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STANDARD MANUFACTURING PROCESS OF *PARADADI MALAHARA*

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Abstract: *In Rasshashtraparthivdravya are used mainly which has more therapeutic efficacy in minute doses than other Ayurvedic preparation containing Audbhid and Jangamproducts. Rasaushadhi were found very effective for the preservation and promotion of positive health, with prevention of disease which is the primary aim of Ayurveda. Because of this property Rasaushadhi often awarded with great success and reputation in the society.*

Mercury is the main drug of Rasashashtra due to its chemical, medicinal and spiritual property, while other minerals are supportive to him. The usage of mercury for treatment of typical disease has been employing since samhita period. First time proper shodhana, samskara and different medicinal values with the help of different procedure were approved by AacharyaNagarjuna.

There are so many compounds,drugs and formulations given in our texts which may helpful to treat several pathological conditions(surgical and medical) but they need proper evaluation and re establishment with scientific manner. Paradadi Malahara is a formula of Yogaratnakara, a famous Ayurvedic textbook and it has been stated in the Vranashodhanaropanaprakaran. That wound untreated by other drug, will be cured by this formulation having composition of Tuttha (Copper sulphate), Parada (Mercury), Gandhaka (Sulphur), Mruddarshringa (Lead oxide), Kampillak (Malotousphillipinensis) and Ghrita at the ratio of ¼:1:1:2:4:16 respectively.

Keywords: *Standardization, Paradadi Malahara, Wound.*

Introduction: Phyto-chemical studies of a plant are necessary for understanding the significance of phytoconstituents in terms of it's observed activities.Phytochemistry also helps in standardizing the herbal preparations so as to get the optimal concentration of known active constituents. It also provides the objective parameters to fix up the standards for quality of raw drugs as well as finished products. Herbal medicinal products may vary incoposition and properties, unlike conventional pharmaceutical products, which are usually prepared from synthetic chemically pure materials. Therefore quality assurance of the finished product is an essential perquisite to ensure its safety and efficacy.

Materials and Methods

Name of Practical: Preparation of *Paradadi Malahara*:

Reference: *Yoga Ratnakara*, *Sadhyo Vrana nidan prakaran*. p.no 178 [1]

Principle: Trituration

Equipment Used: *Khalva yantra*, spoon, stainless steel vessel, stirrer

Material

Shuddha Tuttha-20 gm
Samguna Kajjali-160 gm
Mriddarshriga-160 gm
Kampillaka-320 gm
Goghrita-1280 gm

Date of Starting: 15/03/2016

Date of Completion: 17/03/2016

Total Time Taken: 3 days

Procedure

- All mentioned ingredients were made in to fine powder form.
- Then take them in to *Khalva yantra* and mixed well.

- After proper mixing of all material add given proportion of *Goghrita* in to it and triturate well.
- Triturate it till the mixture converts into semisolid (like cream) and homogenous form.
- Collect the *Malahara* and weight and store.

Observation: All ingredients are mixed well and made cream form with blackish in colour.

Precaution: Trituration should be done carefully. All material should mix well with *Goghrita*.

Results

Batch No.	Initial weight	Yield	Loss
001	100 g	97 g	3 g
002	1940 g	1740 g	200 g
003	100 g	97 g	3 g

Causes of Weight Loss: Due to sticking of *Malahara* in the stainless steel vessel.

Rancidity: The test depends upon the formation of a red colour when oxidized fat is treated with conc. HCL and a solution of phloroglucinol in ether. The compound in rancid fats responsible for the colour reaction. Mix 1 ml of melted fat and 1ml of cont. HCL in a test tube. Add 1 ml of a 1% solution of phloroglucinol in diethyl ether and mix thoroughly with the fat–acid mixture. A pink colour formation indicates that the fat is slightly oxidized while a red colour indicates that the fat is definitely oxidized.

Table-1: Showing observations of rancidity test

Paradadi *Malahara*	Rancidity
Fresh sample	-ve
After 2month	-ve
After 4 month	-ve
After 6 month	-ve

Spreadability: The Spreadability is expressed in terms of time in seconds taken by two slides to slip off from ointment, placed in between two slides under the direction of certain load. Lesser the time taken for separation of two slides, better the spreadability of ointment. The spreadabitlity was calculated by using the following formula,

S= m.L/T

m=Weight tied to upper slide

L= length of glass slides

T= time taken to separate the slides

Determination of Viscosity: Block the holl on the cup by placing a finger on it and pour around 100 ml of liquid in the cup of viscometer. Remove the finger and start the stop clock. Note the time when liquid start coming out as a drop. Stop the clock when you see first drop coming out. Calculate the viscosity from the reading.

Table- 2: Analytical observations of *Paradadi Malahara*

Parameters	**Batch 1**	**Batch 2**	**Batch 3**
Specific gravity [2]	1.0752	1.0701	1.0732
pH [3]	6.7	6.5	6.4
Rancidity [4]	Negative	Negative	Negative
Acid Value [5]	0.12	0.12	0.11
Iodine Value [6]	6.091	6.086	6.090
Saponification Value [7]	252.45	252.43	252.41
LOD (%) [8]	0.6%	0.6%	0.7%
Acid insoluble ash value [9]	4% w/w	4.2 %w/w	4.1 %w/w
Water insoluble ash value [10]	28% w/w	27.8 %w/w	28.1% w/w
Sulpahted Ash [11]	69.5% w/w	69.1% w/w	69.5% w/w
Carbon disulphide extractive value [12]	19.2% w/w	19.2% w/w	19% w/w
Spreadability [13]	0.044 g.cm/sec	0.034 g.cm/sec	0.041 g.cm/sec
Refractive index [14]	1.40	1.39	1.40
Viscosity [15]	24.82	24.78	24.80
Total Ash [16]	9% w/w	9.1% w/w	9%w/w

Table-3: Phytochemical Screening [17]

S.No.	Phytochemical Test	Result
1.	Alkaloid – Dragondraff's Test	-
2.	Alkaloid – Mayer's Test	+
3.	Amino acid	-
4.	Protein	-
5.	Saponin Test	-
6.	Carbohydrate	-
7.	Flavanoid	+
8.	Tenin	+
9.	Steroid	-
10.	Glycosides	-

Table-4:Heavy Metal Analysis [18]

S.N.	Parameters	Permissible limit	Results
1.	Lead (Pb)	10 ppm	810.140 ppm
2.	Cadmium (Cd)	0.3ppm	ND
3.	Arsenic (As)	3 ppm	3.761 ppm
4.	Mercury (Hg)	1 ppm	5903.01 ppm

Microbiological Study

Microbial Limit Test: The following tests are designed for the estimation of the numbers of viable aerobic micro-organisms present and for detecting the presence of designated microbial species in pharmaceutical substances. The term 'growth' is used to designate the presence and

presumed proliferation of viable micro-organisms [19].

Formula for Nutrient Agar Medium: Nutrient broth gelled by the addition of 1 to 2 percent w/v of agar.

Nutrient Broth medium

Beef extract	10.0 g
Peptone	10.0 g
Sodium chloride	5 mg
Water	1000ml

Dissolve with the aid of heat. Adjust the pH to 8.0 to 8.4 with 5 ml sodium hydroxide and boil for 10 minutes. Filter, and sterilise by maintaining at 115 º for 30 minutes and adjust the pH to 7.3 ± 0.1**.**

Plate Count for Bacteria: Using petri dishes 9 to 10 cm in diameter, add to each dish a mixture of 1ml of the pre-treated preparation and about 15 ml of liquefied casein soya bean digest agar at not more than 45 º. Alternatively spread the pre-treated preparation on the surface of the solidified medium in a petri dish of the same diameter. If necessary, dilute the pre-treated preparation as described above so that a colony count of not more than 300 may be expected. Prepare at least two such petri dishes using the same dilution and incubate at 30 º to 35º for 5 days, unless a more reliable count is obtained in a shorter time. Count the number of colonies that are formed. Calculate the results using plates with the greatest number of colonies but taking 300 colonies per plate as the maximum consistent with good evaluation.

Table-5: Result of microbial count

S. N.	Parameters	Permissible limit	Results
1.	Total microbial plate count	NMT 10 5 cfu/g	2183 cfu/g
2.	Total yeast and mould	NMT 10 3 cfu/g	129 cfu/g
3.	Staphylococcus aureus	Absent	Absent
4.	Escherichia coli	Absent	Absent
5.	Salmonella Spp.	Absent	Absent
6.	Pseudomonas aeruginosa	Absent	Absent

Table-6:Result of Antibacterial study

Days	Bacteria	Control	Framycetin cream	Paradadi malahara
5	Bacillus Subtilis	No growth	24 mm	1.5 mm
5	Staphylococcus aureus	No growth	4 mm	2 mm
5	Escherichia Coli	No growth	2.5 mm	-
5	Enterobacter aerogeues	No growth	2 mm	-

Discussion

Paradadi Malahara described in *Yogratnakara* and recommended in our classics for the treatment of *Vrana ropana chikitsa*. In relation to *Vrana ropana chikitsa*, any ointment or *malahara* should be free from heavy metals, microbial count and specially presence of any anti bacteria. Due to above following parameter we have follow up the standardize parameter of *Paradadi malahara*, to test the rancidity, viscosity and all the analytical as well as phyto chemical screening of particular compound to get help to use it for therapeutic purpose.

Conclusion: The three batches of *Paradadi malahara* prepared on classical bases and evaluate all the possible parameter such as, Rancidity test, Viscosity test, Spreadability, Analytical observation, Phyto chemical test, Heavy metal analysis, Microbial load and Anti bacterial study to compare Framycetin with control group. It shows that *Paradadi malahara* has very potent and wound healing property in comparison to Framycetin cream. It suggests that the *Paradadi malahara* can be used widely in any type of wound healing purpose.

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