



## IMMEDIATE EFFECT OF OSIMUM SANCTUM (HOLY BASIL) OIL ADMINISTRATION IN PATIENTS WITH ALLERGIC RHINITIS

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### ABSTRACT

**Background and Objectives:** Naturopathy being a drugless system of medicine is practiced since ancient times and is being recognized as a cost effective and evidence-based medicine by providing its efficacy in alleviating various ailments. Administration of basil oil therapy is a part of naturopathy-based intervention and is being practiced since long time as a home remedy for allergic rhinitis. The purpose of this study was to investigate the beneficial effects of administration of basil oil in patients with allergic rhinitis. **Materials and Method:** A total 120 Subjects who were having allergic rhinitis were recruited for the study. Subjects who fulfilled the inclusion and exclusion criteria were apprised about the purpose of the study and their rights as a research subject. The subjects will be taken from in-patient of Shri Dharmasthala Manjunatheshwara Yoga & Nature Cure Hospital, Shantivana, and Ujire. 160 participants were screened from the population, among which 120 participants met the inclusion criteria and were selected for the study. 60 patients each were included across two groups i.e., group one received administration of mixture of 5 type of basil oil called panch tulsi oil treatment for case group and group two being control group received no treatment. Assessments were made on the two groups immediately after 10 minutes of oil administration. The assessment tools included were 22-item Sino nasal outcome test (SNOT -22), Quality of life. **Results:** On comparing the outcome measures of the two groups, collected for baseline, a significant reduction in the symptoms in experimental group compared to control group. And it is highly significant in reduction of symptoms of allergic rhinitis. **Conclusion:** Results say on comparing the outcome measures of the two groups, a significant reduction in allergic rhinitis is shown in experimental group compared to control group. Thus, administration of basil oil directly into the nostrils for allergic rhinitis was found to be very effective in patients suffering from allergic rhinitis by reducing the nasal obstruction, fullness, sneezing, cough, facial pain pressure, nasal congestion, and improvement in the quality of sleep.

**KEYWORDS:** Osimum sanctum, Basil oil, allergic rhinitis, Sino nasal symptoms; Sino- nasal outcome Test- 22 questionnaire, quality of life.

### INTRODUCTION

Allergic rhinitis, is an inflammatory condition and a symptomatic disorder of the nasal cavity, which occurs after exposure to an allergen by an (IgE) – mediated inflammation of the lining of the nasal cavity membranes.<sup>[1]</sup> It was defined in 1929.<sup>[2]</sup> Sneezing, nasal obstruction and mucous discharge are the three main cardinal symptoms in a nasal reaction occurring in allergic reaction in allergic rhinitis. Allergic rhinitis caused major illness and disability worldwide as it is a global health problem. Patients from all over the countries, all racial groups and of all ages can get affected from allergic rhinitis. It affects social life, sleep, other important daily routine activities including work, school etc. As allergic rhinitis is not that cost effective it does not increase the cost directly, that is why the economic impact of allergic rhinitis is often underrated.

However, the indirect costs are considerable.<sup>[1]</sup> Allergic rhinitis is systemic inflammatory conditions and is often termed as co morbid. It's an inflammatory condition of the nasal cavity, characterized by Sino-nasal symptoms which are associated with rhinorrhoea mucus fluid filled cavity; sneezing, runny nose, cough and nasal blockage, cough, frequent blowing of nose, post nasal discharge. Additional symptoms such as headache, impaired smell and taste, disturbance in sleep, thick mucosal discharge and conjunctiva symptoms can be associated.<sup>[3]</sup>

India is an ancestral establishment of many medicinal, remedial, therapeutic and odoriferous plants. It has one of the centenarians, richest and most diversiform cultural heritages associated with use of medicinal plants. In our great vintage Indian Literature, The Vedas which are more than 300 years old, our ancient ancestors

mentioned the use of therapeutic and odoriferous herbs, shrubs and flowers in treating various ailments. Osmium the holy basil is highly valued for their therapeutic and odoriferous properties in the traditional as well as modern pharmacological system, as it is termed as queen of herbs. The genus *Osimum*, of Family *Lamiaceae*, has tropical dissemination with 160 species about 75% reported from West Africa and the remaining 25% other species from Asia and America. India is having nine species of *Osimum*, mainly circumscribed to tropical and peninsular areas (Anonymous, 1966). *Osimium* comprise of odoriferous herbs, and shrubs from which the extraction of essential oils of Various aroma and chemicals are done, which are of enormous high appraisal in pharmaceutical, modernistic perfume and food processing industry. The present researcher's analysis the taxonomy, therapeutic potentialities and economic values of some species of genus *osmium*.<sup>[4]</sup>

Essential oil is esteemed essential component of natural medicine systems as essential oils are affirm in odiferous plants which are found in tropical and Mediterranean countries worldwide. Flowers, buds, stems, fruits, seeds, roots and leaves, are used in extracting the essential oil from all the essential plant parts. All odiferous plants are the source of essential oils. Oils are accruing the secretary cells, cavities, epidemic cells, and in the channels.<sup>[5]</sup> *Lamiaceae* family with more than 252 genera and 7000 species in the environs of plant kingdom is blessed with affluent essential oil, bearing potentialities in the whole plant kingdom.<sup>[6]</sup> *Lamiaceae* family is well known for its species with high valued medicinal potentialities and therapeutic properties, which have been used since ancient period of times and many of these species are common in almost all Mediterranean region.

In our study we have used method of administration of basil oil drops in each nostril as basil oil contain great antibacterial, antioxidant and antimicrobial properties. We have used pure basil oil composed of 5 types of basil leaf extraction from *ocimum sanctum*, *ocimum gratissimum*, *ocimum basillicum*, *ocimum camum*, *ocimum citrioformum*. Basil is also recognised for complications of the respiratory tract, and it is combined with other herbs in conditions such as sinus congestion, cough, allergic rhinitis, head catarrh, earache, asthma and bronchitis.<sup>[7]</sup>

## METHODOLOGY

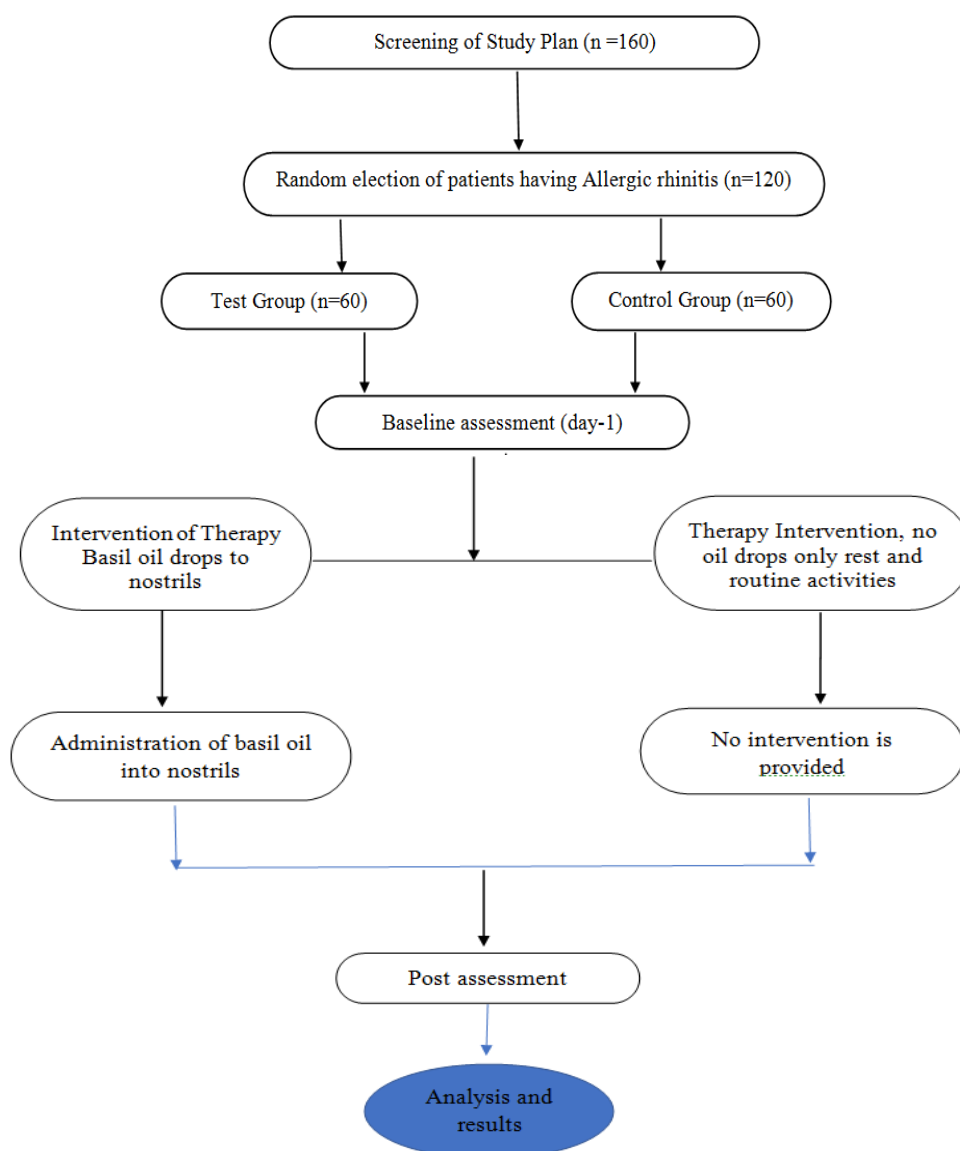
Sources of subjects: 120 Subjects who were having allergic rhinitis recruited for the study. The subjects were in-patient of Shri Dharmasthala Manjunatheshwara Yoga & Nature Cure Hospital, Shantivana, and Ujire. A signed informed consent was taken from each subject before commencement of the intervention. The institutional ethics committee of SDMCNYS has approved this study.

Subjects diagnosed as known case of Allergic rhinitis, according to American Academy of Otolaryngology-Head and Neck Surgery and were endorsed by the

American Academy of Family Physicians, both the genders and having age between 18 to 58 years are included. The subjects with infective rhinitis, irritant rhinitis, drug induced rhinitis, hormonal rhinitis and structural or mechanical factors- deviated nasal septum, nasal polyp, and nasal tumours are excluded.

Intervention: Patients diagnosed with allergic rhinitis were administered with basil oil drops into nostrils, prior to that pre assessment is done which is followed by post assessment after the 10 minutes of administration of basil oil drops in each nostril.

Illustration of Study Plan:



## RESULTS

In both the cases it is seen that table value is higher than calculated value. Therefore null hypothesis is accepted. Hence we can conclude that wellbeing of respondents is independent of treatment received to them.

The data is analysed using a statistical package i.e., statistical package for social sciences (SPSS version 20.0), using paired t test.

By using paired t test, showed that 10 days of herbal oil administration practices on allergic rhinitis patients with the oil show a significant improvement in overall Quality of life ( $p \leq 0.001$ ) and its subscales & Sleep quality ( $p \leq 0.005$ ). Overall quality of life increased significantly following intervention with basil oil. The SNOT 20 ( $p < 0.001$ ) and the subscales of Quality of life: physical symptoms ( $p \leq 0.001$ ), physical well-being ( $p \leq 0.001$ ), psychological symptoms ( $p \leq 0.001$ ), existential well-

being ( $p \leq 0.001$ ), social wellbeing ( $p \leq 0.001$ ) and overall Quality of life ( $p \leq 0.001$ ) increased significantly.

## Quality of Life

**Table1: Mean Scores of Quality of Life and its Subscales in mean $\pm$ SD.**

| Variables              | Experimental Group |                                   |
|------------------------|--------------------|-----------------------------------|
|                        | Pre                | Post                              |
| SNOT 22                | 13.36 $\pm$ 3.83   | 17.46 $\pm$ 3.27 <sup>c,z</sup>   |
| Physical Symptoms      | 21.32 $\pm$ 6.39   | 27.28 $\pm$ 4.54 <sup>c,z</sup>   |
| Physical Wellbeing     | 6.16 $\pm$ 2.03    | 8.40 $\pm$ 2.53 <sup>c,z</sup>    |
| Psychological Symptoms | 21.10 $\pm$ 7.41   | 31.60 $\pm$ 9.12 <sup>c,z</sup>   |
| Existential Wellbeing  | 37.00 $\pm$ 8.95   | 52.68 $\pm$ 8.13 <sup>c,z</sup>   |
| Social Wellbeing       | 13.36 $\pm$ 3.83   | 17.46 $\pm$ 3.27 <sup>c,z</sup>   |
| Total                  | 98.30 $\pm$ 21.25  | 137.68 $\pm$ 19.49 <sup>c,z</sup> |

Note: a, b, c - Paired t test; x, y, z - Independent t test; a/x =  $p \leq 0.05$ , b/y =  $p \leq 0.01$ , c/z =  $p \leq 0.001$

On comparing the outcome measures of the two groups, collected for baseline, a significant reduction in symptoms SNOT 22 ( $p < 0.001$ ) and Quality of life ( $p \leq 0.001$ ) in experimental group compared to control group. And it is highly significant in reduction of symptoms in allergic rhinitis.

## DISCUSSION

The main aim of the study was to evaluate the effectiveness of administration of basil oil for allergic rhinitis. The present study was conducted to evaluate the symptomatic relief in allergic rhinitis. 120 volunteers both male and female of mean age  $21.73 \pm 1.89$  were recruited for the study and randomly allocated into two groups, group 1 the experimental group administration of basil oil drops in each nostril is to be done and for group 2, the control group no treatment is provided to the patients. Assessments were done 10 minutes before and 10 minutes immediately after the intervention. All the 120 subjects were gone through the intervention without any absence and no dropouts were reported. The subjects reported no adverse effects during or after the intervention. Some side effect like sneezing for some 2-5 minutes or itching in the nostrils is been reported in the experimental group in some patients.

Nasal drug administration has been used as an alternative route for the systemic availability of drugs restricted to intravenous administration. This is due to the large surface area, porous endothelial membrane, high total blood flow, the avoidance of first-pass metabolism, and ready accessibility. The nasal administration of drugs, including numerous compounds, peptide and protein drugs, for systemic medication has been widely investigated in recent years. Drugs are cleared rapidly from the nasal cavity after intranasal administration, resulting in rapid systemic drug absorption. Several approaches are here discussed for increasing the residence time of drug formulations in the nasal cavity, resulting in improved nasal drug absorption.

These drug delivery systems have the ability to control the rate of drug clearance from the nasal cavity as well as protect the drug from enzymatic degradation in nasal secretions. The mechanisms and effectiveness of these drug delivery systems are described in order to guide the development of specific and effective therapies for the future.<sup>[8]</sup>

Basil oil persisting of antibacterial, anti-inflammatory and antimicrobial properties help in reducing the Sino nasal symptoms like sneezing, mucosal discharge, nasal blockage, post nasal discharge, thick mucosal discharge, runny nose, facial pain, cough by causing a positive action by providing an irritant to the nasal mucosa, as the essential oil is administered into the nasal cavity it passes through nasal cavity and helps in clearing out the sinuses, mucous field cavities which significantly reduced allergy symptom severity and antihistamine medication use, compared with antihistamines alone.

The exact mechanism of action of basil oil drops administration is unknown. One possibility is that the breakdown of the protective function of the nasal mucosa plays a role in upper respiratory conditions. Basil drops may improve nasal mucosa function through several physiologic effects, including direct cleansing<sup>[9,10]</sup> removal of inflammatory mediators<sup>[11,12]</sup> and improved muco-ciliary function, as suggested by increased ciliary beat frequency.<sup>[13,14]</sup>

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## CONCLUSION

As per data analysis and results says on comparing the outcome measures of the two groups, collected for baseline, a significant reduction in symptoms SNOT 22 ( $p < 0.001$ ) and in Quality of life ( $p \leq 0.001$ ) in experimental group compared to control group. And it is highly significant in reduction of pain. Thus basil oil drops can be used as treatment for reduction of symptoms of allergic rhinitis.

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