Published online in http://ijam.co.in ISSN No: 0976-5921

International Journal of Ayurvedic Medicine, Vol 11 (2), 331-336

A Comparative Study of *Ingudi phalamajja Lepa* and *Ananatmul Ghan* in The Management of *Vyanga* (Melasma)

Research Article

Shraddha Wake[1], Vaishali Kuchewar[2], Prajkta Hagone[1*]

1. PG Scholar, 2. Professor and HOD, Department of Kayachikitsa,
Mahatma Gandhi Ayurved College Hospital & Research Center, Salod, Wardha, Maharashtra

Abstract

The normal color of skin in human is largely due to melanin pigment. Melasma is most common disorder which is related to melanin. It is a human melanogenesis dysfunction that results in localized, chronic acquired hypermelanosis of the skin. In *Ayurveda* melasma can be correlated with *Vyanga* because of resemblance of its clinical features. According to *Acharya Charak*, it is caused due to vitiation of *Pitta* and *Shonita* but other *Acharyas* has depicted it due to the vitiation of *Vāta* and *Pitta.* This study is aimed to explore the Efficacy of *Ingudi Phalmajja lepa* with and without internal use of *Anantamoola* Ghana in *Vyanga*. Total 43 patients were registered and randomly divided into group A and group B by lottery method. Out of these, 40 patients have completed the treatment. All patients were examined by Wood's Lamp to assess the depth of pigmentation (Dermal/Epidermal).. It is concluded that *vyanga* is frequent in females than males. It was found in *madhyamavastha* in which *pitta dosha* and *Rajoguna* is predominant. Mostly Centrofacial type of melasma is found in this study which is supported by other studies. Melasma Severity Index is improved in both the groups. Local application of *Ingudi phalmajja* is found to be effective in the severity of pigmentation. The action of *Ingudi phalamajja* in hyperpigmentation could not be evaluated. Further study can be conducted to find out the active principle of *Ingudi.*

Key Words: Vyanga, Melasma, *Ingudi phalmajja, Ananatmul Ghan.*

Introduction

Now a day, the importance of Beauty and Personality is on the rise. In this aesthetic era, people are getting more and more beauty conscious, so everyone wants beautiful and healthy skin. Due to change in life style and atmosphere, dermatological problems are on high. Beauty of a person is assessed by the complexion and texture of the skin to a great extent. The normal color of skin in human is largely due to melanin pigment. Melasma is most common disorder which is related to melanin. It is a human melanogenesis dysfunction that results in localized, chronic acquired hypermelanosis of the skin. It occurs symmetrically on sun exposed areas of the body and affects especially female.(1) It is accounting for 0.25 to 4% of the patients seen in Dermatology Clinics in South East Asia, and is the most common pigment disorder among Indians.(2,3) Although women are predominantly affected, men are not excluded from melasma, representing approximately 10% of the cases. (4) It is rarely reported before puberty. It can affect up to 50- 70% of pregnant women.(4,5,6,) Though the etiological factors are unknown but genetic, ethnic (skin type), hormonal and environmental *i.e.* ultraviolet (UVA and UVB) exposures can be called as major contributing factors. Many modalities of treatment are available, but chances of recurrence are more after discontinuation of the treatment or long-lasting usage of local preparations may produce irritation.(5,6,7) In *Ayurveda* melasma can be correlated with *Vyanga* which is described under *kshudraroga* because of resemblance of its clinical features. According to *Acharya Charak*, it is caused due to vitiation of *Pitta* and *Shonit*(8) but other *Acharyas* has depicted it due to the vitiation of *Vāta* and *Pitta*.(9,10,11,12,13) In *Ayurvedic* texts, various therapies like *Raktamokshan*, *Siravedha* as well as some medicines for internal & external use are mentioned.

Need of study

Melasma has a significant impact on appearance causing psychosocial distress, low self-confidence and decline in quality of life. (14,15,16,17,18) Because of its increasing prevalence and unsatisfactory management, it is needed to discover some herbal preparation to overcome it.

Aim

Efficacy of *Ingudi Phalmajja lepa* with and without internal use of *Anantamoola* Ghana in *Vyanga*.

Objectives of the study

1. To evaluate the efficacy of *Ingudi phalmajja lepa.*
2. To evaluate the efficacy of *Ingudi phalmajja lepa* with *Anantamoola ghana* in *vyanga*.
3. To compare the effecacy of *Ingudi phalmajja lepa* and *Ingudi phalmajja lepa* with *Anantamoola ghana* in *vyanga*.

*** Corresponding Author:**

Prajakta Hagone
PG Scholar, Department of Kayachikitsa,
Mahatma Gandhi Ayurved College Hospital &
Research Center, Salod, Wardha, Maharashtra. India
Email Id: p6hagone@gmail.com

Material and Method

Source of Material

The Patients were randomly selected from Kayachikitsa OPD of Mahatma Gandhi Ayurved College, Hospital & Research center, Salod (H), Wardha with the features of Vyanga (Melasma) were selected for the study.

Inclusion criteria

- Patients of either sex between the age group of 20 - 50 years.
- Patients presenting with cardinal features of Vyanga are Shyavavarna, Nirujam, Tanu, Mandal (Melasma like thin, painless, blackish/brownish patch on facial skin).

Exclusion criteria

- Cases of drug induced Melasma.
- Pregnant women
- Patients with known case of Addison`s disease, Cushing's syndrome or Nelson's syndrome.

Investigation

Before commencement of medication, CBC with ESR was done to exclude any infectious condition.

Methodology

The patients were selected by simple random sampling method irrespective of their sex, religion and occupation. The informed consent was obtained from each patient before participation in the study. Total 43 patients were registered as per the inclusion criteria and randomly divided into group A and group B by lottery method. Out of these, 40 patients have completed the treatment. All patients were examined by Wood's Lamp to assess the depth of pigmentation (Dermal/ Epidermal).

Following treatment was given for both the groups.

- Group A- Ingudi(*Balanites aegyptiaca*) *phalmajja* for local application once a day for continuous 90 days.[25]
- Group B- *Anantamool* (*Hemidesmus indicus*) *Ghana* orally 500 mg twice a day with water after meal and local application of Ingudi *phalmajja* once a day for continuous 90 days.[26]

Method of application of Ingudi Phalamajja lepa: Patient was advised first to clean the face properly. Take the Ingudi phalamajja and rub down with cold water on any clean rough surface to make paste in sufficient quantity and apply over the affected area for 20 minutes and then wash the face properly with plain water. This lepa was applied once a day for continuous 90 days.

Assessment Criteria

The assessment of patient was done on the basis of following MSI score (Melasma severity index) on every 30th day.

Melasma Severity Index score formula

$$0.4(a \times P^2)\, I + 0.4(a \times P^2)\, r + 0.2\,(a \times P^2)\, n$$

Where. a – Area, P – Pigmentation, I – Left face , R – Right face

The area involved and severity of pigmentation is scored as follows

Grade	Area Involvement (A)
0	<10% area involved
1	11-30% area involved
2	31-60% area involved
3	>60% area involved

Grade	Pigmentation
0	No visible Pigmentation
1	Barely Visible pigmentation
2	Mild pigmentation
3	Moderate pigmentation
4	Sever pigmentation

Observation & Result

The data obtained was coded and entered into Microsoft Excel Worksheet. The data was analyzed by using frequency distribution, descriptive statistics, analysis of variance, chi-square test and t-statistic with the help of statistical software SPSS 17.0 version and tabulated as below.

Table No. 1 Gender-wise distribution of Patients

	Gender		Total
	Male	Female	
Group A	1 (5.0%)	19 (95.0%)	20 (100.0%)
Group B	3 (15.0%)	17 (85.0%)	20 (100.0%)
Total	4 (10.0%)	36 (90.0%)	40 (100.0%)

Table No. 2 Age-wise distribution of Patients

	Age (in years)			Total
	20-30	31-40	41-50	
Group A	2 (10.0%)	13 (65.0%)	5 (25.0%)	20 (100.0%)
Group B	4 (20.0%)	8 (40.0%)	8 (40.0%)	20 (100.0%)
Total	6 (15.0%)	21 (52.5%)	13 (32.5%)	40 (100.0%)

Table No. 3 *Sharir Prakruti* of Patients

	SharirPrakruti				Total
	Kapha pittaj	*Pitta kaphaj*	*Pitta Vataj*	*Vataj pittaj*	
Group A	1 (5.0%)	1 (5.0%)	5 (25.0%)	13 (65.0%)	20 (100.0%)
Group B	2 (10.0%)	1 (5.0%)	9 (45.0%)	8 (40.0%)	20 (100.0%)
Total	3 (7.5%)	2 (5.0%)	14 (35.0%)	21 (52.5%)	40 (100.0%)

Chi-Square Value = 2.667 P Value = 0.446 Non Significant.

In the categorization of *Sharir prakruti*, 52.5% patients were of *Vata pittaj Prakruti* and 35% patients were of *Pittavataj prakruti*. Comparatively less number of patients were of *Kapha Pittaj*(7.5%) and *Pitta Kaphaj*(5%) *Prakruti*.

Table No. 4 *Manas Prakruti* of Patients

	Manas Prakruti			Total
	Satvik	*Rajasik*	*Tamasik*	
Group A	6 (30.0%)	13 (65.0%)	1 (5.0%)	20 (100.0%)
Group B	11 (55.0%)	8 (40.0%)	1 (5.0%)	20 (100.0%)
Total	17 (42.5%)	21 (52.5%)	2 (5.0%)	40 (100.0%)

Chi-Square Value = 2.661 P Value = 0.264 Non Significant In the classification of *Manas prakruti*, the patients of *Satvik, Rajasik* and *Tamasikit Prakruti* were 42.5%, 52.5% and 5% respectively.

Table No. 5 Type of *Ahara* of Patients in Group A & Group B

	Ahara		Total
	Satvik	*Rajasik*	
Group A	9 (45.0%)	11 (55.0%)	20 (100.0%)
Group B	9 (45.0%)	11 (55.0%)	20 (100.0%)
Total	18 (45.0%)	22 (55.0%)	40 (100.0%)

Chi-Square Value = 0.001 P Value = 1.00 Non Significant

Table No.5 shows that the 55% patients were consuming largely Rajasik ahara and 45% patients were consuming mostly Tamasik ahara.

Table No. 6 Sun Exposure of Patients

	Sun Exposure		Total
	Yes	No	
Group A	9 (45.0%)	11 (55.0%)	20 (100.0%)
Group B	12 (60.0%)	8 (40.0%)	20 (100.0%)
Total	21 (52.5%)	19 (47.5%)	40 (100.0%)

Chi Square = 0.90 P Value = 0.342 Non Significant Table no. 6 shows that 52.5% patients were having history of regular sun exposure and 47.5% patients had no history of frequent sun exposure.

Table No. 7 Family History of Patients

	Family History		Total
	Yes	No	
Group A	11 (55.0%)	9 (45.0%)	20 (100.0%)
Group B	7 (35.0%)	13 (65.0%)	20 (100.0%)
Total	18 (45.0%)	22 (55.0%)	40 (100.0%)

Chi-Square Value = 1.616 P Value = 0.204 Non Significant

Out of 40 patients, 45% patients were having family history of Melasma and 55% patients were not having such history.

Table No. 8 Chronicity wise distribution of Patients

Duration	Group A	Group B	Total
Less than 6 months	5 (12.5%)	2 (5.0%)	7 (17.5%)
6months-3 years	8 (20.0%)	10 (25.0%)	18 (45.0%)
3 years-10 years	7 (17.5%)	8 (20.0%)	15 (37.5%)
Total	20 (50.0%)	20 (50.0%)	40 (100.0%)

Chi Square = 1.575 P Value = 0.455 Non Significant

Analysis of data obtained reveals that majority of the patients (45%) were having chronicity of Vyanga between 6months-3years followed by 37%, 17.5% were having 3years- 1year, less than 6 months respectively.

Table No. 9 Clinical sub-type wise distribution of Patients

Sub-type	Group A	Group B	Total
Centrofacial	10 (25%)	14 (35%)	24 (60%)
Malar	10 (25%)	6 (15.0%)	18 (40%)
Mandibular	0	0	0
Total	20 (50.0%)	20 (50.0%)	40 (100.0%)

The Clinical sub-types of Melasma are divided into Centrofacial, Malar and Mandibular. In this study 60% and 40% patients were of centrofacial and malar respectively and no mandibular sub type was observed.

Table No. 10 Dermal/Epidermal classification

	Dermal	Epidermal	Total
Group A	7 (35.0%)	13 (65.0%)	20 (100.0%)
Group B	11 (55.0%)	9 (45.0%)	20 (100.0%)
Total	18 (45.0%)	22 (55.0%)	40 (100.0%)

Chi Square = 1.62 P Value = 0.203 Non Significant

The type of Melasma was diagnosed with the help of Wood's lamp. It is found that 45% patients were of Dermal type and 55% patients were of Epidermal type.

Table No. 11 Mean MSI Score of Group A

Group A	Mean	S.D.	Std. Error Mean	t-value	P value
MSI Score 0 Day	13.74	9.17	2.05	11.391	0.001 Significant
MSI Score 30th Day	10.79	6.73	1.50		
MSI Score 60th Day	5.71	4.21	0.94		
MSI Score 90th Day	3.15	3.74	0.83		

The MSI score in Group A was 13.74, 10.79, 5.71 and 3.15 on day 0.30th, 60th and 90th respectively. Significant difference is observed in the MSI score on 0 day and on 90th day.

Table No. 12 Mean MSI Score of Group B

Group B	Mean	S.D.	Std. Error Mean	t-value	P value
MSI Score 0 Day	17.33	12.01	2.68	6.263	0.001 Significant
MSI Score 30th Day	15.04	10.49	2.34		
MSI Score 60th Day	8.65	8.20	1.83		
MSI Score 90th Day	8.65	7.89	1.76		

The MSI score in Group B was 17.33, 15.04, 8.65and 8.65on day 0.30th, 60th and 90th respectively. Significant difference is observed in the MSI score on 0 day and on 90th day.

Table No. 13 Comparison of Dermal/Epidermal Melasma in Group A

Group A		Mean	S.D.	Std. Error Mean	t-value	P Value
Dermal	MSI (Melasma Severity Index) SCORE 0 day	17.77	10.60	4.01	2.930	0.026 Significant
	MSI (Melasma Severity Index) SCORE 3rd follow up 90th day	5.89	5.18	1.96		
Epidermal	MSI (Melasma Severity Index) SCORE 0 day	11.57	7.91	2.19	4.793	0.001 Significant
	MSI (Melasma Severity Index) SCORE 3rd follow up 90th day	1.68	1.43	0.40		

Table No. 13 shows the comparison of Dermal and Epidermal type of Melasma in Group A. In Dermal type, MSI score was 17.77 on day 0 which was reduced to 5.89 on day 90th. In Epidermal type, MSI score was 11.57on day 0 which was reduced to 1.68on day 90th.In both type of Melasma, significant improvement was observed.

Table No. 14 Comparison of Dermal/Epidermal Melasma in Group B

Group B		Mean	S.D.	Std. Error Mean	T-value	P Value
Dermal	MSI(Melasma Severity Index) SCORE 0th day	19.25	13.04	3.93	3.092	0.011 Significant
	MSI(Melasma Severity Index) SCORE 3rd follow up 90th day	9.07	9.30	2.80		
Epidermal	MSI(Melasma Severity Index) SCORE 0th day	14.98	10.90	3.63	3.860	0.005 Significant
	MSI(Melasma Severity Index) SCORE 3rd follow up 90th day	1.20	1.23	0.41		

Table No. 14 shows the comparison of Dermal and Epidermal type of Melasma in Group B. In Dermal type, MSI score was 19.25on day 0 which was reduced to 9.07on day 90th. In Epidermal type, MSI score was 14.98on day 0 which was reduced to 1.20 on day 90th. So in both the types the score was significantly decreased.

Table No. 15 Comparison of Mean MSI Score in Group A & Group B

		Mean	S.D.	t-statistic	P value
Group A	0 day	13.74	9.17	5.568	0.001 Significant
	90th day	3.16	3.74		
Group B	0 day	17.33	12.01	4.933	0.001 Significant
	90th day	5.53	7.89		

The mean MSI score of group A was 13.74 on day 0 which was decreased to 3.16 on 90th day. In Group B also it was decreased from 17.33 to 5.53. In both the groups, MSI score was significantly decreased indicating the improvement in hyperpigmentation.

Table no 16 Comparison of Mean MSI Score in Group A & Group B

MSI score	Number of patients Before Treatment	Number of patients After treatment
0-15	24	36
15-30	12	4
30-55	4	0
MSI score	Number of patients Before Treatment	Number of patients After treatment
0-10	19 (47.5)	35 (87.5%)
10-20	10 (25%)	02 (5%)
20-30	06 (15%)	03 (7.5%)
30-40	05 (12.5%)	0

Discussion

Total 43 patients were registered Out of these, 40 patients have completed the treatment. In this study, 90% patients were female. In other studies also the percentage of female was predominant(19,20) Females are usually utilize different cosmetics. It might be the cause of hyperpigmentation.(21,22) In our study Maximum patients were in the age group of 31-40 years. It is a fertile age group. Use of Oral contraceptive pills might be the contributing factor.(23) This study did not find significant family history of Melasma. But in other studies Family history of melasma was found significant.(24) In the classification of *Sharirika prakriti*, most of the patients were of *vatapittaja* & *Pittavataj* type indicating the role of *Pitta* & *Vata* in the *samprapti* of *Vyanga*. There was no significant difference in the number of patients of *satvik* & *rajasik prakruti* but comparatively the patients of *rajasik prakruti* were more. In *Ayurvedic* literature, *krodha* and *shoka* are included in the causative factors of *vyanga*

Most of the patients were having diet predominant in *katu* (pungent) & *lavan* (salty) rasa which can be called as *rajasik ahar*. It might be the aggravating factor of *Pitta* & *Vata dosha*. In this study, 52% patients were found to be exposed to sun during their working hours but remaining had no direct exposure. So it is difficult to make any co-relation between sun exposure & Melasma. The patients were assessed on the basis of MSI score to evaluate the efficacy of trial drugs. The significant improvement was found in group A (*Ingudi phala majja lepa*) and Group B (*Ingudi phala majja lepa & Anantmool Ghana* orally). In the comparison of both groups, group B showed relatively good score than group A, In both the groups, there was significant improvement in Dermal and Epidermal types of Melasma. In literature, *Anatmool* is described as having *madhur & tikta Rasa*, *guru & snigdha guna, madhur vipaka & sheet virya*. It is also described as *varnya*. All these characteristics might be responsible to pacify *pitta* & *Vata* which are described as root cause of *vyanga*. Its *varnya* property might be helpful to provide normal color to skin. *Ingudi* is tikta, katu Rasatmaka (predominantly *katu* rasa) having *Ushna Virya, Snigdha* and *Laghu Guna* and *Katu Vipak*. It balances *Vata* and *Kapha Dosha* of *Ingudi*, it reaches up to the micro channel and liquefies the morbid *Dosha* due to its qualities like *ushna* and *tikshna*. Because of Snigdha property it protects the skin from excessive dryness. It also maintains the normal moisture content of the skin, *Snigdha Guna* is responsible for *Mardava* and *Varna Prasadana* where as *Laghu* is the property of *Agneya Dravya*, which in turn are responsible for *Prabha*, *Prakasha*, and *Varna.*

Conclusion

It is concluded that *vyanga* is frequent in females than males. It was found in *madhyamavastha* in which *pitta dosha* and *Rajoguna* is predominant. Only sun exposure cannot be called as causative factor because it is found in exposed and unexposed both. Melasma Severity Index is improved in both the groups. Local application of *Ingudi phalmajja* is found to be

effective in the severity of pigmentation. The action of *Ingudi phalamajja* in hyperpigmentation could not be evaluated. Further study can be conducted to find out the active principle of *Ingudi.*

References

1. Miot LD, Miot HA, Silva MG, Marques ME. Physiopathology of melasma. An Bras Dermatol. 2009;84:623–635. [PubMed]
2. Corsi H. Chloasma Virginum Periorale. Proc R Soc Med. 1935;28:1169–1169. [PMC free article] [PubMed]
3. Lindsay HC. Chloasma uterinum. Arch Derm Syphilol. 1946;53:58–58. [PubMed]
4. Balkrishnan, R, (2004) Improved Quality of Life with Effective Treatment of Facial Melasma: The Pigment Trial. *Journal of Drugs in Dermatology*, 3, 377-381.
5. Perez, M.L. (2005) The Stepwise Approach to the Treatment of Melasma. *Cutis*, 75, 217-222.
6. Victor F (2004) Melasma: A Review. *Journal of Cutaneous Medicine and Surgery*, 8, 97- http:// dx.doi.org/10.1007/s10227-004-0158-9
7. Torok, H. (2005) Hydroquinone 4%, Tretinoin 0.05%, Flucinoloneacetonide 0.01%: A Safe and Efficious 12-Month Treatment for Melasma. *Cutis*, 75, 57-62
8. Balkrishnan R. et al.Validation of a melasma quality of life questionnaire for the Turkish language: the MelasQoL-TR study. J Dermatolog Treat. 2009;20:95–99. [PubMed]
9. Sitaram B. Bhav Prakash, Chaukhambha Orientila Varanasi.2010 (Madhyan Uttar Khanda)vol II First edition P578
10. Grummer S, et al. Development and validation of a health-related quality of life instrument for women with melasma. Br J Dermatol. 2003;149:572–577. [PubMed]
11. Pandya AG. et al. Melasma in Latina patients: cross-cultural adaptation and validation of a quality-of-life questionnaire in Spanish language. J Am Acad Dermatol. 2006;55:59–66. [PubMed]
12. Almeida A, et al. Validation of a melasma quality of life questionnaire for Brazilian Portuguese language: the MelasQoL-BP study and improvement of QoL of melasma patients after triple combination therapy. Br J Dermatol. 2006;156:13–20. [PubMed]
13. Taieb C. et al. Melasma: measure of the impact on quality of life using the French version of Melasool after cross-cultural adaptation. Acta Derm Venereol. 2010;90:331–332. [PubMed]
14. Tripathi R. ed Charak Samhita Volume I, edition 2009, 18/25 Chaukhamba Sanskrit Pratishtan Delhi, p 278
15. Murthy S. ed. Madhava Nidanam (Roga Viniscaya) of Madhavkara, nidan 55/39 Eight edition 2007. Jaikrishnadas Ayurveda series no.69 Chaukhambha Orientila Varanasi,p.181
16. Rao P.S. ed. Vaghbhata's Astang Samgrah Vol III (Uttara Sthana) 36/30 First edition 2009 Krishnadas Ayurveda series no.106 Chowkhamba Krishandas Academy, Varansi; p326.
17. Murthy. K. ed Vaghbhata's Astang Hrdayam volume III (Uttarstana) 31/28-29 edition reprint 2006 Krishnadas Ayurveda series vol.27 Choukhamba Krishndas Academy p.296.
18. Saxena N. Vangsena Samhita of Chikitsa Samghrah of vangasena, chaowkhamba Krishnadas academy Varanasi 2004 vol II 67/41; First edition p 805.
19. Hexal D.et.al Epidemiology of melasma in Brazilian patients: a multicenter study,International journal of Dermatology Volume 53, Issue4, 22 August 2013
20. Khalifa E. et al. Lactic Acid as a New Therapeutic Peeling Agent in Melasma, First published: February 2005 DOI: 10.1111/ j.1524-4725.2005.31035 Volume 31, Issue 2February 2005 Pages 149–154.
21. Neel P. et.al Research Article Cosmetic Contact Sensitivity in Patients with Melasma: Results of a Pilot Study Dermatology Research and Practice 2014(12) · July 2014 with 112 Reads DOI: 10.1155/2014/316219
22. Ida Duarte et.al Frequency of dermatoses associated with cosmetics, contact Dermatitis, Vol 56, Issue4. April 2007, Pages-211-213
23. Sorrel Resanik MC, Melasma Induced by Oral Contraceptive Drugs JAMA. 1967;199(9):601-605. doi:10.1001/jama.1967.03120090043007
24. T. Passeron. Melasma pathogenesis and influencing factors – an overview of the latest research, Journal of the European Academy of Dermatology and Venereology.
25. Vagbhtacharya, suratnojjvala, Sastri kaviraj Ambikadatta ed. Rasaratna Samuchchya 25/5 Haridas sanskrit series 91 chaukhmba oriental publishers Varanasi p.521.26.
26. Bapalal G. Vaidya ed Nighantu Adarsa (vol 2) 332 chaukhambha bharti academy Varanasi 2009 pp.16 -22.

*****