

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Case Study
ISSN 2394-3211
EJPMR

EFFECT OF HERBO-MINERAL DRUGS IN THE MANAGEMENT OF VYANGA: A CASE STUDY

Dr. Punita Sharma*¹, Prof. (Vd.) P. C. Mangal², Dr. Manisha Khatri³ and Dr. Shubha Kaushal⁴

¹(M.D.) Assistant Professor, PG Department of Kriya Sharir, Institute for Ayurved Studies and Research, Kurukshetra, 36118.

²(M.D., PhD.) Professor, HOD, PG Department of Kriya Sharir, Institute for Ayurved Studies and Research, Kurukshetra, 136118.

³(M.D.) Associate Professor, PG Department of Kriya Sharir, Institute for Ayurved Studies and Research, Kurukshetra, 36118.

⁴(M.D.) Assistant Professor, PG Department of Kriya Sharir, Institute for Ayurved Studies and Research, Kurukshetra, 36118.



*Corresponding Author: Dr. Punita Sharma

(M.D.) Assistant Professor, PG Department of Kriya Sharir, Institute for Ayurved Studies and Research, Kurukshetra, 36118.

Article Received on 08/05/2024

Article Revised on 29/05/2024

Article Accepted on 19/06/2024

ABSTRACT

In Ayurveda, Vyanga comes under Kshudra Roga (mainly minor skin diseases) described by Aacharya Sushruta. Vyanga is mainly concerned with complexion of skin. It is characterised by Niruja, Shyava Varna Mandala on face. Vyanga can be compared with melasma in modern science. Melasma is pigmentary disorder characterised by hyperpigmentation brown to greyish brown macules on face. It occurs mainly in women 90% cases and 10% case in males all ethnic and racial group. In India 20-30% of 45-60 years old women present facial melasma. The case study being presented here is of a 27 years old female patient suffering from Vyanga. The line of treatment for Vyanga is lepa, Raktamokshana, Abhyanga prescribed by Aacharya Bhavaprakash. Hence for this case drugs/medicines chosen were herbo-mineral drug like Saptamrit Loha, Aarogya Vardhini Vati, Shatavari Churna, Madhuyasti Churna, Manjishtha Churna etc. Having Raktashodhaka, Twak Prasadaka, Varnyakara, Rasayana, Vishahara properties that pacifies aggravated Dosha and help in Raktshodhan. Hereby a case study /details of a patient suffering from Vyanga, who was successfully treated by various Ayurveda formulations is presented. A markable reduction in MASI Score, which is also evident in the photographs, supports the efficacy of the chosen treatment.

KEYWORDS: Vyanga, Kshudra Roga, Case study, Melasma, Management, Herbo-mineral Drugs.

INTRODUCTION

A person's beauty is recognised when his or her skin is smooth, shiny, and flawless, and this boosts his or her confidence. Vyanga is a disease that affects beauty by reducing the lustre and complexion of the face. Aacharya Susruta describes Vyanga as one of forty-four Kshudraroga. According to Aachrya Susruta, Vyanga is caused by Vayu being aggravated by uncontrolled anger and overfatiguing physical exercise and being surcharged with Pitta and suddenly appearing on the person's face, causing thin, circular, painless, and brown coloured patches or stains. [2] According to Aacharya Charak, Rakta is also involved in pathology of disease. [3] In contemporary science, the Vyanga is compared with acquired melasma, is an condition hyperpigmentation^[4] which generally occurs on face. It is more prevalent in females as compared to males. In India 20-30% of 45- 60year old women present facial melasma.^[5] UV radiations, pregnancy, hormonal

influences (generally oestrogen, progesterone, and MSH), cosmetics, photo-toxic drugs, and medications are among the etiological factors (antiseizure). [6] Melasma development is extensively influenced by genetic predisposition. The MASI score is used to determine the severity of Melasma. The MASI score is used to determine the severity of melasma. Kimbrough-Green, et al created the MASI score in 1994 to assess the clinical severity of melasma. The MASI score is determined by subjective assessment of three factors: the area involved (area/A), darkness (D), and homogeneity (H), with the forehead (f), right malar region (rm), left malar region (lm), and chin (c) corresponding to 30%, 30%, 30%, and 10% of the total face, respectively. [7] (Fig 1)

www.eipmr.com Vol 11, Issue 7, 2024. ISO 9001:2015 Certified Journal 368

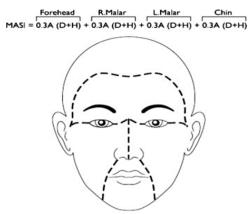


Figure 1: Melasma Area Severity Index (MASI).

Treatment modalities for melasma, such as topical steroids, are associated with side effects/adverse effects such as irritation, rashes, redness, and so on, and are also costly. Various Aacharya describe management for Vyanga as Lepa, Raktmokshan Abhyang, Udavartan, and herbo-mineral drug with Raktashodhaka, Twak Prasadaka, Varnyakara, Rasayana, and Vishahara properties. Which has been found to be very effective in controlling the symptoms of the sign. In this study, a 22year-old patient who had been ill for four months was given t/t for that length of time. The outcomes were significant.

MATERIAL AND METHODS

- Literature from Samhita, Commentaries, Ayurvedic journals, Research papers, internet providing sites, Manuscripts, and other sources to gather and compile information/knowledge.
- The mMASI Scale is used to calculate the treatment effect.

CASE REPORT

A 27-Year-old Female Patient Came to OPD in August 2020 with following Complaints-

Chief Complaints- Blackish Patch over Cheeks and nose for one year, without itching or irritation.

History of Present Illness- A 27-year-old female patient visited the National Institute of Ayurveda, Skin care, OPD in Jaipur. She was completely normal a year ago. but she had developed blackish patches of pigmentation over her cheeks and nose for the past year with no associated symptoms such as itching. She sought Ayurvedic treatment at OPD 3 of the National Institute of Ayurveda for better management.

Food habits- spicy food

Occupation- Cath lab technician which leads to exposure of radiations.

Past History - No significant history of systemic illness and no history of previous surgeries.

Family History - No history of melasma in family.

Clinical findings- Lesions were blackish in colour and irregular in shape, appearing gradually over the cheek and around the nose. There were no other inflammatory conditions or itching. Because of the disease's sporadic outbursts, the patient was observed to be slightly depressed.

Table 1: Physical examination.

Sr. no.	Clinical presentation	Observations
1.	General condition	Good
2.	B.P.	122/80 mm Hg
3.	Pulse rate	74/min
4.	Respiration rate	14/min.
5.	Temperature	98.4 F
6.	Lymph node	Not palpable,

Table 2: Personal History.

Sr. No.	Personal History	Diet
1.	Diet	Vegetarian
2.	Appetite	Decreased
3.	Sleep	Normal
4.	Addiction	No addiction
5.	Bowel habit	Normal
6.	Micturition	Normal

Table 3: Systemic Examination.

Sr. No.	Systems	Findings
1.	Respiratory system	NAD
2.	Cerebro-vascular system	NAD
3.	Gastro-intestinal tract	NAD
4.	Central nervous system	NAD

Table 4: Laboratory Investigations.

Sr. No.	Investigations	Results
1.	Blood routine	Normal
2.	Thyroid function tests	Normal
3.	Abdominal USG	Normal

Samprapti

Nidana Sevana like Aharaja, Viharaja, Manasika (spicy foods, exposure to excess heat, grief and anger)



Vitiate Vata, Pitta, Rakta along with Rasavaha srotas and Raktavaha srotas



Sthanasamsraya in the Twak of face



Niruja, Tanu, Syava Varna Mandala over cheek and



Samprapti Ghataka

Dosha- Vata, pitta, rakta Dushya- Rasa, rakta, twak Srotas – Rasavaha, raktavaha Srotodushti- Sang Agni – Mandam Adhishthan-Twak Rogamarga- Bahyam Sadhyasadhyata- Sadhyam

Treatment Plan

Various Ayurvedic texts prescribe various types of medicines for Vyanga Shodhan therapy, Shaman therapy, and other treatments. Shaman therapy can be used both internally and externally. Because the disease has spread locally on the skin of the face, local application would have a more beneficial and immediate effect on various characteristics such as discoloration, etc. As a result of the treatment chosen, the patient was treated with specific combinations of herbo-mineral drugs-

- 1. Saptamrit Loha
- 2. Aarogya Vardhini Vati
- 3. Shatavari Churna
- 4. Madhuyashti Churna
- 5. Manjishtha Churna

Lepnarth (Local Application)

Rakta Chandan, Manjitha, Kutha, Priyngu Flower, Vatankur, Masoor, Arjun Haldi, Jao, Jatiphla, Aamlaki, Lodhra, Neem, Nagkeshar etc. with milk.

Pathya (wholesome) – Laghu Bhojna (Light Food) and Ushanodaka (warm water) etc.

Apathya (unwholesome)- heavy salty, fried, spicy, sour, and oily food items etc.

OBSERVATION AND RESULT

The treatment responses were assessed on the basis of mMASI Scale after a course of medicines for 3 months with follow up of 15 days and improvement was found. After 3 months, it was found that patient got improvement. The improvement in term of reduction in mMasi Score. Modified MASI (mMASI) was calculated for each side of the face as follows: mMASI= Area (A) * [Darkness (D) + Homogeneity (H)] -- before and 12 weeks after the treatment process [Fig. 1]. The calculation is based on the percentage of involved area (A = 0-6: 0 = 0%, 1 = 10%, 2 = 10-29%, 3 = 30-49%, 4= 50-69%, 5 = 70-89%, 6 = 90-100%); darkness of pigment (D = 0-4: 0 = absent or normal skin color without evidence of hyperpigmentation, 1 =slight visible hyperpigmentation, 2 = mild visible, 3 = marked, 4 = severe). and homogeneity or density hyperpigmentation (number of pigmented lesions per unit facial area; H = 0-4: 0 = minimal, 1 = slight, 2 =mild, 3 = marked, 4 = severe). [8]

Before treatment

For left malar Region (TABLE 5)

Before treatment (TABLE 5)			
Sr. no.	Criteria	Percentage	Grade
1.	Area	60%	4
2.	Darkness	Severe	4
3.	Homogeneity	Severe	4
Total			12

For Right malar region (TABLE 6)

Before treatment (TABLE 6)			
Sr. no.	Criteria	Percentage	Grade
1.	Area	60%	4
2.	Darkness	Severe	4
3.	Homogeneity	Severe	4
Total			12

For left malar region mMASI Score = 12

For right malar region mMASI Score = 12

Forehead mMASI Score = 0

Chin mMASI Score = 0

Total mMASI Score = Left malar region mMASI Score + Right malar region mMASI Score + Forehead mMASI Score + Chin mMASI Score

After treatment

For left malar Region (TABLE 7)

After treatment (TABLE 7)			
Sr. no.	Criteria	Percentage	Grade
1.	Area	25%	2
2.	Darkness	Mild	2
3.	Homogeneity	Mild	2
Total			6

For Right malar region (TABLE 8)

After treatment (TABLE 8)			
Sr. no.	Criteria	Percentage	Grade
1.	Area	25%	2
2.	Darkness	Mild	2
3.	Homogeneity	Mild	2
Total			6

For left malar region mMASI Score = 6

For right malar region mMASI Score = 6

Forehead mMASI Score = 0

Chin mMASI Score = 0

Total mMASI Score = Left malar region mMASI Score + Right malar region mMASI Score + Forehead mMASI Score + Chin mMASI Score

$$= 6 + 6 + 0 + 0 = 12$$

Change in mMASI Score = 24-12 = 12

Change in percentage in mMASI Score = 12/24 x 100= 50%





(Figure 2) (Figure 3)
Patient 1 Images- (Figure 2: Before treatment; Figure 3: After treatment)





(Figure 4) (Figure 5)
Patient 2 Images- (Figure 4: Before treatment; Figure 5: After treatment)

DISCUSSION

In this case, it was discovered that Ayurvedic medicines helped the patient's condition. This is most likely due to the use of Raktashodhaka, Twak Prasadaka, and Varnyakara, Rasayana Dravya in current Ayurvedic prescription.

Saptamrita louha

It's an Ayurvedic medicine. This formulation is made from a combination of minerals and herbs. It contains Loha Bhasma (Iron Calx), Mulethi, and other herbs (Glycyrrhiza glabra) Haritaki (Terminalia chebula), Vibhitaki (Terminalia bellirica), and Amalaki are the three components of Triphala (Emblica officinalis). [9] These ingredients aid in the effective management of skin disorders. Because it contains Iron calx (Bhasma) as a component. It is anti-inflammatory in nature. It helps to balance the Pitta Dosha in the body. Iron calx is loaded with minerals and nutrients. This formulation is used to treat anaemia by raising blood levels. It also has detoxifying, anti-pruritic, demulcent (soothing and smoothing) and anti-oxidant properties. [10]

Aarogyavardhini Vati

The word Arogya signifies good health and *Vardhini* stands for improvement means this formulation can eradicate the diseases completely and promote good

drug has been mentioned Rasaratnasamucchaya in the context of Kustha (skin disorder) and in Bhaishyajyaratnavali in the context of Yakrita Vikara (liver disorder).[11] Haritaki (Terminalia chebula) is an astringent and laxative ingredient in the medication. It is effective in treating liver disorders such as fatty liver and cirrhosis of the liver. The herb Bibhitaki (Terminalia belerica) is a laxative and an effective treatment for digestive problems. Amalaki (Emblica officinalis) is another ingredient that is antibacterial, stomachic, hypotensive, and astringent. It is antioxidative, anti-hepatotoxic, and immune modulator. The abudance of *Triphala* is very effective in removing AMA toxin from body. *Triphala* supplementation is very effective in removing AMA toxin from the body. Shuddh Shilajit, a mineral, is a powerful revitalising agent. It acts like nectar; it contains powerful antioxidants and thus slows the ageing process. *Chitra* (Plumbago zeylancia) is an effective remedy for digestive disorders such as loss of appetite, indigestion, and various liver diseases. Another important ingredient (Picrorrhiza kurroa) is a useful treatment for liver disorders. It works well for liver damage caused by chemicals like carbon tetrachloride, paracetamol, and even alcohol. Antarkar et al. (1980) conducted a double-blind trial with Arogyavardhini Vati for the treatment of acute viral

www.ejpmr.com | Vol 11, Issue 7, 2024. | ISO 9001:2015 Certified Journal | 371

hepatitis, which revealed significant hepatoprotective effects of *Arogyavardhinivati*. [12]

In this case study, the patient is experiencing a loss of appetite. *Mandagni* can be found in *Vyanga's Samprapti* as well (pathology). Furthermore, due to etiological factors such as *Shoka* and *Krodha*, *Pitta* vitiation occurs, affecting the *Jathragni* and normal functioning of *Ranjak* pitta, i.e. *Varnotpatti* and *Bhrajak Pitta*, causing skin discoloration. As a result, the drug used to treat liver problems will almost certainly balance *Ranjak Pitta*. This *Vati*, which is high in antioxidants, scavenges free redical from the body and, as a result of its *Ttridoshshamak* action, will pacify *Pitta* (Mainly *Bhrajak Pitta*). Its anti-pruritic properties also alleviate itching sesation, which is common in skin diseases, making it useful for skin diseases.

Shatavari Churna— Rasa-Madhur, Virya- Sheeta, Vipaka Madhura, Guna-Guru, Snigdha, Doshaghnata-VattaPitta Shamak. Bhavprakash, Raja Nighantu, Kaiydev, and Sriya Nighantu all mention Tiktaanurasa in Nighantu Tikta Anurasa. Rasayan, Netrya, Shukral, Stanya, Agnivardhak, Medya, Balaya, Shothar, and other Karma are associated with Shatavari. It has antibacterial, anti-inflammatory, antiseptic, antipyretic, diuretic, expectorant, stomachic, nervous stimulant, and tonic bioactivity, among other things. [13]

Mulethi (Glycyrrhiza glabra)

Herb with Madhura Rasa (sweet flavour) and Guru (heavy flavour) and Snigdha Guna (i.e. unctuous quality). It depicts Sheeta Virva (cold potency) and Madhura Vipaka inherently (i.e. sweet metabolic taste). Because it is heavy and unctuous, it is antagonistic to Vata (air) Dosha, whereas its sweet metabolic taste and cold potency help the herb to pacify Pitta (fire and air) Dosha. This rejuvenating herb, which is high in antioxidants and nutrients, plays an important role in treating a variety of skin problems. It effectively removes free oxygen radicals from the body and reduces oxidative damage. As a Vata-Pitta Shamak, it flushes out AMA toxins from the skin's internal layers, promotes overall skin health, and treats various skin infections such as eczema, acne, pimples, rashes, and so on. Because it is classified as Vrnyakara Dravya, it hyperpigmentation and dark circles, leaving a spotless glz.^[14]

Manjistha (Rubia cordifolia)

Manjitha is said to have Vrnya and Vishghan properties, which make it clinically useful in pigmentation disorders and skin allergies. It is mentioned in the management of Vyanga in Ashtang Sangrah. It has Guru (heavy to digest) and Rooksha (dry) Guna (qualities), Tikta (bitter), Madhura (sweet), and Kashaya (astringent) Rasa, Vipaka (taste conversion after digestion), Katu (pungent), Ushna (hot) Veerya (potency). It has a Kaphapitta shamaka effect, which means it balances Kapha and Pitta. Pittahara is the main character. Because it reduces Pitta,

it is beneficial in Pitta-related diseases such as skin (wounds, skin diseases) and eyes. Manjishtha has Raktashodhak and Varnya properties that improve skin and make the complexion fair.

Raktchandan (Petrocarpussantalinus)

Tikta (Bitter) and Madhura (Sweet) Rasa, Laghu (Light) and Ruksha (Dry) Guna, Sheeta (Cold) Veerya, Katu (Pungent) Vipaka, Kapha- Pitta Ghan Karma are all associated with Raktachandan. It balances Pitta because of these characteristics. Bhrajak Pitta is in charge of the colour of one's skin. Raktachandan's attributes include Twagdoshahar, Raktapittashamak, Raktashodhak, and Mukhakantikar, Vrnya.

Priyangu flowers (Callicarpa macrophylla)

Because of Tikta (Bitter), Kashaya (Astringent), Madhura (Sweet), Rasa (Taste), Guru-Ruksha Guna, and Sheeta Virya, Priyangu is Raktashodhak, Twagdoshahar, and very useful in skin diseases. Karma (Actions) - Tridoshashamaka properties (balances all three Dosha)^[16]:

Haldi (Curcuma longa)

Haldi contains *Katu* (pungent) and *Tikta* (bitter) *Rasa* (taste), *Ushna* Virya (action), *Laghu* (light), and *Ruksha* (rough) (quality). It calms *Kapha* and *Vata* because it is pungent and warming. It is also bitter and astringent, which helps to balance the *Pitta Dosha*. Because of its *Prabhava*, it purifies the blood, skin, and complexion. [17]

Arjuna (Teminalia Arjuna)

The wound healing capacity of Teminalia Arjuna bark hydroalcohol extract was evaluated on rat dermal wounds. The outcome clearly demonstrated that the beneficial effect was due to the tannin content. [18] On rat dermal wounds, the wound healing capacity of Teminalia Arjuna bark hydroalcohol extract was evaluated. The results clearly demonstrated that the tannin content was responsible for the beneficial effect. [19]

Jao-Yava(Barley- Hordeum Vulgare)

Madhura (sweet), Tikta (bitter), Kashaya (sour) (astringent) Rasa Laghu (light), Ruksha (dry), Pichila (slimy), Mridu (soft), Sara are the Guna (attributes) (flows easily) (Potency): Virya Sheeta is an abbreviation for Sheeta (cold) Katu (final product): Vipaka (pungent) Doshaghnata (Dosha effect): Bahupurishakara, Mutra Doshahara, Kaphapittahara, Vatakara Mala Prabhava, Vatakara Mala Prabhava, Vatakara Mala Prabhava, Vatakara Mala Prabhava, Vata Karma (body effects): Lekhana (scraping effect), Medohara (eliminates excess fat accumulated in the body), Vrishya (acts as an aphrodisiac), Balva, Sthairvakaraka (increases strength), Varnya (increases complexion), Swarya (helps to gain good voice), Agni/Agnideepana (increases appetite and metabolism), Kasa-Shwasa Pinasahara (remedy for cough, breathlessness and rhinitis), Kantarogahara (eliminates throat infections).

Masura (lens culinaris)

Masura has a Varnyakar effect on the skin due to the presence of Ruksha Guna and Sheeta Virya. Masura is high in proteins, which improves the complexion and gives your skin a natural glow. Masura is high in flavonoids, vitamins, tricetine, and other nutrients that nourish the skin and have antifungal properties.

Lodhra (Symplocos racemose Roxb.)

It is bestowed with the *Rukhsh*a (dry) and *Laghu* (light) *Gunas*. It contains *Sheeta Veerya* (cold potency) and *Katu Vipaka* (heat potency) (pungent metabolic property). If taken in excess, the herb may aggravate the *Vata Doshas* due to its dry and light qualities. As a *Pitta* pacifier, it detoxifies the kidney, liver, and blood while fortifying the vital organ and promoting cellular growth and tissue regeneration. *Ayurveda* recognises *Lodhra* as a well-known one-step remedy for various skin conditions due to its antioxidant, antimicrobial, and anti-inflammatory properties. *Lodhra* is *Rakta Shodhak* due to *Kshaya Rasa*, *Laghu Guna*, and *Sheeta Virya* and is credited with cleansing and soothing properties, and is thus used in various skin ailments. It also has *Varnya* properties.

Kushtha (Saussurea lappa)

Kushtha has the Varnya effect, the Kushthaghna property due to the Laghu-Ruksha Guna, and it improves complexion. It also aids in the treatment of a variety of skin infections due to its blood purifying properties, which aid in the removal of toxins from the blood. It not only protects the skin from oxidative radical damage caused by harmful UV-A and UV-B rays, but it also reduces the risk of wrinkles, blemishes, spots, fine lines, and dark circles. This magical detoxifying herb highlights Kashaya (astringent) Rasa.

CONCLUSION

The above-mentioned drugs due to their properties have made this combination an ideal and superior one. All these drugs are blessed with *Raktashodhaka*, *Twak Prasadaka*, *Varnyakara*, *Rasayana*, *Vishahara etc.* properties and are seen effective in management of *Vyang* in this case. Hence it can be concluded that *Lepa* and *Ayurvedic* oral medication is effective in management of *Vyang* which was not relieved by modern medicine and further clinical trials can be done to support the evidence.

ACKNOWLEDGEMENTS

I would like to express my heartfelt gratitude to all those who have contributed to the completion of this project. Firstly, I extend my deepest appreciation to Prof. (Dr.) C. R. Yadav (HOD, Dept. of Kriya Sharir, NIA, Jaipur, Rajasthan) and Dr. Sarika Yadav (Assistant Prof., Dept. of Kriya Sharir, NIA, Jaipur, Rajasthan) my project supervisor, for their invaluable guidance, support and encouragement throughout the entire duration of this project. I'm extremely grateful for the support and nurturing of Dr. Hardik Chudasama. The author

expresses the gratitude to Dr. Meha Sharma (Final Year PG Scholar, PG Dept. of Kriya Sharir, IAS&R, Kurukshetra) for her support.

REFERENCES

- 1. Rendon M, Berneburg M, Arellano I, Picardo M. Treatment of melasma. J Am Acad Dermatol, May 2006; 54(5,2): S272-81. doi: 10.1016/j.jaad.2005.12.039. PMID: 16631968.
- 2. Susruta, Susruta Samhita, Text With English Translation By Kaviraj Kunjalal Bhishagratna, Choukhambha Sanskrit Series Office, Varanasi, Su. Ni. 13/45, 105.
- 3. Agnivesha, Charak Samhita, text with English translation by r.k. sharmaandbhagwan Dash, choukhamba Sanskrit series office, Varanasi edition, 2008; Ch. Su. 18/25.
- 4. Oluwatobi A. Ogbechie-Godec. Nada Elbuluk, Melasma: an Up-to-Date Comprehensive Review, 2017; 305-318, https://doi.org/10.1007/s13555-017-0194-1
- Nouveau, S., Agrawal, D., Kohli, M., Bernerd, F., Misra, N., & Nayak, C. S. Skin Hyperpigmentation in Indian Population: Insights and Best Practice. Indian journal of dermatology, 2016; 61(5): 487–495. https://doi.org/10.4103/0019-5154.190103
- Basit H, Godse KV, AI Aboud AM. Malesma. [updated 2021 JAN]. in: star Pearls [internet] Treasure Island (FL): Star Pearls Publihing 2021 Jan.
- Rambe, Puspita&Simanungkalit, Rointan&Yosi, Ariyati. The Relationship between Serum Zinc Level and Severity of Melasma. International Journal of Scientific and Research Publications (IJSRP), 2020; 9749. 10.29322/IJSRP.10.01.2020. p9749.
- Wei, Ming-Liang & Liao, Yi-Hua & Weng, Wei-Hung & Shih, Yuan-Ta & Sheen, Yi-Shuan& Sun, Chi-Kuang. A Study on Applying Slide-free Labelfree Harmonic Generation Microscopy for Noninvasive Assessment of Melasma Treatments with Histopathological Parameters. IEEE Journal of Selected Topics in Quantum Electronics, 2021; 1-1. 10.1109/JSTQE.2021.3069472.
- Dr.minakshichouhan, 25 April 2019 https://www.planetayurveda.com/library/saptamritalauh/
- 10. Bhaishjyaratnavali of Shri Govind Das, chapter 64, netra rog Chikitsa, verse-232-236./chakradatta of Shri chakrapani datta.
- 11. KavirajGovinda Das Sen. Bhaisajyaratnavali. Siddhipada Hindi Commentary, Prof. Siddhinandana Mishra editor. 1st edition. Kustharogadhikara, Chapter no-54, Verse no-117, Varanasi: Chaukhamba Surbharati Prakashana, 2012; 871.
- 12. Santosh Pal, A Ramamurthy, Bidhan Mahajon JArogyavardhiniVati: A theoritical analysis journal of Scientific and Innovative Research ISSN 2320-4818, 2016; 5(6): 225-227.

- Dr.Mrunal Akre and Dr. Ravindra Kharat, Physicochemical And Phytochemical Analysis Of Guru And Laghu Guna Dravya Wsr To Aushadhiya Dravya, World Journal of Pharmaceutical Research, ISSN No. 2277–7105, 2019; 8(3).
- 14. https://www.netmeds.com/healthlibrary/post/mulethilicorice-powder-benefits-usesingredients-method-dosage-and-side-effects
- 15. K. niteshwar& k. hemadri, dravyagunavijnana, choukhmba Sanskrit prakashan, delhi, edition 2013, detailed study of drugs, 84.
- 16. Dr. Harshitha K. J. and Dr.GurubasavarajYalagachin, Yava (Barley-Hordeum Vulgare) - A Food And Panacea, World Journal Of Pharmaceutical And Medical Research, ISSN 2455-3301, 2017; 3(9): 96-100.
- 17. https://ayurvedaforyou.com/ayurveda_herb/turmeric.html
- Neelam Soni and Vinay Kumar Singh, Efficacy and Advancement of Terminalia arjuna in Indian Herbal Drug Research: A Review. Trends in Applied Sciences Research, 2019; 14: 233-242, DOI:10.3923/tasr.2019.233242, https://scialert.net/abstract/?doi=tasr.2019.233.242
- 19. Neelam Soni and Vinay Kumar Singh, Efficacy and Advancement of Terminalia arjuna in Indian Herbal Drug Research: A Review. Trends in Applied Sciences Research, 2019; 14: 233242, DOI: 10.3923/tasr.2019.233-242, https://scialert.net/abstract/?doi=tasr.2019.233.242

www.ejpmr.com | Vol 11, Issue 7, 2024. | ISO 9001:2015 Certified Journal 374