



PREPARATION AND ANTIMICROBIAL STUDY OF RASAKARPOOR MALHAR (IN-VITRO)

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ABSTRACT

Rasakarpoor is a *Nirgandhak Kalpana* of *Parad* mentioned in *Rasataragini*, which holds antimicrobial activity and is effective in *Dushta Vrana* (non-healing wounds/NHW). In combination of *Rasakarpoor Malhar Sneha*, *Ghritam* and *Madhu* plays role of healing agent and act as antimicrobial ointment used for external application. Pre-Clinical evaluation of this drug has been done to check its efficacy on *Dushta Vrana*, its cidal and static activity on micro-organism and to know the duration/time taken by *Malhar* to heal the wound of specific region. While developing this formulation analytical parameters necessary for *Malhar Kalpana* were taken into consideration to maintain the quality of the drug. *Rasakarpoor* is a preparation that achieves modern parameters required for a formulation to sustain to prove its quality and safety. *Rasakarpoor* holds antimicrobial properties against gram positive and gram-negative bacteria and was proven with invitro study.

KEYWORDS: *Rasakarpoor, Malhar, Antimicrobial, Dushta Vrana, Non-Healing Wound.*

INTRODUCTION

Ayurveda refers to *Ayur* = life and *Veda* = science. Ayurveda is concerned with the prevention rather than cure of diseases. Materials from the three natural sources of herbal, mineral/metal and animal origin have been chosen in Ayurveda. The present review is mainly dealing with mineral/metals used in the formulation of a medicine. The word *Rasashastra* literally means *Rasa* that is *Parad* (Mercury) and *Shashtra* means science hence also called as 'Science of mercury'. *Rasashastra* explains about the use of *Parada*, various metals, minerals and organic compounds. The combination of Metals and herbs, together form Herbo-mineral formulations of *Rasaushadhis*.

The word *Malahar* was adopted by *Yogratnakara* from the word *Malaham* or *Maraham* basically originated from *Unani* system of medicine. This is called as *Malahara* because it removes *Mala* (residue etc) from *Vrana*, *Vidradhi*, *Twak Vikara* etc. conditions. *Malahara* has a property like *Snehana* (oleation), cleansing, *Ropana* (healing), *Lekhana* (scraping), and *Varnya* (beautifying), depending on the drugs used in the preparation. *Marahama* (*malahama*) is an Arabic word, meaning plaster, dressing for wounds and *Shalve*. The synonym *Lepa* directly infers the link between *Malahara Kalpana* and *Lepa Kalpana*. During 8th A.D., both Charak and Sushruta *Samhitas* were translated into

Arabic and Persian languages, which would have influenced the Unani System to the origin of *Marahama Kalpana* from Ayurvedic *Lepa Kalpana*.^[1]

Rasakarpoor, a *Nirgandh* type of *Kupipakva Rasayana*, is used to cure skin diseases. *Rasakarpoor* was prepared as per the reference of *Rasatarangini* 6/65-71. It is prepared with *Parada* (mercury), *Gandhakamla* (concentrated sulphuric acid) and *Saindhava Lavana* (rock salt) in the ratio of 1: 1 ½.

It is indicated that *Rasakarpoor* has antiseptic, antimicrobial and anti-fungal properties. When *Rasakarpoor* is mixed with honey, *Ghrit*, *tail*, bees wax, and *Malhar* is formed. On doing antimicrobial activity of this ointment, it was proved that the *Malhar* is infective against the micro-organisms.^[2]

MATERIALS AND METHODS

A detailed search was carried out in available literatures of *Rasashastra* along with some old ayurvedic classical texts available. Various research articles, Papers and Electronic media was used. Proper guidance was taken from the professor of *Rasashastra* department of the institute where the review was done. *Rasapuspha Malhar* as mentioned in *Rasatarangini* was followed for *Malhar* preparation.^[3]

METHOD

1. Rasakarpoor (4), Ghritam, Tailam, Vasa, Majja and Madhu was taken in 1:12:6:6:6:12 proportion.
2. In Palika Yantra all the four Mahasneha was melted on low flame.
3. After that Rasakarpoor was added.
4. After cooling down the temperature, Madhu was added in the given proportion.
5. All the mixture was mixed in grinder until uniform ointment consistency was obtained.

Table No. 01: Showing Ingredients and their Ratio in Rasakarpoor Malahar.

| S. N. | Ingredients | Ratio |
|-------|-------------|---------|
| 1 | Rasakarpoor | 1 part |
| 2 | Gow Ghrita | 12 part |
| 3 | Tilla taila | 6 part |
| 4 | Vasa | 6 part |
| 5 | Majja | 6 part |
| 6 | Madhu | 12 part |



Fig. 01: Showing ingredients rasakarpoor malahar.

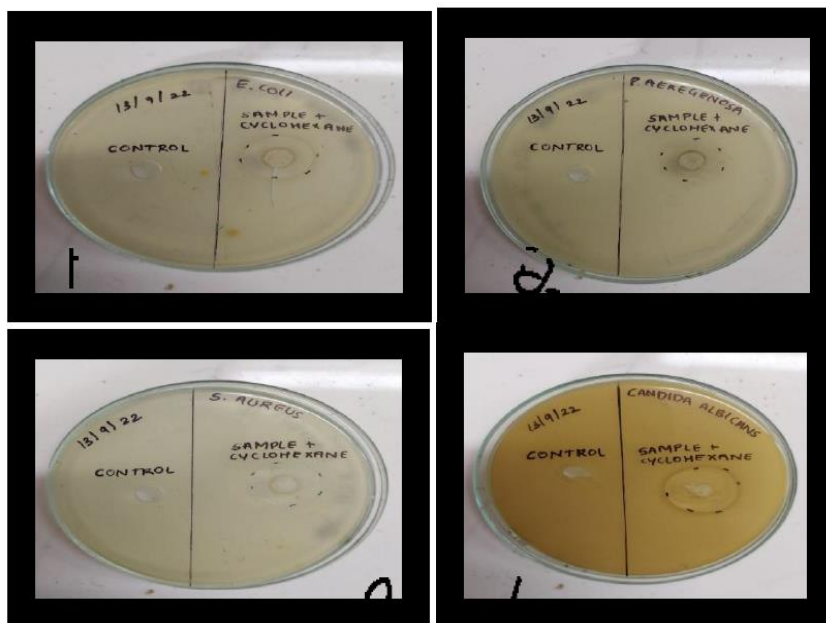
OBSERVATION

Rasakarpoor consist Chlorine, which is electronegative, therefore the chloride compound oxidizes the peptide linkages, thus denatures the protein of microbes. Mercury blocks the synthesis of rRNA by RNA polymerase I thus inhibiting the microbes.^[5]

Honey is highly acidic, with a pH of 3.2 to 4.5, inimical to most pathogens, and has an osmolarity which inhibits the growth of most organisms. The osmotic action keeps the wound moist by drawing fluid from wound tissue which reduces edema, pain and ensures a constant supply of proteases explaining the desloughing and debridement action of honey. Glucose oxidase present in honey produces hydrogen peroxide (H2O2) and gluconic acid to provide H2O2 in concentration inimical to pathogens

but dilute enough not to damage host tissue. Honey stimulates cytokine production, and expedites proliferation of B and T lymphocytes. Reduction of wound oedema improves tissue perfusion, oxygenation and free flow of leucocytes and fibroblasts, promotes angiogenesis, granulation and epithelialization.^[6]

The Chaturvidh Sneha contains butyric acid, hexanoic and octanoic acids, volatile acids, mixture of glycerides and unsaturated fatty acids which makes it compatible for wound healing activity.



The Antimicrobial analysis of Rasakarpoor Malhar states that it is effective against image (1) *E. coli*, images (2) *P. aeruginosa*, image (3) *S. aureus* & image (4) *Candida albicans*.

Fig. 2: Representing the antimicrobial activity reports of Rasakarpoor Malhar.

RESULT

Table No. 02: Showing Data of Organisms and their Zone of Inhibition.

| Organism | Zone of inhibition (in mm) | | | |
|-------------------------|----------------------------|-------|-------|------|
| | Set 1 | Set 2 | Set 3 | Mean |
| <i>E. coli</i> | 19 | 19 | 19 | 19 |
| <i>P. aeruginosa</i> | 18 | 19 | 19 | 18.6 |
| <i>S. aureus</i> | 20 | 20 | 20 | 20 |
| <i>Candida albicans</i> | 22 | 22 | 22 | 22 |

CONCLUSION

Rasakarpoor holds antimicrobial properties against gram positive and gram-negative bacteria and was proven with invitro study.

The healing properties of *Rasakarpoor* ointment shows positive effect on wounds hence we can consider that *Rasakarpoor* ointment works as antimicrobial and healing ointment in non-healing wounds.

As the above findings suggests that *Rasakarpoor Malhar* is an efficient quality ointment to fight against the bacteria and can be effective in healing wound.

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