiology section gives a general overview of hypertension.	The information is largely background material and is not consistently connected to evidence for the four selected plants.	Shorten repetitive background and explain how each proposed plant mechanism relates to evidence from relevant studies.
92–98	Medicinal plants are described as safer, cost-effective and suitable for prolonged treatment.	Safety, affordability and suitability for long-term use depend on the product, dose, patient population, interactions and quality control.	Remove blanket assurances and discuss these as questions requiring product-specific evidence.
102–113	The description of Terminalia arjuna lists phytochemicals and therapeutic properties.	The text does not consistently distinguish constituents identified in the plant from constituents shown to produce an antihypertensive effect in humans.	Provide citations for individual constituents and link each pharmacological claim to the relevant experimental or clinical evidence.
108–110	Taxonomic and phytochemical tables contain questionable or unclear entries.	For example, ellagic acid and gallic acid are listed under glycosides and saponins in the T. arjuna table without adequate explanation.	Verify each constituent's chemical classification against reliable sources and correct misclassified or duplicated entries.
116–151	Several therapeutic effects and mechanisms are stated confidently for T. arjuna.	Claims concerning blood-pressure reduction, calcium-channel blocking, cardiac function and clinical benefit need evidence specific to the claim.	Cite the original studies and identify whether findings are from in-vitro, animal or human research. Avoid generalising beyond the study design.

International Journal of Advanced Research

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REVIEWER'S REPORT

152–166	The description of Tribulus terrestris presents diuretic and antihypertensive properties as established.	Traditional use and preclinical findings do not, on their own, establish clinical efficacy for hypertension.	Separate traditional use, experimental evidence and clinical evidence, with supporting citations.
168–201	The section attributes vasodilation, nitric-oxide effects, lipid changes and blood-pressure reductions to T. terrestris.	The strength and relevance of evidence for each mechanism and clinical outcome are not demonstrated in the text.	Report study design, population or experimental model, dose, duration and actual results where the cited studies provide them.
202–215	The garlic section contains a phytochemical table and describes allicin as the most active compound responsible for antihypertensive effects.	Garlic preparations vary, and the activity of a constituent cannot automatically be generalised to every garlic product. The table also needs chemical and formatting verification.	Verify the constituent classifications and clarify differences among fresh garlic, extracts and standardised supplements. Support the allicin claim with appropriate evidence.
217–251	Garlic's blood-pressure and cardiovascular effects are described broadly, including a comparison with standard antihypertensive medications.	The comparison at lines 250–251 is particularly strong and requires evidence that directly supports the stated degree of similarity.	Cite the relevant clinical trials or systematic reviews, report the context of the findings and avoid implying equivalence unless established by appropriate comparative evidence.
252–266	The Moringa oleifera description includes broad therapeutic claims and a phytochemical table.	Some entries and classifications need source-level verification, and the text does not consistently identify the evidence behind the claims.	Verify the taxonomy, phytochemical entries and supporting references; identify the plant part and preparation studied.
268–301	Antihypertensive and	The manuscript does not	Identify the study type and

REVIEWER'S REPORT

other pharmacological effects of Moringa are presented in general terms.

adequately distinguish preliminary findings from established clinical effects.

evidence strength for each key claim. Avoid presenting preliminary or animal results as confirmed human benefit.

3. Central scientific problem: the claim of synergism

This is the most important reason for Major Revision.

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303–312	Synergism is defined as enhanced efficacy and reduced toxicity.	This describes a possible outcome, not a demonstrated result for the four plants under review.	Explain that synergy must be established by comparative evidence rather than inferred from the presence of multiple mechanisms.
314–320	Multi-target activity is presented as evidence supporting synergistic action.	Acting on different pathways may be complementary or additive; it does not necessarily mean the combined effect exceeds the expected effect of the individual components.	Distinguish multi-target activity, additive effects and true pharmacological synergy.
321–325	Garlic and Moringa are used to illustrate pharmacodynamic synergism.	The text describes potentially complementary mechanisms but does not present a direct combination study demonstrating enhanced effects.	Provide direct evidence of the combination's effect, or explicitly label this example as a proposed mechanism rather than a proven interaction.

REVIEWER'S REPORT

326–328	Pharmacokinetic synergism is introduced.	No specific evidence is presented in this passage showing that one of the selected plants increases the absorption or bioavailability of another.	Provide direct pharmacokinetic evidence for the relevant combination or remove the unsupported example.
329–331	The text states that some herbs reduce the side effects of others.	This is a safety claim that requires direct evidence; combining plants can also introduce interactions or additional risks.	Support the claim with suitable safety studies or replace it with a balanced discussion of possible benefits and risks.
333–341	The four plants are said to provide a comprehensive antihypertensive effect and potentially better outcomes than a single treatment.	The table lists individual actions but does not establish that the exact four-plant combination has been tested or is superior to its components.	Identify direct studies of this combination. If evidence is unavailable, revise the wording to indicate a research hypothesis, not a demonstrated therapeutic advantage.
343–348	Enhanced effectiveness, reduced doses, fewer adverse effects and improved adherence are listed as advantages.	These outcomes are not guaranteed by combining herbs and are not demonstrated by the table or preceding discussion.	Remove unsupported advantages or cite specific evidence that measures each outcome.
349–354	Standardisation and limited clinical validation are acknowledged as challenges.	This is a useful limitation, but the discussion does not adequately apply these concerns to the manuscript's own central claims.	Explain how the lack of standardisation and clinical evidence limits the conclusions about this particular combination.

REVIEWER'S REPORT

Why this is a major scientific issue: The manuscript's title and objective emphasise synergistic effects. If the paper only establishes that individual plants may have different biological activities, it has not yet demonstrated that their combination is synergistic. This gap affects the central premise of the article, so it cannot be corrected by language editing alone.

4. Phytochemical evidence, advantages and limitations

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356–360	The phytochemical table links chemical classes to mechanisms and antihypertensive effects.	The table may imply that the listed compounds have established effects in humans when evidence may be mechanistic or preclinical.	Add references supporting each row and distinguish experimental mechanisms from clinical outcomes.
360, Table 10	Reserpine is included as an example of an alkaloid.	Its pharmacological effects should not be generalised to the selected plants or used as evidence that their alkaloids have the same action.	Explain why the example is relevant or replace it with a constituent directly relevant to the plants under review.
360, Table 10	Cardiac glycosides are linked with improved myocardial contractility and heart function.	This is not, by itself, evidence of an antihypertensive benefit; some cardiac glycosides have important toxicity risks.	Clarify the relevance of this entry and avoid implying that cardiac glycosides are generally beneficial for hypertension.
363–378	The advantages section repeats claims of synergy, reduced dosage, fewer adverse effects and safety for long-term use.	Several claims go beyond the evidence presented, and the section partly duplicates the preceding discussion.	Condense the section and retain only evidence-supported advantages, with appropriate qualifications.
380–390	The limitations section identifies standardisation,	These are important limitations, but they conflict	Reconcile the claims throughout the

REVIEWER'S REPORT

interactions and insufficient clinical evidence.	with earlier confident claims of manuscript and give safety, efficacy and long-term greater prominence to suitability unless the the limitations when distinction is explained. interpreting the evidence.
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5. "Few Research Works" section

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392–402	The literature-review section begins with a summary attributed to Chowdhury S et al. (2025).	The supplied text does not provide the full bibliographic details needed to identify and verify the publication.	Provide the complete reference, including title, journal, volume, pages and DOI or a stable identifier where available.
404–412	Komal C et al. (2025) is described as reporting a polyherbal tablet's physicochemical properties and synergistic effects.	The reader cannot verify the study or determine whether the formulation was tested in laboratory models, animals or humans.	Supply the complete reference and report the actual methods and results; do not equate acceptable tablet properties with proven antihypertensive efficacy.
414–421	Umarkar et al. (2025) is cited for a multi-plant formulation and reduced side effects.	The supplied summary does not establish the study's design, sample, outcomes or evidence for reduced side effects.	Verify the publication and report the evidence directly. Remove claims that cannot be confirmed.
423–431	Kunal S et al. (2024) is summarised as supporting the inclusion of T. arjuna in a formulated tablet.	The summary does not clearly establish whether the cited work evaluated a complete formulation, individual plant activity or only background	Give the complete reference and accurately distinguish the study's actual findings from the authors' interpretation.

REVIEWER'S REPORT

		pharmacology.	
433–439	Ashraf R et al. (2022) is cited for garlic's hypocholesterolemic effects in patients with essential hypertension.	Lipid changes are not equivalent to blood-pressure reduction and cannot independently substantiate the manuscript's central claim.	Explain the relevance of the study and avoid using lipid outcomes as direct evidence of antihypertensive efficacy.
441–448	Murthy AR et al. (2000) is summarised as a clinical study of Gokshura in approximately 75 patients.	The full citation, study design, comparison groups, outcome data and safety-assessment details are not provided in the narrative.	Verify the source and report the actual results, study limitations and safety observations. Do not describe a medicine as safe solely because no major adverse effects were reported in one study.
394–448	Research summaries are presented as separate narrative paragraphs without a consistent critical appraisal.	Readers cannot readily compare the quality, methods, outcomes and limitations of the studies.	Replace or supplement these summaries with a structured evidence table covering author/year, study design, plant or formulation, dose, population/model, outcomes, principal findings and limitations.

Important reviewer distinction: Incomplete reference details do not automatically mean a publication is fabricated. They mean that the cited studies cannot be reliably verified from the information supplied. Each reference must be checked against the original publication before the reviewer concludes that it is invalid.

6. Future perspectives and conclusion

Manuscript	Issue identified	Reason for the issue	Required revision
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International Journal of Advanced Research

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line(s)			
450–457	The future-perspectives section discusses standardisation, clinical trials and delivery systems.	The proposals are relevant but general and not sufficiently linked to the specific gaps identified in this review.	Specify the research needed for the four-plant combination, including product standardisation, dose selection, interaction testing, safety evaluation and appropriately designed clinical studies.
459–464	The conclusion again contrasts conventional therapy with herbal approaches.	Repeating the potential limitations of conventional drugs without balanced context may exaggerate the comparative case for herbal formulations.	Use neutral wording and acknowledge that the manuscript has not established superiority over standard treatment.
465–473	The conclusion suggests that synergism may reduce dosage and adverse effects and improve adherence.	These outcomes have not been established by the evidence presented in the manuscript.	Recast them as possibilities requiring testing, or remove them if the literature does not support them.
474–479	The conclusion acknowledges insufficient clinical evidence but still anticipates a valuable therapeutic role.	The final conclusion should be proportionate to the quality and quantity of evidence reviewed.	State clearly that clinical use of the proposed combination requires further validation and that the present review does not establish its safety, efficacy or synergy.

7. References and editorial quality

Manuscript line(s)	Issue identified	Reason for the issue	Required revision
483–545	Several references appear more than once,	Duplicated references can inflate the appearance of	Deduplicate the reference list and ensure every in-text

International Journal of Advanced Research

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REVIEWER'S REPORT

	including references associated with Dwivedi, Ekor, Fahey, Choudhary, difficult. Williamson and other authors.	the evidence base and make citation tracking difficult.	citation points to the correct, unique entry.
484–545	Some entries have incomplete or potentially inconsistent bibliographic details.	A reviewer cannot confirm that a reference supports the associated claim without reliable publication information.	Verify each reference against the original article or an authoritative bibliographic record, including title, author list, journal, year, volume, pages and DOI where available.
394–448 and 483–545	Recent studies summarised in the “Few Research Works” section are not clearly traceable to the supplied reference list.	Readers need to be able to locate the primary studies used to support important claims.	Ensure all studies discussed in the text appear in the reference list and that all listed references are cited appropriately.
Throughout	Spacing, punctuation, terminology and table formatting are inconsistent.	Examples include missing spaces around scientific names and punctuation, inconsistent table labels, and the use of “Tablet 5” where a table heading is intended.	Perform a complete language and formatting revision after the scientific content is corrected.
Throughout	Mechanistic statements and clinical conclusions are sometimes written with similar levels of certainty.	This obscures the distinction between biological plausibility, preclinical findings and demonstrated clinical benefit.	Use appropriately qualified language and clearly label the evidence level for each important claim.

REVIEWER'S REPORT

8. Significance of the major issues

Not all the problems carry equal weight. The following are the main reasons the manuscript requires substantial revision.

1. Central claim not demonstrated

The proposed synergy of the four selected plants is inferred from individual mechanisms rather than established through direct combination evidence. This affects the manuscript's main scientific premise.

2. Evidence base is not sufficiently transparent

The literature-selection approach is not described, and several research summaries lack full identifying details or critical appraisal.

3. Safety and efficacy claims are too strong

Reduced toxicity, long-term safety, lower dosage requirements and equivalence to conventional medication are not adequately established in the supplied manuscript.

4. References and phytochemical details require verification

Incomplete citations, repeated entries and questionable table classifications undermine the reliability and reproducibility of the review.

9. Final reviewer recommendation

Recommendation: Major Revision

Justification: The manuscript addresses a relevant topic in herbal pharmacology and hypertension management. However, substantial scientific and methodological concerns prevent acceptance in its current form. The most significant issue is that the proposed synergistic antihypertensive effects of *Terminalia arjuna*, *Tribulus terrestris*, *Allium sativum* and *Moringa oleifera* are not adequately established by direct evidence presented in the manuscript. The discussion largely extrapolates from the reported activities of individual plants to the expected benefits of their combination.

International Journal of Advanced Research

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REVIEWER'S REPORT

Furthermore, the review lacks a sufficiently transparent description of its literature-selection approach; several claims regarding safety, reduced toxicity, dosage reduction and comparative efficacy are stronger than the evidence presented; the phytochemical tables require verification; and some research summaries and references lack adequate bibliographic detail or critical appraisal. The conclusion should be revised to reflect the actual strength and limitations of the available evidence.

The authors should undertake a substantial revision, including verification of all references, correction of scientific classifications, critical evaluation of the available experimental and clinical evidence, clear differentiation between proposed mechanisms and demonstrated outcomes, and removal or qualification of unsupported claims. The revised manuscript should also explain explicitly whether direct evidence exists for the exact four-plant combination.