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Research Article

**DEVELOPMENT AND STANDARDIZATION OF POLY  
HERBAL OIL AND CLINICAL SIGNIFICANCE OF ITS HAIR  
GROWTH STIMULATION****L. Reddenna<sup>1\*</sup>, K. Fairoz<sup>2</sup>, G. Hari Priya<sup>2</sup>, R. Meghana<sup>2</sup>, P. Venkateswara Reddy<sup>2</sup>,  
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Madanapalle, 517319, Andhara Pradesh, India**Abstract:**

**Background:** Oil formulation is a one of the topical formulations and it gives better absorption on the skin and less adverse effect comparable other formulation. When the plant formulated as oil it gives better absorption through skin and gives maximum therapeutic. The review of *Murraya koenigii*, *Phyllanthus emblica*, *Azadirachta indica*, and *Mentha spicata* plants shows good medicinal value. All the plants provide hair growth activity. Among topical formulation, the oil formulation is more suitable for topical application and produce cooling effects.

**Aim & objectives:** To develop and standardization of Poly Herbal Oil and clinical evaluation of its hair growth stimulation. **Materials and methods:** The Phytochemical investigation of a plant involves authentication and extraction of plant material; qualitative and quantitative evaluations; separation and parallel to this may be the assessment of pharmacological activity.

**Results and discussion:** Preliminary phytochemical screening was carried out for all the plants and its extracts to determine the presence of active principle in plants. Fluorescence analysis was carried out to detect the presence of chromophore present in the powder and extracts. Qualitative estimation of total flavonoid content and total Phenolic content were determined by spectrophotometrically all the extract showed significant amount of flavonoid and phenolic compounds

**Conclusion:** It is concluded that the prepared poly herbal oil containing *Murraya koenigii*, *Phyllanthus emblica*, *Azadirachta indica* and *Mentha spicata* proved hair growth activity.

**Key words:** *Azadirachta indica*; hair growth; *Mentha spicata*; *Murraya koenigii*; *Phyllanthus emblica*; Poly Herbal Oil

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**INTRODUCTION:**

Herbs combine to gather one formulation it gives better curative and therapeutic effect compare when being as a single drug. Plants not directly used as medicinal purpose, when it processed and formulated as any one of the suitable formulation gives better therapeutic effect by means of dried powder form or extract from the plant with the advance technique. Oil formulation is a one of the topical formulation and it gives better absorption on the skin and less adverse effect comparable other formulation.<sup>[1]</sup> When the plant formulated as oil it gives better absorption through skin and gives maximum therapeutic. *Murraya koenigii*, is a plant under Rutaceae family. It is grow over the tropical and subtropical area and easily available. *Murraya koenigii* has various ethno-botanical applications and medicinal claims.<sup>[2]</sup> It leaves have been used in curry's and the ethanomedicinal uses of leaves shows hair growth activity. *Phyllanthus emblica*, is a tree under Phyllanthaceae family. It is grown over the tropical and subtropical area and easily available.<sup>[3]</sup> Its ethano-medicinal uses show action on hair growth. *Azadirachta indica* is a large tree, Meleaceae family and easily available through the tropical and subtropical areas. Its leaves ethano-medical uses claim to have antibacterial and hair growth properties. *Mentha spicata*, is a perennial herbaceous plant under Lamiaceae family. It is grown over the tropical and subtropical area and easily available. Its ethano-medicinal uses show action on hair growth and produce cooling effect. It can be also used as flavouring agent. The selection of plants for formulation based on the ability to promote the hair growth and restoring properties of many plants with folklore claim for hair growth. Among those plants, *Murraya koenigii*, *Phyllanthus emblica*, *Azadirachta indica* and *Mentha spicata*, has an ethno-medical claim in treatment of hair loss. Hence the literature review of the plants was done to find out the nature of scientific evaluations on those plants.<sup>[4-6]</sup> Among topical formulation, the oil formulation is more suitable for topical application and produce cooling effects.

**METHODOLOGY:**

**Collection of Plant** The fresh *Murrayakoenigii*, *Phyllanthus emblica*, *Azadirachta indica* and *Mentha spicata* leaves were collected from Madanapalle local, Annamayya district, Andhra Pradesh. It was authenticated by Dr. K. Madhava Chetty, Dept. of Botany, Sri Venkateswara University. The leaves were collected in the month of March 2022. The Plant material was carefully washed with tap water and left to dried under shadow.

**Table-1: List of materials and their uses in formulation**

S.NO	Name of the Material	Quantity (gm)	Use of formulation
1.	<i>Murraya koenigii</i>	10 gm	Hair growth promoter
2.	<i>Phyllanthus emblica</i>	10 gm	Hair growth promoter
3.	<i>Azadirachta indica</i>	10 gm	Anti- bacterial agent and hair growth promoter
4.	<i>Mentha spicata</i>	10 gm	Hair growth promoter and flavouring agent
5.	Camphor	25 gm	Scalp strengthening
6.	Coconut oil	25 ml	Vehicle
7.	Sesame oil	25 ml	Vehicle

**Phytochemical Studies and clinical evaluation**

The Phytochemical investigation of a plant involves authentication and extraction of plant material; qualitative and quantitative evaluations; separation and parallel to this may be the assessment of pharmacological activity. Fluorescence analysis was carried out in day light and in UV light. The powdered plant raw materials and their extracts were treated with various reagents and solvents to identify the presence of chromophores. The fluorescence was observed in day light and in short and long UV light 254nm and 365nm respectively. The prepared extracts were taken for the preparation of topical oil with camphor, coconut oil and sesame oil.

**Method for Preparation of Oil Containing Extracts**

Accurately weigh 10 gm of all the dried and fresh herbs such as *Murraya koenigii*, *Phyllanthus emblica*, *Azadirachta indica* and *Mentha spicata* and were mixes well and was mixed in a 23% sesame oil. The above content was boiled for 15 minutes and was filtered through muslin cloth. To the filtrate coconut oil was added to make up to required volume (100 ml). Finally small amount of flavouring agents like camphor and also *Mentha spicata* extract was added to the oil and placed in a container. Finally adjust of required skin pH (6.8-7) and to obtain the oil at required consistency. The prepared and standardized oil formulation was evaluated clinically. The clinical evaluation carried out in the Department of Dermatology, Government General Hospital, Madanapalli.

**RESULTS AND DISCUSSION:****Phytochemical Studies**

The phytochemical constant were carried out for the plants powder and extracts of *Murraya koenigii*, *Phyllanthus emblica*, *Azadirachta indica* and *Mentha spicata* to bring the quality and purity of the valuable

medicinal plants Preliminary phytochemical screening were carried out for all the plants and its extracts to determine the presence of active principle in plants Fluorescence analysis was carried out to detect the presence of chromophore present in the powder and extracts. No fluorescence was observed for powder as well as extracts. Selected plants

powder were extracted with ethanol to bring all the active principle. Qualitative estimation of total flavonoid content and total Phenolic content were determined by spectrophotometrically all the extract showed significant amount of flavonoid and phenolic compounds. [7-9]

**Table-2: Preliminary Phytochemical analysis of powder and extracts of raw materials**

Chemical constituents	<i>Murraya koenigii</i>		<i>Phyllanthus Emblica</i>		<i>Azadirachta indica</i>		<i>Mentha spicata</i>	
	Powder	Extract	Powder	Extract	Powder	Extract	Powder	Extract
<b>Steroids</b>	+	+	+	+	+	+	+	+
<b>Glycosides</b>	+	+	-	-	+	+	+	+
<b>Saponins</b>	+	+	-	-	-	-	+	+
<b>Flavanoids</b>	+	+	+	+	+	+	+	+
<b>Tannins</b>	+	+	+	+	+	+	+	+
<b>Proteins</b>	+	+	+	+	+	+	-	-
<b>Alkaloids</b>	+	+	+	+	+	+	+	+
<b>Carbohydrates</b>	+	+	+	+	+/-	+/-	+	+
<b>Terpenoids</b>	+	+	-	+	+	+	-	-
<b>Fats and oils</b>	+	+	+	+	-	-	-	-

#### Development and Standardization of formulation

Poly herbal oil was prepared with water camphor, coconut oil and sesame oil to bring a good absorption capacity of the plant extracts on scalp. The standardization parameters of the oil are viscosity, pH, Homogeneity, Spreadability, content uniformity, skin irritation test all were carried out to bring a quality, purity and safety of the prepared oil formulation. [10-12]

**Table-2: Standardization of formulation**

S. No.	Parameters	Results
1.	Physical appearance	Light green
2.	pH	7.1
3.	Spreadability	Good
4.	Viscosity	43560 cps
5.	Homogeneity	Excellent
6.	Skin irritation test	No irritation

### Clinical evaluation of hair growth activity

The prepared poly herbal formulation was taken for the determination of hair growth activity of the selected plants. The clinical evaluation of prepared oil was carried on the human volunteers and compared with the reference who applied oil without the extract. The growth of hair measured by trichoscope and the growth was completely observed after the 30 days. [13-15]

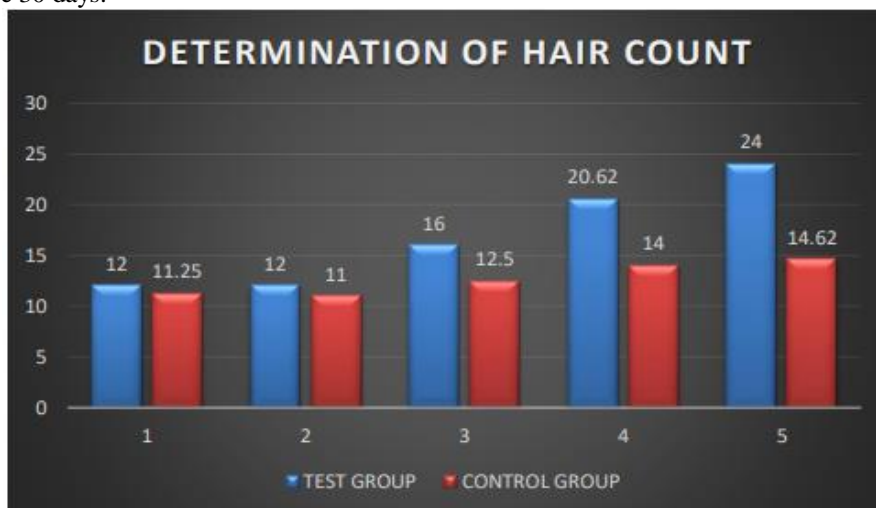


Figure-1: Comparison of hair growth of Test with Control

Parameter	Group	Initial 0 days	After 7 days	After 14 days	After 21 days	After 28 days
Mean hair loss (/combing)	Test	115.5± 6.4	78.4± 12.4	75.0± 11.4	69.3± 10.4	50.5± 15.4
	Control	113.2± 6.4	109.2± 6.4	103.4± 6.7	99.9± 7.9	95.2± 6.8
Perceptible Reduction in hairloss by Patients(%)	Test	-	37.2%	40.6%	46.3%	65.1%
	Control	-	4.0%	10.4%	13.7%	18.0%

Table-3: Mean number of hair loss in Combing test

### CONCLUSION:

Hence, from these studies it is concluded that the prepared poly herbal oil containing *Murraya koenigii*, *Phyllanthus emblica*, *Azadirachta indica* and *Mentha spicata* proved hair growth activity.

### REFERENCES:

- Kuber, B., Lavanya, C., Haritha, C., Preethi, S., & Rosa, G. (2019). Preparation and evaluation of poly herbal hair oil. *Journal Of Drug Delivery And Therapeutics*, 9(1), 68-73.
- Hajimehdipoor, H., Nikmanesh, N., Mohammadi-Motamed, S. (2019). Amla Oil, a Pharmaceutical Product Based on Traditional Knowledge for Hair Loss Treatment. *Research Journal of Pharmacognosy*, 6(1), 57-61.
- Shah, R., Mohite, S., & Patel, N. (2018). Preparation and Evaluation of Polyherbal Hair Oil-An Effective Cosmetic. *Asian Journal Of Pharmaceutical Research*, 8(1), 36. doi: 10.5958/2231-5691.2018.00007.2.
- Jang, S., Kim, M., Wee, J., Kim, J., & Choi, W. (2018). Effects of Amla (*Phyllanthus emblica* L.) Extract on Hair Growth Promoting. *KSBB Journal*, 33(4), 299-305.
- Jain, P. K., Das, D., & Das, C. (2017). Prospect of Herbs as Hair Growth Potential. *Innovare Journal of Medical Sciences*, 5(1), 6-14.
- Sarwar, M., I.H. Attitalla and M. Abdollahi, 2011. A review on the recent advances in pharmacological studies on medicinal plants: Animal studies are done but clinical studies needs completing. *Asian J. Anim. Vet. Adv.*, 6: 867-883.
- Oh, J., Park, M., & Kim, Y. (2014). Peppermint Oil Promotes Hair Growth without Toxic Signs. *Toxicological Research*, 30(4), 297-304.

8. Gorakhnath, M. (2021). Preparation and Evaluation of Polyherbal Hair Oil. International Journal For Research In Applied Science And Engineering Technology, 9(12), 1891-1901.
9. Vandana Jain. (2012). *Murraya koenigii*: An Updated Review. International journal of ayurvedic & herbal medicine 2(4), 607-627.
10. Jain R, Pandey R, Mahant RN and Rathore DS (2015). A Review on Medicinal Importance of *Emblca Officinalis*. Int J Pharm Sci Res, 6(1): 72-84
11. Debjit Bhowmik et al, (2010). Herbal Remedies of *Azadirachta indica* and its Medicinal Application J. Chem. Pharm. Res. 2(1): 62-72.
12. R K Nema et al (2009). Preparation, evaluation and hair growth stimulating activity of herbal hair oil. Journal of Chemical and Pharmaceutical Research, 1(1): 261-267.
13. Raghunathan K, Mitra R, Pharmacognosy Indigenous Drugs, Central Council for the Research in Ayurveda and Siddha, New Delhi, Vol. I: 433.
14. G.L. Gupta and S.S. Nigamurraya Chemical examination of the leaves of *Murraya koenigii*. Planta Med. 19: 83 (1970).
15. Adebajo AC, Olayiwola G, Verspohl EJ, Iwalewa EO, Omisore NOA, Bergenthal D, et.al. Evaluation of the ethnomedical claims of *Murraya koenigii*. Pharm Biol.2004; 42(8): 610-620.