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COMPUTATION AND COMPARISON OF DRUG EFFICACY INDICES $Q_{(VPK)}$ OF CERTAIN UNIQUE HERBAL REMEDIES FOR HEMORRHOIDS

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ABSTRACT

The subject matter of this paper is obtained from the studies of certain simple time tested herbal remedies used for treating hemorrhoids by traditional herbal practitioners in villages those were not mentioned in ancient Ayurvedic literatures. Their drug efficacies were computed and classified accordingly based on Ayurvedic principles. These formulations might be unique herbal formulations of local traditions later adopted by practitioners for complementary prescriptions. In modern era of herbal medicines these simple remedies were collected and inserted in many modern texts written by eminent herbal and Ayurveda practioners. In this paper these medicaments were critically analyzed and computational studies were carried out based on Ayurvedic principles.

Keywords – Hemorrhoids, alternative medicines, Ayurveda samhitas, herbal medicines, Drug Efficacy Index

1. INTRODUCTION

The fields of Alternative Medicines are vast and found successfully practicing not only in our country but also in many civilized foreign countries. There are many complementary methods of practice that include various unique herbal or herbomineral including animal products alongwith many tantric remedies or methods successfully practiced by local practitioners in various communities all around the globe. Many of these local traditions of herbal practices were also found effective for curing or better controlling various diseases to a considerable extent. Most of these formulations were not found as such in any of the ancient texts or in various *sahasrayogas* collected and owned by many traditional practitioners. These herbal remedies were used as complementary medicines by traditional *Ayurveda* practitioners while treating the patients with their classical medicines since very long time. In this paper six of such popular time tested herbal remedies used for treating hemorrhoids were selected and their efficacies were computed and classified them accordingly by incorporating the principles of *Ayurveda*. The hemorrhoids were defined as a varicose condition of the *hemorrhoidal* veins causing painful swellings at the anal canal. Due to increased hydrostatic pressure in *hemorrhoidal* venous plexus associated with straining at stool, pregnancy etc. such *anorectal* condition results and may be external, internal, thrombosed, acute or even bleeding. Modern medicine start treating pain with bulk laxatives and stool softeners such as psyllium extract, dioctyl sodium sulfosuccinate etc. along with many sitz baths, hazel compresses and various analgesics. Bleeding may require rubber band ligation or injection sclerotherapy and operative hemorrhoidectomy in severe or refractory cases¹. In ancient literature the *Hemorrhoids* or *Arsaoroga* are

explained in various *Samhitas* and *Caraka* clinically classify piles or *Arsas* in to two varieties viz. *Ardra* and *Suska*. The piles that bleeds or 'make wet' which is a common sign of internal piles is known as *Ardra arsas* and the piles that 'seem to dry' which is a common sign of external piles as *Suska arsas*. But *Susruta* considers the *Arsas* arises due to the combined vitiation of two *doshas* and surgery is the only preferred remedy for curing. According to *Ayurvedic* principles and *tridosha* theory the internal hemorrhoids or bleeding piles or *Ardra arsas* can be classified to *Rakta-Pitta* or *Pitta-Kapha* in nature and the external hemorrhoids or non-bleeding piles or *Suska arsas* to *Vata-Kapha* *Arsas* in nature². *Ayurveda* uses its unique techniques based on indian *Vedic* philosophy to predict the therapeutic effects of various formulations. There are still effective formulations prescribed and successfully practiced in the common parlance by local practitioners as complementary to the main stream *Ayurveda*. The present research tries to prove these formulations are also based on *Ayurvedic* principles. For this some of the selected formulations were analyzed using computational methods developed based on *Vedic Ayurvedic* principles to quantify their therapeutic values (dosha pacifying effects) and compared with the doshic nature of the diseases as explained in classical texts.

2. MATERIALS AND METHODS

Six time tested herbal formulations prescribing by traditional practitioner as complementary along with classical medicines were taken for the computational studies. The drug efficacies of these combinations were computed by considering the *Rasa-Guna-Veerya-Vipaka* of individual constituents as explained in the classical texts or lexicons (*nighantus*).

2.1 Herbal Formulation 1 (HF-1)

The oil of *Ricinus communis* Linn. (*Eranda Thailam*) along with the juice of *Aloe vera* Linn. (*Kumari Rasa*) was found good for curing the pain of piles (*Arsa*) when applied externally on the masses of piles. The oil of *Ricinus communis* Linn. was explained as effective pain manager and according *Vagbhata* it comes under *Vidaryadigana* and according to *Susruta* it comes under *Vidarigandhadigana* and both accept the *Vata-pittahara* nature³. The use of *Aloe vera* Linn. (*Kumari*) for curing the disease understudy was not found in any of the ancient *Samhitas* and found explained as *Pitta-Rakta* curing in nature in later lexicons⁴.

2.2 Herbal Formulation 2 (HF-2)

The fruit of *Aegle marmelos* Linn. (*BilvaPhala Majja*), Sugar (*Sarkara*), *Piper nigrum* Linn. (*Marica*) and *Elettaria cardamomum* Maton. (*Ela*) together can lessen the bleeding when taken internally. The fruit of *Aegle marmelos* Linn. can purify *Vata* as explained by *Vagbhata*⁵. The sugar or *Sarkara* is *Vata-Pittahara* according to *Yogaratanakara*⁶. *Piper nigrum* Linn. (*Marica*) is *Kaphaghna* according to *Vagbhata*⁷. According to *Susruta* *Elettaria cardamomum* Maton. (*Ela*) has *Vata-Kaphaghni* nature and belongs to both *Pippalyadigana* and *Eladigana*⁸.

2.3 Herbal Formulation 3 (HF-3(a) and HF-3(b))

Taking powdered *Mesua ferrea* Linn. (*Nagakesara*), *Sesamum indicum* Linn. (*Tila*) along with either Ghee (HF-3(a)) or Butter (HF-3(b)) internally can lessen the bleeding of piles. The *Mesua ferrea* Linn. belongs to *Eladigana* according to *Susruta* and *Kapha-Pitta vishapaha* in nature⁹. The *Sesamum indicum* Linn. (*Tila*) is a stool softner but a body strengthener¹⁰. The Ghee or *Ghrita* is found to be *Vata-Pittahara* and the butter or *navani* is also found to be *Vata-Pittahara* along with *Arsahara* nature^{11,12}.

2.4 Herbal Formulation 4 (HF-4)

The paste of powdered black mustard or *Brassica nigra* Linn. (*Sarsapaka*) with honey when applied externally the pain and *vrana* of piles may be alleviated. According to *Vagbhata* it has *Kapha-sukra-anilapaha* and *Rakta-Pitta kopana* property¹³. The honey has many varieties and various properties assigned to each of them¹⁴.

2.5 Herbal Formulation 5 (HF-5)

The external application of turmeric powder or *haridra* (*Curcuma longa* Linn.), the oil of *Brassica nigra* Linn. or *Sarshapataila* (Mustard oil), juice of *Carica papaya* Linn. (*Papaya swarasa*) and juice of *Aloe vera* Linn. (*Kumari Rasa*) can alleviate the pain and *vra*na of piles. The antibacterial and wound healing property of turmeric powder or *haridra* (*Curcuma longa* Linn.) is very well known¹⁵.

2.6 Herbal Formulation 6 (HF-6)

The dried *Raphanus sativus* Linn. (*Mulakam* or *Hastidantakam*) when made a paste and applied hot can cure non- bleeding piles or *Suskarsa*. Many of the homoeopathy medicines are also found preparing from *Raphanus sativus* Linn. in this modern era¹⁶.

2.7 Experimental

The Drug Efficacy Indices of individual components as well as each of these herbal formulations as a whole were computed and classified pharmacologically strictly based on *Ayurvedic* principles using the efficacy equation as reported earlier¹⁷. The properties of the individual herbs were taken from various *Samhitas* and Texts for comparison. The supportive and suitable properties were reported. The scientific and numerical research methods were adopted for measuring the properties and expressed numerically. The computed Drug Efficacy Indices and corresponding pharmacological classes of each of the components were tabulated (Table 1). Similarly the Drug Efficacy Indices and corresponding pharmacological classes of each of these six herbal formulations were tabulated (Table 2).

Table 1: The computed Drug Efficacy Indices Q_(VPK) and corresponding pharmacological classes of individual components.

Sl. No.	Herb/ Component	Vata (q _v)	Pitta (q _p)	Kapha (q _k)	Q _(VPK)	Pharmacological class
1	<i>Ricinus communis</i> Linn (<i>Eranda Thailam</i>)	-65.00	-20.00	15.00	0.70	<i>Pitta-Vataghni</i>
2	<i>Aloe vera</i> Linn. (<i>Kumari Rasa</i>)	20.00	-60.00	20.00	0.20	<i>Pittaghni</i>
3	<i>Aegle marmelos</i> Linn. (<i>BilvaPhala Majja</i>)	20.00	-20.00	-60.00	0.60	<i>Pitta-Kaphaghni</i>
4	<i>Sugar</i> (<i>Sarkara</i>)	-14.29	-42.86	42.86	0.14	<i>Vata-Pittaghni</i>
5	<i>Piper nigrum</i> Linn. (<i>Marica</i>)	-60.00	-20.00	20.00	0.60	<i>Pitta-Vataghni</i>
6	<i>Elettaria cardamomum</i> Maton. (<i>Ela</i>)	-34.48	31.03	-34.48	0.38	<i>Vata-Kaphaghni</i>
7	<i>Mesua ferrea</i> Linn. (<i>Nagakesara</i>)	20.00	-20.00	-60.00	0.60	<i>Pitta-Kaphaghni</i>
8	<i>Sesamum indicum</i> Linn. (<i>Tila</i>)	-20.69	-31.03	-48.28	1.00	<i>Tridoshaghni</i>
9	<i>Ghee</i> (<i>Ghrta</i>)	-14.29	-42.86	42.86	0.14	<i>Vata-Pittaghni</i>
10	<i>Butter</i> (<i>Navani</i>)	-13.64	-42.42	43.94	0.12	<i>Vata-Pittaghni</i>
11	<i>Brassica nigra</i> Linn. (<i>Sarsapaka</i>)	20.83	16.67	-62.50	0.25	<i>Kaphaghni</i>
12	<i>Honey</i> (<i>Madhu</i>)	24.00	-60.00	16.00	0.20	<i>Pittaghni</i>
13	<i>Curcuma longa</i> Lin. (<i>Haridra</i>)	20.00	-20.00	-60.00	0.60	<i>Pitta-Kaphaghni</i>
14	<i>Carica papaya</i> Linn. (<i>Papaya swarasa Eranadakarkati swarasa</i>)	20.83	16.67	-62.50	0.25	<i>Kaphaghni</i>
15	<i>Raphanus sativus</i> Linn. (<i>Mulakam</i> or <i>Hastidantakam</i>)	-35.71	28.57	-35.71	0.43	<i>Vata-Kaphaghni</i>

Table 2: The computed Drug Efficacy Indices Q_(VPK) and corresponding pharmacological classes of Herbal formulations under study.

Formulation	Vata (q _v)	Pitta (q _p)	Kapha (q _k)	Q _(VPK)	Pharmacological class/ Remarks
HF-1 (2:1)	-38.18	-41.82	20.00	0.60	<i>Vata-Pittaghni</i> ; For external application
HF-2 (10:3:3:2)	-2.43	-41.75	-55.83	1.00	<i>Tridoshaghni</i> ; For internal intake
HF-3(a)(1:1:1) with Ghee	-8.70	-71.01	-20.29	1.00	<i>Tridoshaghni</i> ; For internal intake
HF-3(b)(1:1:1) with Butter	-7.46	-70.15	-22.39	1.00	<i>Tridoshaghni</i> ; For internal intake
HF-4 (1:2)	34.00	-52.00	-14.00	0.32	<i>Kapha-Pittaghni</i> ; For external application
HF-5 (3:1:1:1)	24.59	-18.03	-57.38	0.51	<i>Pitta-Kaphaghni</i> ; For external application
HF-6	-35.71	28.57	-35.71	0.43	<i>Vata-Kaphaghni</i> ; For external application

3. RESULTS AND DISCUSSION

The Drug Efficacy Indices Q_(VPK) of individual components were showed the claimed pharmacological effects in classical texts. The herbal formulations understudy were found to be in accordance with the management of hemorrhoids of various types as evident from their

pharmacological classes obtained as a result of computational studies. The HF-1 was classified under *Vata-Pittaghni* class and hence suitable only for external application and is prescribed so by local traditional practitioners. It can be used for managing both hemorrhoids bleeding (*Ardrarsa Pitta-Kapharsa* or *Raktapittam*) and non-bleeding (*Suskarsa Vata-Kapharsa*) to a certain extent. The HF-2 belongs to *Tridoshaghni* category can be used for managing Bleeding Piles (*Ardrarsa; Pitta-Kapharsa*) to a maximum possible manner. Similarly both HF-3(a) and HF-3(b) belong to *Tridoshaghni* category can be used for managing Bleeding Piles (*Ardrarsa; Pitta-Kapharsa*) when administered internally. The formulation HF-4 belongs to *Kapha-Pittaghni* category can be used for external application for managing bleeding piles (*Ardrarsa; Pitta-Kapharsa*) and found so in practices. The formulation HF-5 belongs to *Pitta-Kaphaghni* category can be used for external application as a paste for managing the *vranas* of bleeding piles (*Ardrarsa; Pitta-Kapharsa*). The herbal formulation HF-6 belongs to *Vata-Kaphaghni* category can be used for managing non-bleeding piles (*Suskarsa; Vata-Kapharsa*) when applied externally as a paste.

4. CONCLUSION

The folk complementary medications practicing were also work according to *Ayurvedic* principles and have theoretical and philosophical support when we interrogate thoroughly. The present study showed that the herbal formulations selected showed comparable efficacies and in support to the philosophies of *Ayurvedic* systems of medicines. There are variations found in many texts and that indicates the need of researches for making critical editions of those fundamental texts to improve the standards by comparing various available manuscripts.

5. CONFLICT OF INTERESTS

The author declare that there is no conflict of interests regarding the publication of this paper.

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