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PHYTOCHEMICAL EVALUATION AND ANTIOXIDANT ACTIVITY OF *ERANDAMULA NIRUHA BASTI*

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ABSTRACT

A traditional Ayurvedic formulation, *Erandamula Niruha Basti* (EMNB) is made using a decoction of *Eranda Mula* (Ricinus communis root) and other components, including *Shatapushpa Kalka* (Anethum sowa paste), *Saindhava Lavana* (rock salt), *Murchita Tila Taila* (medicated sesame oil), and honey. The effectiveness of the Niruha Basti (Therapeutic enema) in treating both localized and systemic illnesses is well documented . To determine EMNB's pharmacological potential, this study examines its phytochemical composition and antioxidant activity. **Aims & Objective:** To Evaluate **phytochemicals** and quantification of antioxidant activity of *Erandamula Niruha Basti* **Materials & Methods:** The traditional process explained in Ayurvedic literature was used to prepare EMNB. Key bioactive components were identified using phytochemical screening, and the DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging experiment was used to assess the antioxidant activity. In antioxidant

tests, ascorbic acid was used as the standard. **Results & Discussion:** Proteins, amino acids, flavonoids, alkaloids, tannins, and glycosides (both cardiac and anthraquinone kinds) were detected by phytochemical analysis. Significant antioxidant activity was shown by the DPPH assay, indicating EMNB's potential as a free radical scavenger. **Conclusion:** A formulation of *Erandamula Niruha Basti* is opulent in phytochemicals and shows effective antioxidant qualities. These results are consistent with its therapeutic uses in Panchakarma remedies. Its therapeutic effectiveness in the treatment of disease may be confirmed by more research.

Keywords: Phytochemical, Antioxidant Activity, *Erandamula Niruha Basti,* Ayurveda, Panchakarma Therapy, Basti Chikitsa

INTRODUCTION:

Basti is one of the Panchakarma procedures. *Basti* is of two types, *Niruha Basti* (an amalgam of medicinal components enema) and *Anuvasana Basti* (Medicated Lipid enema). *Basti Karma* is in practice since ancient time in Ayurvedic system of medicine for various diseases of body. It is superior among other Panchakarma treatments and credited as the treatment in itself, which is *Basti (Purnachikitsa)* **[1]**. *Basti Chikitsa* has gained importance because of its intensive results in a short duration of time. It is practiced widely because of its use irrespective of any age of life from young age to old age **[2]**. Several formulations of *Niruha basti* have been mentioned in classics that have broad-spectrum action to treat various conditions **[3]**.

Erandamula Niruhabasti is a one among the *Niruha basti,* which is used to treat *Vata-Kapha* diseases. The *Erandamula* is knwown for its *Vatahara, Shotahara* (anti-inflammatory) and *Anulomana* (mild laxative) qualities. With help of *Erandamula Kashaya*, *Murchita tila taila,* Rock Salt and other herbal ingredients, this composition efficiently detoxifies the body, gets rid of Ama(toxins), and feeds the colon and pelvis.it is useful in the constipation, Sciatica, and Lower back discomfort. It approaches to health and wellness by combining purification and regeneration **[4]**.

Aims and Objectives:

1. To evaluate phytochemicals, present in *Erandamula Niruha Basti*
2. To assess the antioxidant property of *Erandamula Niruha Basti*

MATERIALS AND METHODS:

Materials: All the raw drugs were collected from GMP-certified KLE Ayurveda Pharmacy, Shahpur, Belagavi, and authentication and phytochemical study were carried out in AYUSH, GoI-approved DTL of KLEU's Shri BMK Ayurveda Mahavidyalaya, Belagavi.

Antioxidant activity was carried out in KLE’s Dr Prabhakar Kore Basic Science

Research Laboratory, Nehru Nagar, Belagavi.

Methodology

1. Preparation of *Erandamula Niruha basti*
2. Screening of phytochemicals
3. Assessment of antioxidant activity

1. Preparation of *Niruha Basti*

Table 1: Ingredients of *Erandamula Niruha Basti*

S. No.	Ingredient	Latin/English Name	Classical Ratio	Quantity Prepared
1.	*Saindhava lavana*	Rock salt	1	5gms
2.	*Shatapushpa Kalka*	*Paste of Athenum sowa*	8	40 gms
3.	*Makshika*	Honey	16	80 ml
4.	*Murchita tila taila*	*Sesame oil*	24	120 ml
5.	*Eranda Mula Kwatha*	*Decoction of Ricinus comunis Roots*	32	160 ml

Equipment used: Mortar and pestle, filter**,** **stainless** steel vessel, and **measuring** cylinder.

a. Preparation of *Eranadamula Kashaya* [5]

The decoction of *Erandamula* (Roots of *Ricinus communis)* was prepared by classical method by taking the course powder (60 mesh) of *Ricinus communis* roots and water in the proportion of 1:8, this mixture is boiled and reduced to 1/4th part. The decoction was filtered through double-layered muslin cloth. This decoction was used for preparation of *basti.*

b. Preparation of *Shatapushpa kalka* [6]

The fine powder (80 mesh) of *Shatapushpa* was prepared and then mixed with a sufficient quantity of water to make it into a paste form. This paste was used as *kalka* for the preparation of *basti.*

c. Basti Preparation [7]

Basti was prepared step wise in sequential order of mixing the ingredients.

Step1 - Honey and rock salt are mixed in the beginning and blended well.

Step 2 - M*oorchita tila taila* was added to the above mixture and then meticulously mixed.

Step 3 - *Shatapushpa kalka* was mixed in it. The mixture is then again mixed thoroughly.

Step 4 – Then *Eranda mula kashaya* was added to it and mixed till the homogenous mixture is obtained.

Time taken for preparing whole *EMNB* was 40 min.

2. Analytical & Phytochemical Screening

a. Organoleptic characteristics of EMNB [8]

a. Form, colour, Odor, and touch were analyzed as per SOP

b. Phytochemical Screening: Done by as per SOP **[9]**

c. Evaluation of Anti-oxidant activity of EMNB:

This was carried out by DPPH Radical Scavenging Assay-DPPH (2,2-diphenyl-1-picrylhydrazyl): a stable free radical used to evaluate the antioxidant capacity. Ascorbic Acid was used as a positive control due to its well-known antioxidant properties. In a 96-well microplate, added different concertation's (100, 50, 25, 12.5, 6.25, 3.125 µl/mL) of each sample solution (Ascorbic acid and EMNB) to respective wells. Add 100 µL of DPPH solution to each well containing the sample solutions. It was incubated in the microplate in the dark at room temperature for 30 minutes. Measured the absorbance at 517 nm using a microplate reader. Calculated the percentage of DPPH radical scavenging activity using the formula: Scavenging activity (%) = (A control−A sample/A control) ×100 **[10]**

OBSERVATIONS & RESULTS:

1. **Analytical & Phytochemical Screening:**

a. **Organoleptic characters of EMNB:** EMNB has a brown colour, a liquid consistency, a smooth structure, having a Characteristic smell and it is mentioned in the **Table 2**.

b. Phytochemical Screening:

Among the several bioactive compounds present in EMNB are flavonoids, tannins, alkaloids, proteins, amino acids, glycosides, and salt. These results were shown in **Table 3**.

2. Anti-oxidant activity of EMNB:

The IC 50 values of EMNB and Ascorbic Acid 43.83±3.46 µl/mL and 27.4.57 µg/mL. respectively. At initial concentration EMNB is comparable to ascorbic acid at 6.25,12.50 and 25 µl/mL concertation and no significance difference among them and Higher concentration it is showing significance difference. Demonstrated a dose-dependent increase in DPPH radical scavenging activity, reaching 85.4% at 100 µg/mL. EMNB: Also showed a dose-dependent increase in scavenging activity, with a maximum of 73.2% at 100 µg/mL.

CONCLUSION

The EMNB sample showed considerable radical scavenging activity, suggesting its potential as an effective antioxidant agent. Results were shown in **Figure 1**.

Table 2: Organoleptic characters of EMNB

S. No.	Tests	Results
1	Form	Liquid
2	Colour	Brown
3	Odor	Characteristic Odor
4	Touch	Smooth

Table 3: Phytochemical Screening

Tests	Results
A. Qualitative Analysis for Organic Elements	
Test for Carbohydrates	Negative
Test for Reducing sugar	Positive
Test for Monosaccharides	Negative
Test for Pentose Sugar	Negative
Test for non-reducing sugar	Positive
Test for Hexose Sugar	Negative
Test for Proteins	Positive
Test for Amino Acids	Positive
Test for Steroids	Negative
Test for Flavonoids	Positive
Test for Alkaloids	Positive
Test for Tannins	Positive
Test for Glycosides:	
Cardiac Glycosides	Positive
Anthraquinone glycosides	Positive
B. Qualitative Analysis for Inorganic Elements	
Potassium	Negative
Sodium	Positive

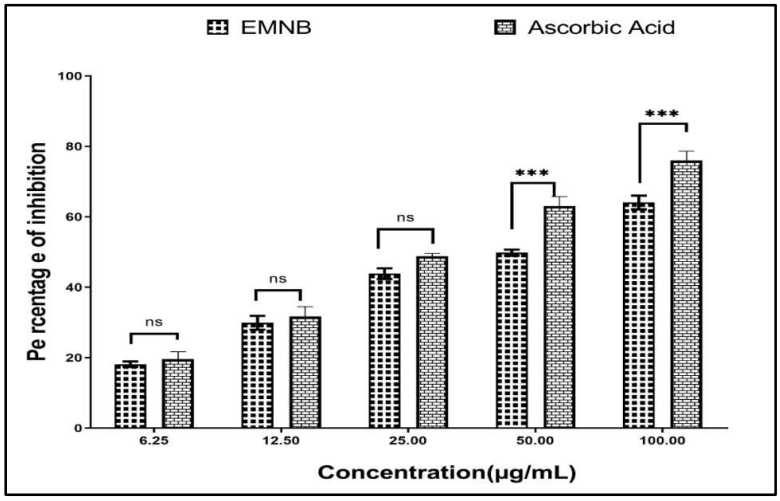

Figure 1: Anti-oxidant activity of EMNB

DISCUSSION:

Significant information about the phytochemical composition and antioxidant activity of *Erandamula Niruha Basti* (EMNB) supports its use as a therapeutic enema in Ayurvedic medicine. The results support Ayurveda's basic tenets and offer a contemporary scientific explanation for its effectiveness.

Phytochemical Composition:

Flavonoids, tannins, alkaloids, proteins, amino acids, glycosides, and sodium are among the many bioactive substances found in *Erandamula Niruha Basti* (EMNB). The antibacterial, anti-inflammatory, and antioxidant qualities of these substances are well-known and contribute to the formulation's therapeutic benefits. Alkaloids have anti-inflammatory properties; glycosides aid in digestive and circulatory processes; and flavonoids and tannins lessen oxidative stress. This blend of bioactive substances exemplifies Ayurveda's holistic philosophy, in which several

components complement one another to cure a range of illnesses **[11]**.

Antioxidant Activity:

The DPPH radical scavenging assay showed strong antioxidant activity in EMNB that was on par with the well-known antioxidant ascorbic acid. This demonstrates how the formulation may help lower oxidative damage, which is a major contributing factor to chronic illnesses like metabolic and degenerative diseases. Its longstanding usage in cleansing and rejuvenation therapies is further supported by its antioxidant qualities **[12]**.

Relevance to Ayurvedic Principles:

Niruha Basti is traditionally used for Shodhana (cleansing) and *Rasayana* (rejuvenation), and the results of this study align with these goals. The combination of ingredients—honey, rock salt, medicated sesame oil, and Ricinus communis decoction—enhances the bioavailability and therapeutic efficacy of the formulation, ensuring effective absorption and action **[13]**.

Limitations and future scope:

Although this study provides a strong basis for the phytochemical and antioxidant properties of EMNB, further research is needed to:

- Quantify individual phytochemicals.
- Conduct in vitro and in vivo studies to explore its pharmacological effects.
- Test its clinical efficacy in disease-specific conditions.

Implications for Practice:

This study validates the use of EMNB, particularly in antioxidant defense and detoxification therapies, providing a scientific foundation for its traditional applications. By bridging Ayurveda with modern science, this research paves the way for greater integration of Ayurvedic treatments in mainstream healthcare.

CONCLUSION:

This study provides scientific validation for the use of *Erandamula Niruha Basti,* demonstrating its significant antioxidant activity and rich phytochemical profile. These findings support the traditional Ayurvedic applications of the formulation and lay the groundwork for future studies to explore its broader therapeutic potential in modern integrative medicine.

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