



Research Article

**MODIFIED MARICHAYADI TAILYA (MMT) IN THE MANAGEMENT OF PRATISHAYA (RHINITIS)- A MULTI DIMENSIONAL STUDIES**

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**ABSTRACT**

Rhinitis is a very common and complicating disease condition usually affects more than 90% of the population varying from simple sneezing to multiple complications along with frequency. Usually, it affects due to pollution further followed by bacterial infection in naso-pharyngeal track. Most often it is managed instantly with anti-allergic medications like nasal drop and tablet, syrup, etc. but due to suppression of condition for a longer period it remains dormant causing multiple complications in future. Looking to the condition a nasal drop prepared from few herbs processed with mustard oil was taken into multiple clinical- experimental trial both in vivo and in vitro study to assess the efficacy. The nasal drop in the form of *Nasya* i.e., modified *Marichyadi taila* (MMT) in management of *Pratishyaya* (rhinitis) has been evaluated from different angle i.e., clinical, radiological, biochemical, biological and antibiogram study etc. show significant result in comparison with modern control drug Otrivin. After comparing both the results it has found that MMT was more effective than Otrivin as because of its multi-stained bactericidal and virucidal effect along with maximum relief in clinical sign and symptoms. It was also observed that the drug is effective from 48-72hrs and to be continued for one to two weeks for optimum relief. Efforts have been taken to highlight the specific findings pertaining to different study in the present paper.

**KEY WORDS:** *Nasya*, Modified *Marichyadi Tailya*, *Pratishaya*, Rhinitis.

**INTRODUCTION**

The present topic envisages a study on *Pratishyaya* (naso-pharyngeal infection) having management through application of an oily base medicaments through *Nasya* (*Panchakarma*). This involves *Nasya Vidhi* with exposure of nasal pathway including olfactory nerve to oil and heat. The former causes detachment of accumulated *Doshas* while the latter facilities expelling them out. Morpho physically the head and trunk are the seat of *Kapha* and nose being externally situated have a link, keeping communication within external surroundings and inner structures of the head. *Pratishyaya* is normally demonstrated by running nose, sneezing and other dominating symptoms of *Kapha Dosh* and they seem aggravated to exposure to cold, breeze, dust etc. The nose is innervated by the olfactory nerve in comparison to other nerve structure, is mostly superficial. As we know a nerve has a lipid structure and thus, the effect of medicine is smoothly carried in an oily base. Further, the sinuses are partially or fully choked which requires opening similar to

cauterization. Keeping the above views under reflection, attempts have been exercised to select the drugs which can induce opening of these channels and anti-inflammatory to the mucous membrane as well as antagonistic to *Kapha*, so as to minimise the sneezing, running nose and nasal blocking etc.

To our knowledge, we could find all possible mechanisms with the trail drug to combat the pathology involved in *Pratishyaya* and thereby a drug having oily base is selected.<sup>[1]</sup> Although drugs topically used through nose are marketed and capable of render desired effects, but sustaining effect is questionable and they fail to induce opening to the blocked sinuses with carrying some adverse effects like drowsiness, discomforts and many more in course of medication. During such events an alternative form of remedy became inevitable and Ayurveda for its reputation being herbal and physical medicine presented into action. The present research table having herbal orientation is thus selected to obtain the desired effect exactly requires so as to

induce healthiness to the nasal cavity and restoring the nose to withstand any exposure in future.

Botanically and Pharmacognostically pure and authentic ingredients were used in this preparation<sup>[2]</sup>.

**Formula of the Trail Drug**

S.No	Drugs required	Quantity
1.	Mustard Oil	900 gms.
2.	Maricha	225 gms
3.	Pipalli	225 gms
4.	Vidanga	225 gms
5.	Shigru	225 gms

**Preparation of Modified Marichyadi Taila**

The ingredients indicated were made into paste and mixed with water then it was thoroughly mixed with the *Murchhita Katu taila*. Then it was allowed to evaporate the entire moisture from the oil which was tested by *Agni Parikhya*. All sorts of methods were closely observed and followed as per the procedures laid down in classics (*Bhaisajya Ratnabali*). Then it was decanted and kept in small vials of 10ml each in cool and dark places for use of the patients. The dose was 4 drops of each nostril once a day after the *Snehan* and *Swedan karma*.



INGREDIENTS OF MODIFIED MARICHYADI TAILA



PREPARED PACKINGS OF MODIFIED MARICHYADI TAILA ( TRIAL DRUG)

Analytical Values of Tailas				
Sl.No.	Parameter	Katu Taila (Sarshapa) Mustard Oil	Murchhita Katu Taila	Modified Marichayadi Taila
1.	Colour	Dark yellow	Red	Reddish brown
2.	Smell	Characteristic smell of <i>Sarshapa taila</i>	No characteristic	No characteristic
3.	Appearance	Viscous	Viscous	Viscous
4.	Touch	Oily	Oily	Oily
5.	Taste	Slightly pungent	Pungent	Pungent
6.	Clarity	Clear	Clear	Clear
7.	Settlement	Nil	Nil	Nil
8.	Opalescence	Translucent	Translucent	Translucent
9.	Loss in drying at 110.C% W/W	0.31	Nil	0.12
10.	Volatile	0.16	0.15	0.40
11.	Ash value% W/W	Nil	Nil	0.18
12.	Sp. Gravity 40 <sup>o</sup> C.	-	0.9117	0.8635
13.	Acid value	1.87	6.40	3.58
(b)	Free fatty acids (as oleic acids)			1.6233
(c)	Molecular weight of free fatty acids			4.3220
	Saponification value	154.86	156.64	215.25
14.	Iodine value	109.17	85.33	83.04
15.	Easter value	152.99	150.24	204.32
16.	Fat%	-	-	+ve
17.	Free sulphur	-	-	-
18.	Unsaponifiable matter	-	-	2.01
19.	Rancidity	+ve	+ve	+ve
20.	Refractive index	-	-	1.4690
21.	t	-	-	29.5 <sup>o</sup> c.

#### Micro-Chemical Test for MMT

Sl.No.	Test For	Response
1.	Steroids	-Ve
2.	Alkaloids	+Ve
3.	Rancidity	+Ve
4.	Terpenoids	+Ve
5.	Fixed oil	+Ve
6.	Ph.	3.5
7.	Toxicity	Nil

#### Control Drug

H<sub>1</sub>- Blocking drugs have an established and valued place in the symptomatic treatment of various allergic diseases, in which their usefulness is clearly attributable to their antagonism of histamine. In addition, the central properties of some of the series are of considerable therapeutic value. H<sub>1</sub>- Blocking drugs are most useful in acute exudative types of allergic conditions such as rhinitis or common cold and pollinosis etc. Their effect however is purely palliative and confined to the suppression in varying degree of symptoms attributable to the pharmacological activity of histamine released by the antigen- antibody reaction. Allergies of the respiratory tract are more amenable to therapy with

H<sub>1</sub> - antagonists. The best results are obtained in seasonal rhinitis. In perennial rhinitis, anti-histamines are of much less value. Sympathomimetic drugs are often inhaled or applied locally to produce shrinkage of mucous membranes of the nose and larynx. For this purpose, a rapid and prolonged action is desirable. The imidazoline compounds-naphazoline xylometazoline and oxymetazoline are relatively selective Q<sub>2</sub> agonists (like clonidine). They have a longer duration of action (12 hours) than ephedrine or phenylephrine and produces prompt therapeutic effect. They can be absorbed from the nose and produce systemic effects, CNS depression xylometazoline and some of its actions resemble

those of adrenaline. It is used in concentrations of 0.05 to 0.1% to produce local vaso constriction of the nasal mucosa. It is useful for topical application for rhinitis.

**Culture and Sensitivity Study of Trail Drug**

30 patients suffering from rhinitis (upper respiratory tract infections) were included in this study. The samples were collected from the nasal mucosa with all aseptic measures by swab methods in duplicate as described by Cruickshnk et. al (1975)<sup>[3]</sup>. Immediately after the collection the samples were transferred to the laboratory in thermos flask with ice. The swabs were inoculated into primary isolation media like Nutrient Broth (N.B): selenite Cystine Broth, Sabouraud’s dextrose agar (SDA) OF PH.5.8. The media were incubated at 37°C for 24 hrs and in case of fungal isolation the plates were observed for 4 to 5 days prior to declaring negative. Observing the turbidity from the broth, the bacteria were streaked on the solid agar plates like Nutrient agar and blood agar of 5 to 10%

sheep blood. The plates were incubated in bacteriological incubator for 48 hours and then bacteria were isolated in pure culture. Further it was preserved in blood agar slants for identification and antibiogram. Gram stain, motility and bile toleration were observed for identification of micro-organisms in which Mac Conkey’s agar and motility test agar were used. Methyl red, Voges proskauer, indole production, citrate utilisation Malonate tests were conducted for the differentiation of the bacteria. The biochemical tests were performed by using the carbohydrates like lactose, galactose, raffinose, glucose fructose, Mannitol, sucrose, xylose, Maltose and acid-gas productions were noted. The media used in the investigation for the isolation and identification were as per the procedures laid down by Sneath et.al (1086). Kraig et.al (1986) and Merchant and packer (1982). The media were produced commercially from HI media laboratories Pvt. Ltd. Bombay-400 086.



**Anti Biogram Study**

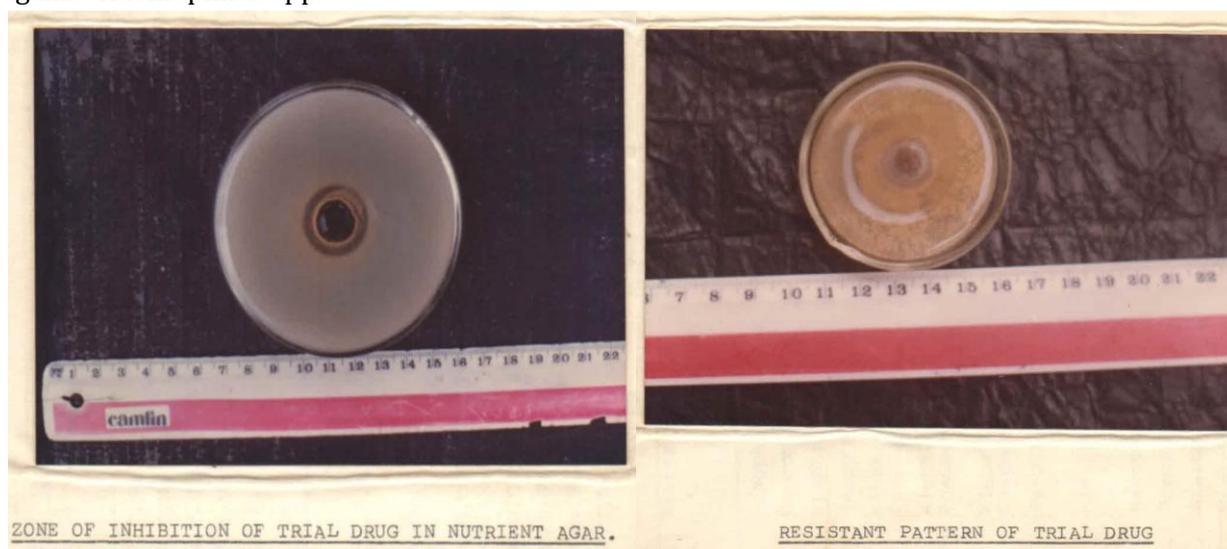
**a. The wet filter-paper method**

The bactericidal action of the trail drug was conducted as per the procedure described by Merchant and packer (1983)<sup>[4]</sup>. The bacteria were allowed to react with the drug for 24 hours, 48 hours, 72 hours and 96 hours. In every 24 hours, the bacteria were inoculated in Nutrient Broth. The bactericidal action was marked by the growth of the bacteria in the broth. It was found that the bacteria were completely inactivated after 72 hours.



### b. Agar cup-plate method

The pure bacterial culture preserved in blood agar slants were inoculated into nutrient broth and incubated at 37° C for 24 hours. Nutrient agar was prepared and autoclaved. It was then allowed to cool at 50 C. 0.1ml of the 24 hours above bacterial culture was mixed thoroughly and was allowed to congeal which was kept in sub-freezing temperature for 15-20 minutes. A disk was then cut-out by means of a cork borer of size 1.5cm in diameter. The precaution was taken to sterilise the cork borer prior to cutting well on the agar. After the agar plate was so prepared the exposed surface was sealed with several drops of melted agar and in the cup. 6 drops of the test liquid were placed. Then the plate was incubated for 48 hours. The zone of inhibition was taken out with all aseptic measures and was sub cultured in nutrient broth. Growth in nutrient broth is indicative of bacteriostatic of the drug tested and no growth confirms the bactericidal action of the drug<sup>[5]</sup>. If there is no zone of inhibition, that indicates the drug has no action. Water extract of every ingredient of the testing drug was tested by this agar-cup plate method, but it was found to not effective, when individually tested against Haemophilus spp.



### c. Disk- Diffusion Method

Simultaneously the bacteria isolated were inoculated into nutrient broth and incubated for 24 hours at 37° C. Normal Saline Solution (NSS) was also made, sterilised and dispensed in 5ml quantity in sterilised tubes. Nutrient agar plates were dried in bacteriological incubator for 2-3 hours and were seeded with N.S.S which were mixed with 0.01ml of overnight bacterial culture. After seeding the plates were dried for 30 minutes and antibiotic disks were gently placed over the agar surface. In each plate 7 disks were placed. The media and antibiotic disks used in this investigation were purchased commercially from HI media laboratories Pvt. Ltd. Bombay <sup>[6]</sup>. The antibiotics used were penicillin g. sodium (10 units), Gentamycin (10 Mcg), Chloramphenicol (30 Mcg), Ampicillin (10 Mcg), Cephotaxime (30 Mcg), Cotrimethoxazole (25 Mcg), Erythromycine (15 Mcg), Kanamycin (30 Mcg), Nalidixic acid (30 Mcg), Cyprofloxacin (30 Mcg), Norfloxacin (30 Mcg), Nitrofurzone (30 Mcg), Tetracyclin (30 Mcg) & Amikacin (30 Mcg)%.



**RESULT AND OBSERVATION**

Bacteriological analysis of 30 samples collected from upper respiratory tract infection yield, Haemophilus-9, Klebsiella-7, Staphylococcus-6, Bacillus Spp.-3, Pseudomonas-2, Proteus-1, and in two samples there was no growth. Fungus was not found to grow from any of the samples.

In vitro trail of testing drug i.e. modified *Marichyadi taila* on bacteria by agar cup plate method indicated that out of 9 Haemophilus isolated of 7 samples responded to the testing drug whereas in two of the cases it was found to be resistant and also while resistance pattern is concerned in case of staphylococcus pyogenes in two of the isolated out of 6 samples became quite resistant. One sample out of two isolates of pseudomonas and alone sample of proteus isolated became resistant to this trail drug.

Perusal of the table given indicates that one sample each of staphylococcus No.3 and pseudomonas No.25 isolated became resistant to testing drug but one and each from Klebsiella No.9, Haemophilus No.10, and Pseudomonas No.24, responded well to the trail drug through resistant to every antibiotic.

In four cases where staphylococcus No.8 and Bacillus No.22, one each of Haemophilus No.15 & 18, from two samples were isolated only responded to few antibiotics but was found to be quite effective to the testing drug.

**TABLE**  
**Showing Antibiogram study conducted by Disk Diffusion Method**

S No.	Bacteria Isolated	Sensitive to Antibiotic. HS	Resistant to Antibiotic. R	Sensitive to Modified Marichyadi Taila	Resistant to Modified Marichyadi Taila
1.	Haemophilus spp.	G,C,No,Cy	P,T,Na	+Ve	-Ve
2.	Haemophilus spp.	G,C,No,Cy	P,T,Na	+Ve	-Ve
3.	Staphylococcus Spp.	---	G,P,C,A,Ce,Co,E	-Ve	+Ve
4.	Haemophilus spp.	G,C,No,Cy	P,T,Na	+Ve	-Ve
5.	Klebsiella Pneumoniae.	G,Cf,Nr,C,E	Ce,P,Ak,T,K,Co	+Ve	-Ve
6.	Klebsiella Pneumoniae.	G,Cf,Nr,C,E	Ce,P,Ak,T,K,Co	+Ve	-Ve
7.	Klebsiella Pneumoniae.	G,Cf,Nr,C,E	Ce,P,Ak,T,K,Co	+Ve	-Ve
8.	Staphylococcus Spp.	G,C,Cf, Nf, Ce	A,Co,K,T,Ak,Na,Am	-Ve	+Ve
9.	Klebsiella Pneumoniae.	-	A,G,C,K,Na,Cf,Am,Ak.	+Ve	-Ve
10.	Haemophilus spp.	-	A,G,Co,T,N,Nr,Cf	+Ve	-Ve
11.	Haemophilus spp.	G,C,No,Cy	P,T,Na,Ce,Co,E	+Ve	-Ve
12.	Staphylococcus Spp.	G,C,Cf, Nf	A,K,T,Ak,Na	+Ve	-Ve
13.	Haemophilus spp.	G,C,Cy,No,Nr	P,T,Na	+Ve	-Ve
14.	Klebsiella Pneumoniae.	Cf,Nr,C,E,G	P,Ak,Ce,K,Co	+Ve	-Ve
15.	Haemophilus spp.	C,No,Cy,G	T,Na,P,Ce,Co	-Ve	+Ve
16.	No growth.	-	-	No growth	No growth
17.	Klebsiella Pneumoniae.	Nr,E,C,G,Cf	G,Co,Ce,Am,Ak	+Ve	-Ve
18.	Haemophilus spp.	No,Cy,C,G	Na,T,P,Ak,Am	+Ve	+Ve
19.	No growth.	-	-	No growth	No growth
20.	Haemophilus spp.	Cy,Nr,G,C	No,P,Ak, Am,Ce,Co	+Ve	-Ve
21.	Klebsiella Pneumoniae	Nr,E,C,Cf,G	Ak,Ce,P,Co	+Ve	-Ve
22.	Bacillus Spp.	G,C,Cf,Nr	Am,A,Co,Na	-Ve	+Ve
23.	Proteus Spp.	C,G,Nr,Na	Cf,Ce,Co,Ak,Am	+Ve	-Ve
24.	Pseudomonas Spp.	-	P,T,C,E,Cf	+Ve	-Ve
25.	Pseudomonas Spp.	-	Ak,G,P,T,C,E,Cf	-Ve	+Ve
26.	Bacillus Spp.	G,Cf,Nr,C	Am,A,Co,Na	+Ve	-Ve
27.	Staphylococcus Spp.	G,C,Cf,Nf	A,K,T,Na,P	+Ve	-Ve
28.	Staphylococcus Spp.	Nf,C,Cf,G	K,P,T,Na	+Ve	-Ve
29.	Bacillus Spp.	G,Cf,Nr,C	T,P,C,Cf	+Ve	-Ve
30.	Staphylococcus Spp.	G,C,Cf,Ce	A,Am,Ak,Y,P	+Ve	-Ve

**Symbols:** HS= High Sensitive, R= Resistant, +Ve= Indicative o bacterial action of the drug, -Ve= Bacteria is resistant to the drug, P= Penicillin G sodium, G= Gentamicin, C= Chloramphenicol, A= Ampicillin, C=Cephotaxin, Co= Co-trimethoxazole, E= Erythromycin, K= Kanamycin, Na= Nalidixic acid, Cf= Ciprofloxacin, Nr= Norfloxacin, N= Nitrofurazone, T= Tetracycline, Am= Amikacin.

### Biological Study of the Trail Drug

For biological standardisation the quantitative effect on isolated tissue preparations like guinea-pig trachea along with the anti-inflammatory activity of the drug by using different biological techniques are done. The advantages of isolated tissue over intact animals are that several preparations can be tested from a single animal relatively small amount of the test material is required and the drug effect is tested directly without the factors of absorption, metabolism, excretion or interference due to nerve reflexes.

The aim of taking such tracheal chain is to find out the biological function of the drug on similar tissue of the body. The drug applied here is based on the action of the naso-pharyngeal mucosa. So, in order to know the action, tissue of the same system i.e., respiratory tract and easily available part of the animal is trachea. Moreover, the functional components of the isolated trachea are terminal ganglia for which a small portion of tissue is sufficient.

For this purpose, the trail drug modified *Marichyadi Taila* was injected to a guinea pig (500-600g approx.). Then after stipulated period, trachea is removed and studied under procedures<sup>[7]</sup>.

From the above study, it was revealed that drug did not show marked relaxation effect.

### Toxicity Study of the Trial Drug

In screening of drugs, the question of toxicity is of prime importance, if ignored may fade into disuse. One of the qualities of drug is that its effect should be attained without toxic manifestations equal to severity to manifestations of the disease. For this  $Ld_{50}$  the lethal dose may suffice. The routes mainly cover intravenous, intra peritoneal, subcutaneous and oral. Oral route is several times greater than others. Man is a distinct species and it is not always true that a drug which appears safe to animals will be safe for a man or, conversely, that a drug which shows alarming toxicity in animals will necessarily represent the same hazards for man. The predictability of drug response in man might be improved not by using total number but by including additional species and less pure strains of animals in the toxicity test. This is not to say that some of the greatest drugs are not of a high toxicity. In any case the degree of toxicity is of interest. Extrapolation of the first dose to be tried in humans from the data obtained laboratory animals<sup>[8]</sup>.

The drug modified *Marichyadi Taila* was taken for trail on albino rats at the department of anatomy, Orissa Veterinary College, Bhubaneswar. Three groups were selected for the trail consisting of 6 nos. in each group of either sex. The prescribed

dose was 0.1ml per 10gm of body weight. The method of administration was oral intubation in empty stomach. The first group was observed up to 48 hrs. No toxic effect was noted.

The second group was administered with a higher dose of 0.2ml per 10gm of body weight for 48 hrs and no toxic effect was noted.

The third group was administered 0.5ml per 10gm of body weight and was observed for 40hrs even though no toxic effect was noted.

Coming to the conclusion we come to know that the drug did not show any toxic effect.

### CONCLUSION

The scope of treatment has broadened considerably during the past few years and it has reached to its peak in the present era but challenging to such sophisticated medications and measures, the incidence and intensity of diseases are growing. Science claims to have acquired unfailing remedies but challenging to this a number of diseases are still enjoying awareness and *Pratishyaya* vis-a-vis rhinitis is one of them.

Although the knowledge of epidemiology including invasion of virus and colonisation of bacteria distinguished from the nasal passage are known and remedies to counter them effectively are being successfully employed but drugs having sustaining effect, free from toxicity and adverse effects etc are exactly inadequate.

The environmental pollution has also stood as the major factor in increasing the incidence and intensity of rhinitis which become the challenge of the medical profession now. No doubt antihistamines and other selective drugs have proven efficacy but adverse effect and toxicity cannot be ignored.

Moreover, exacerbations and relapsing nature become very frequent phenomena, besides some unwanted complications like headache brings temporary handicap to the individual who suffers.

The changes in the present lifestyle, massive industrialisation are no less important in causing the disease.

In view of attainment of cure all possible sources of remedies and experts are busy to find out the best possible measure and the present research model is an acquisition.

The advantages obtained from the work may not be very distinguished but, may shed light covering right out from the etiopathology and extension of effect possible through *Nasya*. Further, it is also evident from the studies that it could be effective in minimising the naso-pharyngeal infection

and could be co prescribed as a co preventive in covid pandemic.

#### REFERENCES

1. Roy R.K. Bangasena, Hindi commentary Prachya Prakashana, Varanasi. P.138-148.
2. Hookar J. D. Flora of India, Botanical Survey of India, July, 2014 Kolkata - 700 064, P.P- 231-243.
3. Cruickshank, R. et.al. Medical micro-biology, Tenth Ed. Vol.II, Churchill & Livingstone, London. P.P- 156-172.
4. Elson, G.D. The chemistry and examination of edible oils and fats, their substitute & adulterants, London, P.P-226-320.
5. Ghosh S. et.al. Organic & toxicological chemistry for medical students, 6h Ed. Calcutta. P-242.
6. Stutt man H.S. Fishbein's illustrated Medical & Health- encyclopaedia. H.S.S. Inc, West Port, CT. 06889 America.
7. Merchant, I.A. et.al Veterinary Bacteriology, and Virology, 7th Ed, The Iotra State University Press, Iotra, U.S.A.
8. Smeath, P.H. Systematic, Bacteriology, Vol. II, William & Wilkins, Baltimore, London. P.P- 176-189.

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