

Systematic Review of Anti-Inflammatory Properties of Phyllanthus Niruri

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Abstract:-

➤ Aim and Objective

The study aims to assess the anti-inflammatory properties of Phyllanthus niruri.

➤ Materials and Method

A systematic review was performed using PubMed, scholar, Wiley, Cochrane, Scopus and science direct. Of 213 articles from various sources, 180 were screened, and five were related to the research topic. The review was reported according to the systematic review guidelines.

➤ Result

Five articles were included, and they were all compared to find the anti-inflammatory properties of Phyllanthus niruri. No meta-analysis was performed during the clinical heterogeneity.

➤ Conclusion

With a comparative analysis of the existing related articles about the anti-inflammatory properties, a final answer about the capacity of anti-inflammatory properties of Phyllanthus niruri have to be given.

Keywords:- Phyllanthus niruri, herbal, anti-inflammatory, ayurveda.

I. INTRODUCTION

Phyllanthus has been widely used as a traditional medicine in India.

Because of its wide range of pharmacological activities like anti-microbial, antioxidant, anti-cancerous, anti-inflammatory, antiplasmodial, anti-viral and hepatoprotective. It originated in India and is commonly known as Gale of the wind, Stone breaker.

It is a small herb used to treat jaundice, dysentery, ulcers, chest pain, diabetes, skin diseases and urinary complications. It acts as an astringent and also has a laxative effect.

It has been used in ayurvedic medicine for over 2000 years and has many traditional uses, which are both internally taken and topical applications in nature. It is possibly effective for kidney stones, jaundice, gonorrhoea, diabetes, skin ulcers, swelling and itchiness.

Phyllanthus niruri interacts with several drug combinations. This research is done to give a detailed systematic review of the anti-inflammatory properties of Phyllanthus niruri.

➤ Objective

To evaluate the anti-inflammatory properties of Phyllanthus niruri.

II. MATERIALS AND METHOD

A. Inclusion Criteria

- Original articles Randomized control trials
- Articles on the anti-inflammatory properties of Phyllanthus niruri

B. Exclusion Criteria

- Review articles
- Articles without open access
- Studies discussed other Phyllanthus spp
- Studies were done in a combination of Phyllanthus niruri with other herbal plants

C. Search Engine

- Google Scholar Pub Med Wiley Cochrane Scopus

D. Search Strategy:

- The search yielded 180 records, and ten full-text articles were independently taken for the research.
- Fig 1 shows the flowchart diagram of the reports that were identified, duplicates removed, screened, excluded, accessed for eligibility and included in the review.

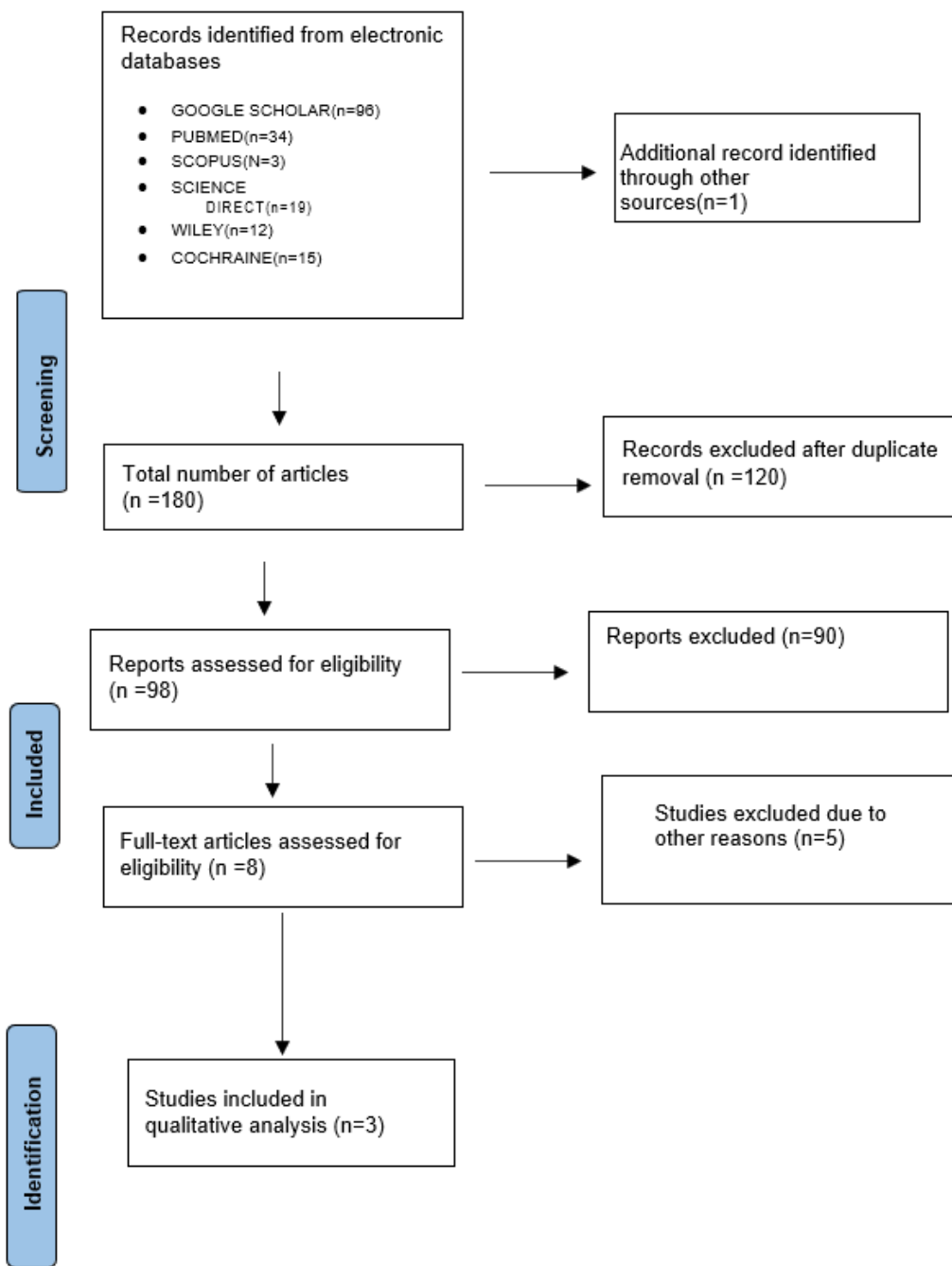


Fig 1:- Flowchart

III. RESULT

- Table 1 shows the characteristics of the intervention in the included studies. In table 1, the effectiveness of the Phyllanthus niruri has been reviewed.
- Table 2 shows an outcome and result of the effectiveness of the anti-inflammatory properties of Phyllanthus niruri against infections.
- Table 3 shows the bias analysis of all the included studies based on PRISMA guidelines is categorized as follows,
 - + low risk of bias
 - High risk of bias
 - ? unclear risk of bias

IV. DISCUSSION

Recently, Phyllanthus niruri has been used in a vast amount as a medicine because of its good anti-inflammatory and microbial properties. In this research, we have discussed the effect of the anti-inflammatory properties of Phyllanthus niruri by comparing other articles that have already discussed the properties. Our search yielded three studies favouring the effectiveness of the anti-inflammatory properties. All the studies related to our research have been done based on randomized control trials.

In the first group of clinical trials, **Heebol S et al.** brought together a group of fifty patients who suffered from varicella zoster viral infection to perform this clinical trial. Out of which thirty are males and twenty are female patients. They have been administered an average dose of 5 mg of spray dried extract of Phyllanthus niruri per day. The route of administration of this spray-dried extract has been oral. This routine has been followed for one week, and the results have been noted. In such conditions, Phyllanthus niruri shows a positive anti-inflammatory response against varicella zoster infection after a week of its intake by the patients.

In the second group of clinical trials, **Murrugaiyyah V and Chan KL** have brought together a group of fifty patients with chronic hepatitis b infection to perform this clinical trial. Out of which twenty-five of them were males, and twenty-five of them were females. They have been administered an average dose of 5 mg of spray dried extract of Phyllanthus niruri 2 times a day. The route of administration of this spray-dried extract has been oral.

This routine has been followed for two weeks. Even under that circumstance, Phyllanthus niruri has not shown any positive anti-inflammatory response against chronic hepatitis b infection. Not even a milder response has been achieved as an effect of intake of spray dried extract of Phyllanthus niruri. Hence, there is a failure to perform a positive reaction with ample anti-inflammatory properties in

Phyllanthus niruri. In opposition to it, the infection shows resistance against the spray dried extract of Phyllanthus niruri.

In the third group of clinical trials, **Campos AH and Schor N** have brought together a group of thirty patients with herpes zoster infection to perform this clinical trial. Of which fifteen of them were males, and fifteen of them were females. Those thirty patients were administered an average dose of 5 mg of spray dried extract Phyllanthus niruri 2 times a day. This routine has been followed for a whole week. Similar to the trial by Heebol, this trial also shows a positive response against herpes zoster infection when given daily for a week.

In all the studies mentioned above, spray dried extract of Phyllanthus niruri has been used against varicella zoster, chronic hepatitis b and herpes zoster because of its highly rich anti-inflammatory properties. Thus by comparing these studies, the anti-inflammatory properties of Phyllanthus niruri have been reviewed.

Of these three clinical trials, two show a positive response by eliciting good anti-inflammatory properties against the particular infections. On the other hand, only one negative reaction has been recorded, which is against chronic hepatitis b infection. In opposition to it, resistance has been developed in the patients against the spray dried extract of Phyllanthus niruri.

S.NO	AUTHOR NAME AND YEAR	STUDY DESIGN	OUTCOME
1	Herbol S et al., 2016	Randomized control trial	A positive response has been noticed against varicella zoster infection.
2	Murugaiyyah V, Chan KL 2009	Randomized control trial	No response has been noticed, and resistance developed in hepatitis b.
3	Campos AH, Schor N 1999	Randomized control trial	A positive response has been noticed against herpes zoster infection.

Table 1:- Characteristics of the interventions of the studies included.

S.NO	AUTHOR	YEAR	NO OF SAMPLES	INTERVENTION	DURATION
1	Heebos S et al	2016	50	5 mg per day for 50 patients have been administered and a positive response is noticed.	7 days
2	Murugaiyyah V , Chan KL	2009	50	5 mg for twice a day have been given and no response have been observed	2 weeks
3	Campos AH , Schor N	1999	30	5 mg twice a day have been given and positive response have been noticed.	7 days

Table 2:- Outcome data as reported in included studies.

S. No	Author Name and Year	Random Sequence Generation	Allocation Concealment	Selective Reporting		Blinding of Outcome Assessment	Blinding Participants and Personals
1	Herbol S et al., 2016	+	+	?	+	?	-
2	Murugaiyyah V, Chan KL 2009	-	+	?	-	+	+
3	Campos AH, Schor N 1999	+	-	?	+	+	+

Table 3:- Bias analysis of included studies.

In a total of 180 related studies about the anti-inflammatory properties of *Phyllanthus niruri*, three have been selected based on randomized control trials with inclusion and exclusion criteria. Those three articles were based on clinical trials. The result from this comparative review shows that *Phyllanthus niruri* has a good amount of anti-inflammatory properties, which is high enough to treat several infections and diseases. Only in some conditions, such as chronic hepatitis b infection, shows resistance.

V. CONCLUSION

Thus there is strong evidence that the anti-inflammatory properties of *Phyllanthus niruri* are quite effective in treating varicella-zoster and herpes zoster infection by showing a positive anti-inflammatory response.

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