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APPLIED ASPECT OF VARNYA MAHAKASHAYA

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ABSTRACT

The concept of Saundarya or beauty takes skin and its complexion into consideration. In Ayurveda, complexion is referred to as Varna which has various physiological and pathological implications whereasVarnya is a classical term given for the task of restoring and retaining the natural hue, texture and tone of the skin. Varna includes different parameters of skin like color, texture, lusture, appearance, nourishment and also dermatological parameters such as skin hydration, skin pigmentation, skin sensitivity and skin wrinkling etc. Hence, disturbance in any of the components of the skin is considered as Vaivarnya or skin discoloration. According to Acharya Charaka, VarnyaMahakashaya is the eighth group of 50 Mahakashaya described in fourth chapter of Sutra Sthana of Charaka Samhita and includes drugs viz: Chandana (Santalum Album), Tunga (Calophylluminophyllum), Padmaka(Prunuscerasoides), Ushira (Vetiveriazizanioides), Madhuka (Glycyrrhizaglabra), Manjishtha (Rubiacordifolia), Sariva (Hemidesmusindicus), Payasya(Puerariatuberosa), Sita (Cynodondactylon) and Lata (Cynodonlinearis). These are the group of drugs used to maintain and enhance the complexion in healthy and diseased both. Some of these can be administered both internally and externally.

INTRODUCTION

"Healthy Liver Can Mean Healthy Skin" – said by Jody Smith

Liver is the metabolic factory of the body producing energy to sustain the thousands of functions performed by all body's cells. Hair and skin cells require energy toeliminate toxins and repair and regenerate them. Efficient blood supply to skin maintains collagen production and oxygenation of the cells to protect them from aging. Therebybased on the physiology of liver, there is a relation between the outer glowof complexionand liver health.So,the primary goal is to enhance liver detoxification processes to promote healthy glowing skin and inturn purify blood so that the person remains overall healthy. In this review theimportant herbs in *varnyamahakashayagana*used to treat (*vaivarnya*) skin discolouration associated with liver detoxification have been described.

Varnyamahakashayadravyas:

*Varnyamahakashayadravyas*are the group of drugs which are used to treat and prevent the *Vaivarnya*(skin discoloration) related conditions, to maintain and enhance thecomplexion in healthy. These can be administered both internally and externally. According to *Charaka SamhitaSutra Sthana*4th chapter *Varnyamahakashayadravyas*mainlyincludes –

Chandana*(Santalum Album),*
Tunga*(Calophylluminophyllum),*
Padmaka*(Prunuscerasoides),*
Ushira*(Vetveriazizanoides),*
Madhuka*(Glycyrrhizaglabra),*
Manjishta*(Rubiacordifolia),*
Sariva*(Hemidesmusindicus),*

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Payasya*(Pureaeriatuberosa),*
Sita*(Cynodondactylon),*
Lata*(Cynodonlinearis).*

Table 1 Properties of plants used in the preparation of *VarnyaMahakashayaDashemani*

Drug	Latin Name	Family	Parts Used	Rasa	Guṇa	Vīrya	Vipāka	Karma	Doṣaghnata
Chandana	Santalum Album	Santalaceae	*Kanda, Sāra*	*Tikta, Madhura*	*Laghu,Rūkṣa*	*Sheeta*	*Katu*	*Dahaprashamana Raktaprassdana*	*Kaphapittahara*
Punnaga	Calophyllum inophyllum	Guttiferrae	*Kanda twak*	*Kaśaya Madhura*	*Laghu,Rūkṣa*	*Sheeta*	*Madhura*	*Dahaprashamana*	*Kapha pittahara*
Padmaka	Prunus cerasoides	Rosaceae	*Kanda*	*Tikta Madhura*	*Laghu, Snigdha*	*Sheeta*	*Katu*	*Garbhasthapana Vedanasthapana Vrshya , Varnya*	*Kaphapittahara*
Ushira	Vetveria zizanoides	Graminae	*Mula*	*Tikta , Madhura*	*Ruksha Laghu*	*Sheeta*	*Katu*	*Pachana, Stabhana*	*Kapha Pittahara*
Madhuka	Glycyrrhiza glabra	Leguminaceae	*Mula*	*Madhura*	*Guru Snigdha*	*Sheeta*	*Madhura*	*Pachana Stambhana Rasayana Vrshya Cakshushya*	*Tridoshahara*
Manjishta	Rubia cordifolia	Rubiaceae	*Mula*	*Madura Tikta*	*Guru Snigdha*	*Usna*	*Katu*	*Svarya ,Varnya*	*Kapha pittahara*
Sariva	Hemidesmus indicus	Asclepediaceae	*Mula*	*Madhura Tikta*	*Guru Snigdha*	*Sheeta*	*Madhura*	*Grahi ,shukrala*	*Tridoṣahara*
Payasya	Pureaeria tuberosa	Leguminaceae	*Kanda*	*Madhura*	*Guru Snigdha*	*Sheeta*	*Madhura*	*Balya ,Snehopaga Brmhaniya ,Varnya Kanthya*	*Vata Pitta Shamaka*
Sita	Cynodon dactylon	Poaceae	*Panchanga*	*Kashaya Madhura*	*Laghu*	*Sheeta*	*Madhura*	*Varnya , Prajasthapana*	*Kapha pittahara*
Lata	Cynodon linearis	Poaceae	*Panchanga*	*Kashaya Madhura*	*Laghu*	*Sheeta*	*Madhura*	*Varnya ,Prajasthapana*	*Kaphapittahara*

Aims and objectives: To see the mode of action of the applied aspect of *VarnyaMahakashaya* through various research papers, journal, websites and manuscripts.

Material and methods: Reviewing various research works done on individual ingredients of *VarnyaMahakashaya*as well as collectively.

Studies on hepatoprotective and skin lightening agent action of each *varnyaganadravyas*:

1. *Santalum album*

- [1] A study was designed to evaluate the hepatoprotective activity of leaves of Santalum album in experimentally induced liver injury by carbon tetrachloride and paracetamol. The levels of serum marker enzymes, bilirubin, total protein and antioxidant status were determined by measuring lipid peroxidation, glutathione, superoxide dismutase and catalase activity. Total wet weight and histopathological study of isolated liver was also carried out. The oral pre-treatment with hydroalcoholic extract of the leaves of S. album (200 and 400 mg/kg) showed significant hepatoprotective activity against CCl4 and paracetamol induced hepatotoxicity by decreasing the activities of serum marker enzymes, bilirubin and lipid peroxidation, and significant increase in the levels of glutathione, superoxide dismutase, catalase and protein in a dose dependent manner, which was confirmed by the decrease in the total weight of the liver and histopathological examinations. Data also revealed that the extract possessed strong antioxidant activity, which might leads to the promising hepatoprotective activity

Vetiveriazizanioides

- [2]The aim of present study was to evaluate the hepatoprotective potential of methanolic extract of VetiveriaZizanioides roots (MEVZ) against CCL4-induced acute liver damage in rats. Animals were pretreated with MEVZ (300 and 500 mg/kg, p.o) and

silymarin (200 mg/kg, p.o) respectively 30 min prior to CCL4 (0.5 ml/kg, i.p) ingestion for 7 days. The effects of MEVZ were assessed directly by liver histology and by serum alanine aminotransferase (ALT), aspartate aminotransferase (AST) and alkaline phosphate (ALP), total and direct bilirubin (TBL & DBL), lactate dehydrogenase (LDH), gamma glutamyl transferase (GGT), total protein (TP), liver malondialdehyde (MDA) and reduced glutathione (GSH). Also Serum Interleukin (IL-6), IL-1β and Tumor necrosis factor-α (TNF-α) were measured by enzyme linked immunosorbent assay (ELISA). Results clearly suggest hepatoprotective potentials of MEVZ mediated through attenuation of TNF-α and Il-6 mediated pathways, indicates it as a novel herbal drug for the prevention of acute liver damage

- [3]Another study onhepatoprotective activity of methanolic extract of Vetiveriazizanioides Linn (Poaceae) root was studied against 20% ethanol (3.76 g/kg/d, p.o for 18 d) induced liver damage in rats. Treatment with methanolic extract of V. zizanioides (300 and 500 mg/kg/d, p.o. for 18 d) and silymarin significantly prevented the functional, physical, biochemical and histological changes induced by ethanol, indicating the recovery of hepatic cells. These results demonstrate that methanolic extract of V. zizanioides root possessed the hepatoprotective activity as evidenced from the functional, physical, biochemical and histological parameters.

5. *Calophylluminophyllum.*

- In a study the methanol and chloroform extracts of the dried stem barks of "CalophyllumInophyllum" were prepared and compared with Standard drug for their anti-bacterial and analgesic activities. The antibacterial activities were evaluated
- Also Glycyrrhizin significantly inhibits the CCl4- induced release of AST and LDH at against number of different bacterial strains by detecting minimum inhibitory concentration and zone of inhibition. The minimum inhibitory concentration values were compared with control and zone of inhibition were compared with standard ciprofloxacin. The analgesic activities of both extracts were compared with standard drug Aspirin by Hot plates method using Swiss albino mice.[4]

6. *Rubiacordifolia.*

- A study done onvarious extracts of roots of R. cordifolia were screened for its hepatoprotative activity using Thioacetamide induced hepatotoxicity in rats. The activity was assessed through estimation of biochemical parameters viz. Serum Glutamate Pyruvate Transaminase (SGPT) and Serum Glutamate Oxaloacetate Transaminase (SGOT), further the results were supplemented with histopathological studies on Liver samples of the treated animals. The methanolic extract protects the liver of the animals against thioacetamide induced hepatotoxicity. Histology of the Liver sections of animals treated with methanolic extract showed the normal hepatic architecture with absence of necrosis, which further evidence the hepatoprotective activity.[5]**7.**

Glycyrrhizaglabra

- The extract of liquorice is reported to be an effective pigmentlightening agent with least side effects. Glabridin in the hydrophobic fraction of liquorice extract inhibits tyrosinase activity in cultured B16 murine melanoma cells. It does not affect DNA synthesis. Some other active compounds in liquorice extract like glabrene, Licochalcone A, Isoliquiritin are also responsible for inhibition of tyrosinase activity. Liquiritin present in liquorice extract disperse melanin, thereby inducing skin lightening[6] concentrations of 25–200 μg/ml. Alteration of membrane fluidity by the glycyrrhizin or

inhibition of CCl4-induced membrane lipid peroxidation might be responsible for the activity. 18β-glycyrrhetic acid (an aglycone of glycyrrhizic acid) shows hepatoprotective activity by inhibiting both free radical generation and lipid peroxidation [7]Glycyrrhizin is useful in treating acetaminophen-induced hepatotoxicity [8].

9. *Hemidesmusindicus*

- The study of methanolic extract of *H. indicus* were comparable with the standard hepatoprotective agent silymarin (100 mg/kg). Treatment of rats with paracetamol and CCl_4 produced a significant increase in the levels of serum glutamate pyruvate transaminase (SGPT), serum glutamate oxaloacetate transaminase (SGOT), alkaline phosphatase (ALP), total and direct bilirubin. Rats pretreated with methanolic extract of roots of *H. indicus* (100-500 mg/kg body weight, po) exhibited rise in the levels of these enzymes but it was significantly less as compared to those treated with paracetamol or CCl_4 alone. Maximum hepatoprotective effect was found to be at the dose of 250 mg/kg body weight in case of CCl_4 induced hepatic damage while 500 mg/kg body weight in case of paracetamol induced hepatic damage. The results suggest that methanolic extract of *H. indicus* roots possesses a potential antihepatotoxic activity.[9]
- Also the administration of rats with an aqueous extract (100 mg/kg) prior to bromobenzene administration showed significant beneficial effects like, stimulation in respiration, prevented the rise in lipid peroxides and protein carbonyls, increased the level of sulphydryl groups back to control level. Administration of vitamin E could not reverse as effectively as *Hemidesmusindicus.*This study demonstrates a good protective effect of *Hemidesmusindicus* against the bromobenzene induced oxidative stress[10]

10. *Mesuaferrea*

- Study on Hepatoprotective activity of Mesuol isolated from Mesuaferrea L. was studied against Paracetamol (750 mg/kg p.o.) induced hepatotoxicity in rats. Silymarin (100 mg/kg p.o.) was used as a standard reference in this study. When compared to PCM toxicant groups to normal group there were increased in wet liver weight and wet liver volume, SGOT, SGPT, ALP, DB, TB, LPO where as STP, GSH, TT levels were markedly reduced. Silymarin, Mesuol low dose (20 mg/kg i.p.) and Mesuol high dose (40 mg/kg i.p.) treated groups showed significant decreased wet liver weight and wet liver volume, SGOT, SGPT, ALP, DB, TB, LPO and increased in STP, GSH, TT levels. The histopathological changes like partly or fully necrosis prevented in groups treated with Silymarin and in both the dose treated groups.[11]
- The hepatoprotective and antioxidative efficacy of methanolic extract of dried flowers of Mesuaferrea in Staphylococcus aureus infected Balb/c mice was studied. For this, 50, 100, and 200 mg of extract/kg of BW of mice were prepared. Infection was artificially installed by injecting S.aureusintraperitoneally. Different extracts were injected twice a day (10.00 am and 6.00 pm) intraperitoneally up to 7th day of infection installation. Blood samples were collected at 0 and 7th day of infection. Enzymatic antioxidants, CAT, SOD, GPx, GSH and GR were determined at day 0 and 7 and found to be significantly restored in Mesua extract treated mice than controls. Serum ALT, AST, CPK, Creatinine and Urea profiles were examined on day 0 and 7 of the infection in all the mice groups. The values for all the above mentioned serum biochemical parameters were ranged in normal limits in extract treated groups compared to infected untreated group. AAT

and AST showed a significant restoration in Mesua treated group compared to control. 100 mg of extract/kg of BW was concluded as appropriate among all the three doses. This investigation positively demonstrated the antioxidant potency of M. ferrea flower methanolic extract[12]

- To study antioxidant and hepatoprotective activity evaluated by means of different in vitro assays. Hepatoprotective effect was investigated on carbon tetrachloride induced oxidative stress in liver slice culture model. Cytotoxic marker lactate dehydrogenase (LDH) released in culture medium and the activity of lipid peroxidation along with antioxidant enzymes (AOEs) namely superoxide dismutase (SOD), catalase (CAT) and glutathione reductase (GR) were estimated. A significant correlation was shown by total phenol content and free radical scavenging activity of extracts. Hexane extract and EtOH extracts of stamen of M. ferrea protected liver slice culture cells by alleviating oxidative stress induced damage to liver cells.[13]

Table 2Phytochemicals constituents of *VarnyaMahakashayaDashemani* extract

Phytoconstituents	**Aqueous extract**
Alkaloids	+
Flavonoids	+++
Tannins	+
Saponins	+
Quinones	−
Phenols	++
Anthocyanin	−
Proteins	−

+: present, ++: moderately present, +++: strongly Present, - : not present

DISCUSSION ON PROBABLE MODE OF ACTION OF VARNYA MAHAKASHAYAA DRAVYAS

From the above review it is understood thatliver is one of the important component inmaintaining the *Varna*, and *varnyamahakashyadravyas*possess both hepato protective and*varnya*property. Thus the link is foundbetween the liver and the skin, wherein *varnyamahakashya*can be used; as both theseconditions are checked by it. Some of the examples of *Varnyamahakashayadravyas*used in *Yakritvikaras*mentioned in classicshave been shown above. *VarnyaMahakashayaDravya* has high antioxidant and anti-inflammatory potential and further studies can lead to identification, isolation of the more potent therapeutic bioactive compound/s from this extract.Due to low cost and high effectiveness, almost 80% of Indian population are found to be dependent on traditional health care system in treating skin diseases[15]. Many studies have been conducted in evaluating the abilities of herbs/formulations toward treating skin abnormalities.[16]The significant efficiency of sandalwood oil in decreasing papilloma incidence[17]are some of the other examples of efficacy of plant components for treating skin disorders. *Prunuspuddum* is known for its *pitta shamak* properties and also the drug is *varnya, kandughna, dahaprashaman, vedanasthapan and raktastambhak* as per classics. Researches reveal anti inflammatory, anti ulcer and wound healing potential of *cynodondactylon*.Even though attempts have been made to unravel the mechanism of action of some plant components,[18] many herbal remedies are still not completely analyzed.[19,20]With newer insights, researchers disagree with "one drug fits all" concept due to renewed understanding in multi-ingredient interaction of traditionally designed polyherbal formulations[14,]*VarnyaMahakashayaDravya* as the name of the formulation itself indicates the form of usage, that is, *Kashaya* (decoction), wherein water is the base or vehicle through which different forms of polyherbal formulations can be prepared such as *Kashaya* (decoction),[22]*Ghanavati* (tablets/pills)[23] and *Kalka* (paste).[24]Thus, generally, VMD is prescribed for application with the water (cold or warm).

The reactive oxygen species (ROS) generated in the body may induce DNA damage in melanocytes and also affect its proliferation.[25] Thus, the importance of flavonoids and phenolic components of VMD as active radical scavengers in protection of skin against both the intrinsic and extrinsic environment can be understood.The antioxidant potency of VMD may also influence skin pigmentation by interacting with copper at active site to hold up the oxidative polymerization of melanin intermediates.[29,26,27]

CONCLUSION

The result of the present investigation could be a preliminary proof to note, VMD is an effective composition to treat/to prevent skin discoloration by applying to the skin and also internally used for liver detoxification as it composites the treatment composition containing an effective amount of antioxidants and anti-inflammatory agents .As, skin and its complexion is one of the ways of expression of beauty and health of an individual. To conclude, the study highlights various researches done on utility of *varnyamahakashaya* as liver detoxifying agent and in beauty enhancement.

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