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ANALYTICAL STUDY ON HERBO-MINERAL FORMULATION - VIDANGA TAILA

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ABSTRACT

Ayurveda comprises two words 'Ayu' and 'Veda' which signifies the science of life. So, Ayurveda enlightens different strategies for sustaining a healthy life. Vidanga tail which is an Ayurvedic formulation is regarded as an important application for Bahya Krimi which specifically acts on Yuka, Liksha, and other Krimi. In classical text of Ayurveda named Bhaishajya Ratnavali Vidanga taila is mentioned in detail. No work has been done on the pharmaceutical-analytical study of Vidanga tail. Pharmaceutical analysis of Vidanga tail samples A, B, and C showed iodine values of 0.2538, 0.3807 & 0.3172. Saponification value 147.54, 143.05 & 139.12. Acid values 1.96, 1.79 & 1.85. Peroxide values 3.8, 4.0 & 4.4. Specific gravity 0.927, 0.946 & 0.921.

KEYWORDS: Analytical, Vidanga tail, Pharmaceutical, Sneha Kalpana.

INTRODUCTION

As per given Ayurvedic classical texts Sneha Kalpana is termed as a pharmaceutical procedures of herbal drugs composition to prepare oleaginous medicine along with the primary preparation such as Kalka & Kwath (Drava-Dravya) acquired in the mentioned proportion by subjecting the mixtures to a particular described classical heating duration up to mentioned time until the chief desired characters are emerged, in accordance with the Sneha Siddha Lakshana.[1],[2] Vidanga taila is prescribed for Krimiroga and are discussed in Bhaishajya Ratnavali-Krimirogaadhaya.[3] Pharmacologically this formulation intended for

Krimiroga and are available in liquid dosage form. In traditional system of medicine this formulation is used to cure and mitigate the disease and disorder related to Krimiroga. In present day it is regarded as a effective drug for Krimiroga.

MATERIAL AND METHODS

Drugs Procurement

The ingredient needed for Katu taila Murchhana[4],[5] and pharmaceutical preparation of Vidanga taila was purchase from Gola Dinanath market from Ayurvedic drug dealers of Varanasi.

Authentication of Raw Materials

The herbal ingredients needed were purchase and the samples of each drug were investigated for authentication of the drugs to be employed. The authentication of the herbal drugs was carried out by the concerned authorities on the modern as well as classical pattern. This authentication of raw material was carried out by the Department of Botany, Banaras Hindu University, Varanasi.

Pharmaceutical Preparation

Pharmaceutical procedure was strictly followed as per classical reference of Bhaishajya Ratnavali in batches of three sample A,B & C and its preparation was carried out in the department of Rasa Shastra and Bhaishajya Kalpana, Goverment P.G. Ayurvedic college and hospital Varanasi.

Table No. 1: Ingredients Used For Vidanga Taila.

Sr.no.	Contents	Botanical Name/Chemical Name/English Name	Part Used/ Form Used	Quantity Of Samples			Voucher Specimen Number
				A	B	C	
1.	Vidanga	Embelia ribes Burn	Fruits	58.33gm.	58.33gm.	58.33gm.	Myrsina. 2020/1
2.	Gandhaka	Sulphur(S)	Shuddha Sulphur	58.33gm.	58.33gm.	58.33gm.	NA
3.	Manahsila	Realgar(AS_2 S_2)	Shuddha Realgar	58.33gm.	58.33gm.	58.33gm.	NA
4.	Murchhita Katu tail	Mustard oil	Seed oil	700 ml	700 ml	700 ml	NA
5.	Gomutra	Cow ’s urine	Fresh Gomutra	2800ml	2800ml	2800ml	NA

Table No. 2: Ingredients Used For Katu Taila Murchhana.

Sr.No.	Content	Botanical Name	Part Used	Quantity Of Sample			Voucher Specimen Number
				A	B	C	
1.	Amalaki	Emblica officinalis Gaertn	Pericarp	12 gm	12gm	24gm	Euphorbia. 2020/1
2.	Haridra	Cucuma longa Linn.	Rhizome	12 gm	12gm	24 gm	Zingibera. 2020/2
3.	Mustaka	Cyperus rotundus Linn.	Rhizome	12 gm	12gm	24gm	Poa. 2020/1
4.	Bilva Twak	Aegle marmelos (Linn.) Correa	Fruits	12 gm	12gm	24 gm	Ruta. 2020/1
5.	Dadima Twak	Punica granatum Linn	Fruits	12 gm	12gm	24 gm	Punica. 2020/1
6.	Nagakesara	Mesua ferreaLinn.	Stamens	12 gm	12gm	24gm	Clusia. 2020/1
7.	Krisnajiraka	Carum carviLinn.	Fruits	12 gm	12gm	24gm	Apia. 2020/1
8.	Hirbera	Juniperus communis Linn	whole plant	12 gm	12gm	24gm	Cupressa. 2020/1
9.	Nalika	Cinnamomum tamala Fr.	Leaf	12gm	12gm	24gm	Laura. 2020/1
10.	Vibhitaka	Terminallia bellaria Gaertn.	Pericarp	12 gm	12gm	24gm	Combreta. 2020/1
11.	Manjistha	Rubia cordifolia Linn.	Stem	96 gm	12gm	24gm	Rubia 2020/1
12	Katu taila	Brassica Combrestica	Mustard seed oil	1 litre	1 litre	2 litre	NA
13	Jala	-	-	4 litre	4 litre	8 litre	NA

Table No. 3: Organoleptic Observation of Vidanga Taila, Katu Taila and Murchhita Katu Taila.[6]

Sr.no.	Parameters	Vidangatail A Sample A	Vidangataila Sample B	Vidangataila Sample C	Katutaila (mustard oil)	Murchhita Katutaila (Murchhita mustard oil)
1.	Colour	Dark red	Dark red	Dark red	Yellow	Dark red
2.	Odour	Characteris tic	Characteris tic	Characteris tic	Unpleasant	Characteristic
3.	Consisten cy	Liquid	Liquid	Liquid	Liquid	Liquid
4.	Appearance	Viscous	Viscous	Most	Clear and	viscous dark red coloured
		dark red	dark red	viscous	transparent	Liquid
		coloured	coloured	dark red		
		liquid	liquid	coloured		
				liquid		

Table No. 4: Iodine Value of Vidanga Taila, Katu Taila AndMurchhita Katu Taila.[7]

Sr.no.	Tested Sample	Sample Titre Value	Iodine Value
1.	Vidanga tail sample A	36	0.2538
2.	Vidanga tail sample B	35.8	0.3807
3.	Vidanga tail sample C	35.9	0.3172
4.	Katutaila (Mustard oil)	36.2	0.1269
5.	Murchhita Katu taila (Murchhita mustard oil)	36.1	0.1903

Table No. 5: Saponification Value of Vidanga Taila, Katu Taila and Murchhita Katutaila.[7]

Sr.No.	Tested Sample	Sample TitreValue	Saponification Value
1.	Vidanga tail sample A	32.3	147.54
2.	Vidanga tail sample B	33.1	143.05
3.	Vidanga tail sample C	33.8	139.12
4.	Katutaila (Mustard oil)	23.3	187.88
5.	Murchhita Katutaila (Murchhitamustard oil)	30	160.44

Table No. 6: Acid Value of Vidanga Taila, Katu Taila AndMurchhita Katutaila.[8]

Sr.no.	Tested Sample	Sample Titre Value	AcidValue
1.	Vidanga tail sample A	3.5	1.96
2.	Vidanga tail sample B	3.2	1.79
3.	Vidanga tail sample C	3.3	1.85
4.	Katutaila (Mustard oil)	3.8	2.13
5.	MurchhitaKatutaila(Murchhitamustard oil)	3.5	1.96

Table no. 7: Peroxide Value of Vidanga Taila, KatutailaAnd Murchhita Katutaila.[8]

Sr.no.	Tested Sample	Sample Titre Value	Peroxide Value
1.	Vidanga tail sample A	2.3	3..8
2.	Vidanga tail sample B	2.4	4.0
3.	Vidanga tail sample C	2.5	4.4
4.	Katutaila (Mustard oil)	2.3	3.8
5.	Murchhita Katutaila (Murchhitamustard oil)	2.1	3.4

Table no. 8: Specific Gravity at 25^0c Of Vidanga Taila, Katu Taila And Murchhita Katu Taila.[9]

Sr.no.	Tested Sample	Specific Gravity
1.	Vidanga tail sample A	0.927
2.	Vidanga tail sample B	0.946
3.	Vidanga tail sample C	0.921
4.	Katutaila(Mustard oil)	0.923
5.	Murchhita mustard oil (MurchhitaKatutaila)	0.925

Table No. 9: Total Ash Value of Raw Herbal Drug.[10]

Sr.no.	Raw Herbal Drug	Botanical Name	Total Ash Value
1.	Vidanga	Embeliaribes Burn	5.695%
2.	Amalaki	EmblicaofficinalisGaertn	4.06%
3.	Haridra	Curcumalonga Linn.	6.12%
4.	Mustaka	Cyperusrotundus Linn.	6.02%
5.	BilvaTwak	Aeglemarmelos (Linn.)Correa	3.07%
6.	DadimaTwak	Punicagranatum Linn	3.59%
7.	Nagakesara	Mesuaferrea Linn.	6.02%
8.	Krishnajiraka	Carumcarvi Linn.	6.90%
9.	Hirbera	Juniperuscommunis Linn	3.65%
10.	Nalika	Cinnamomumtamala Fr.	3.01%
11.	Vibhitaka	TerminalliabelliricaGaertn.	7.52%
12.	Manjistha	Rubiacordifolia Linn.	6.42%

Table No. 10: Acid Insoluble Ash of Raw Herbal Drug.[11]

Sr. no.	Raw Herbal Drug	Botanical Name	Acid InsolubleAsh
1.	Vidanga	Embeliaribes Burn	0.67%
2.	Amalaki	EmblicaofficinalisGaertn	0.69%
3.	Haridra	Curcumalonga Linn.	0.62%
4.	Mustaka	Cyperusrotundus Linn.	2.01%
5.	BilvaTwak	Aeglemarmelos (Linn.) Correa	0.14%
6.	DadimaTwak	Punicagranatum Linn	0.35%
7.	Nagakesara	Mesuaferrea Linn.	1.85%
8.	Krishnajiraka	Carumcarvi Linn.	0.532%
9.	Hirbera	Juniperuscommunis Linn	0.93%
10.	Nalika	Cinnamomumtamala Fr.	0.32%
11.	Vibhitaka	TerminalliabelliricaGaertn.	0.52%
12.	Manjistha	Rubiacordifolia Linn.	0.94%

Table No. 11: Alcohol Soluble Extract of Raw HerbalDrug.[11]

Sr.no.	Raw Herbal Drug	Botanical Name	Alcohol SolubleExtract
1.	Vidanga	Embeliaribes Burn	11.06%
2.	Amalaki	EmblicaofficinalisGaertn	42.1%
3.	Haridra	Curcumalonga Linn.	9.7%
4.	Mustaka	Cyperusrotundus Linn.	8.2%
5.	BilvaTwak	Aeglemarmelos (Linn.) Correa	0.14%
6.	DadimaTwak	Punicagranatum Linn	12.5%
7.	Nagakesara	Mesuaferrea Linn.	18%
8.	Krishnajiraka	Carumcarvi Linn.	4.41%
9.	Hirbera	Juniperuscommunis Linn	15.32%
10.	Nalika	Cinnamomumtamala Fr.	7.3%
11.	Vibhitaka	TerminalliabelliricaGaertn.	31.065%
12.	Manjistha	Rubiacordifolia Linn.	16.42%

Table No. 12: Water Soluble Extract of Raw Herbal Drug.[11]

Sr.no.	Raw Herbal Drug	Botanical Name	Water SolubleExtract
1.	Vidanga	Embeliaribes Burn	12.01%
2.	Amalaki	EmblicaofficinalisGaertn	63.45%
3.	Haridra	Curcumalonga Linn.	14.3%
4.	Mustaka	Cyperusrotundus Linn.	15.2%
5.	BilvaTwak	Aeglemarmelos (Linn.) Correa	17.12%
6.	DadimaTwak	Punicagranatum Linn	25%
7.	Nagakesara	Mesuaferrea Linn.	21%
8.	Krishnajiraka	Carumcarvi Linn.	2.42%
9.	Hirbera	Juniperuscommunis Linn	19.32%
10.	Nalika	Cinnamomumtamala Fr.	11.2%
11.	Vibhitaka	TerminalliabelliricaGaertn.	60.01%
12.	Manjistha	Rubiacordifolia Linn.	24.52%

Table No. 13: Loss on Drying of Raw Herbal Drug.[10]

Sr.no.	Raw Herbal Drug	Botanical Name	Loss On Drying
1.	Vidanga	Embeliaribes Burn	14.258%
2.	Amalaki	EmblicaofficinalisGaertn	32.792%
3.	Haridra	Curcumalonga Linn.	8.286%
4.	Mustaka	Cyperusrotundus Linn.	14.052%
5.	BilvaTwak	Aeglemarmelos (Linn.) Correa	12.704%
6.	DadimaTwak	Punicagranatum Linn	19.67%
7.	Nagakesara	Mesuaferrea Linn.	11.53%
8.	Krishnajiraka	Carumcarvi Linn.	10.418%
9.	Hirbera	Juniperuscommunis Linn	16.554%
10.	Nalika	Cinnamomumtamala Fr.	13.84%
11.	Vibhitaka	TerminalliabelliricaGaertn.	14.972%
12.	Manjistha	Rubiacordifolia Linn.	18.308%

RESULT

Physico-Chemical Analysis

Vidanga taila (Sample A, B & C), Katu taila (Mustard oil), Murchhita Katu taila (Murchhita mustard oil) was analyzed by employing different standard physico-chemical parameters like organoleptic characters (colour, odour, consistency, appearance), iodine value, saponification value, acid value, peroxide value and specific gravity at 25^0C also, the analysis of raw herbal drugs on various parameter of standardization like total ash value, acid insoluble ash, alcohol soluble extractive value, water -soluble extractive value and moisture content (loss on drying) was performed as mentioned in above tables.

DISCUSSION

As no previous research work is available as standard reference for Vidanga taila, Katu taila, Murchhita taila and raw herbal drug employed in its pharmaceutical preparation. The physico

– chemical analysis supports proper authentication of raw herbal drugs, final formulation of Vidanga taila (Sample A, B & C), Katu taila (Mustard oil), Murchhita Katu taila (Murchhita mustard oil). All the obtained values are approximately near to the reference range as given for oil and raw herbal drugs. With proper evaluation of all obtained physicochemical parameters suggest that Vidanga taila sample B acquired more unsaturation fatty acids as compared to other tested samples it denotes that Vidanga taila sample B does not elevate blood lipids profile and also not expected to imbalance nutritional status. Vidanga taila sample C possess more short chain than other tested samples. So, Vidanga taila sample C is supposed to be easily absorbed and comparably efficacious in the therapeutic action. Katu taila(Mustard oil) has higher acid value denotes the increase in quality of oil i.e. its quality, purity, stability and nutritive value. Vidanga taila sample C has higher peroxide value that denotes rancidity in unsaturation of oil, oxidative deterioration of oils, stability and shelf life. Vidanga taila sample B has highest specific gravity at 25^0 C as compared to other tested samples. Specific gravity at 25^0C indicates the heaviness or lightness of materials as compared to standard like water. Higher ash value shows the contamination inside organic substance. Less percentage of acid –insoluble ash value shows less quantity of impurities such as siliceous matter. Comparing alcohol – soluble extractive values and water-soluble it can be suggested that few herbal drugs possess superior solubility in the water and few drugs in alcohol. After comparing the % of moisture content the finding reveals that Haridra(Curcuma longa Linn.) possesses least % of moisture content while Amalaki (Emblica officinalis Gaerth) possesses maximum % of moisture content.

CONCLUSION

The standardization parameter such as organoleptic characters (colour, odour, consistency, appearance), physicochemical values such as iodine value, saponification value, acid value, peroxide value and specific gravity at 25^0C were done for final formulation of Vidangataila (Sample A, B & C), Katutaila (Mustard oil), Murchhita Katutaila (Murchhita mustard oil). Also, the analysis of raw herbal drugs on parameter of standardization such as total ash value, acid insoluble ash, alcohol soluble extractive value, water -soluble extractive value and moisture content (loss on drying) was carried out. The quantitative and qualitative characterization was carried out by adopting the procedure given in Ayurvedic pharmacopeia of India and general guideline for drug development of Ayurvedic formulations. The values find out after analytical study of Vidanga taila samples A,B,C, Katu taila (Mustard oil) and Murchhita Katu taila (Murchhita mustard oil) produces the standard parameter as standard

marker and these finding will act as reference standard for upcoming research works. In this current research article the basic research work required for the standardization of Vidanga taila are described still more analysis and investigation are required for proper identification of all the active chemical constituents substantiate the clinical efficacy.

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