



ISSN 2456-3110

Vol 8 · Issue 8

August 2023

Journal of
**Ayurveda and Integrated
Medical Sciences**

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences



Maharshi Charaka
Ayurveda

Indexed

Efficacy of Tonsenorm Compound in the management of *Tundikeri* with special reference to Chronic Tonsillitis in Children

Ashok Kumar Pushkar¹, Rakesh Kumar Nagar², Prabhakar Vardhan³, Savita Pushkar⁴, Shraddha Kumawat⁵, Simmi Rani⁶, Rajkumar⁷

^{1,5,6,7}Post Graduate Scholar, Department of Kaumarbhritya, National Institute of Ayurveda, Deemed to be University (De-novo), Jaipur, Rajasthan, India.

²Associate Professor, Department of Kaumarbhritya, National Institute of Ayurveda, Deemed to be University (De-novo), Jaipur, Rajasthan, India.

³Associate Professor, Department of Shalaky Tantra, National Institute of Ayurveda, Deemed to be University (De-novo), Jaipur, Rajasthan, India.

⁴Post Graduate Scholar, Department of Shalaky Tantra, National Institute of Ayurveda, Deemed to be University (De-novo), Jaipur, Rajasthan, India.

ABSTRACT

Introduction: Tonsillitis is one of the most common infectious conditions in the paediatric age group. Symptoms such as pain or tenderness in the throat, fever, tonsillar swelling with a white or yellow coating, painful blisters or ulcers on the throat, headache, loss of appetite, ear pain, trouble swallowing, bad breath, a scratchy or muffled voice, and a stiff neck mentioned in this disease. *Ayurveda* addresses the problem of *Tundikeri*, similar to chronic tonsillitis with internal medicines and external therapies. Tonsenorm compound is such a herbomineral formulation formulated with extract a set of nine drugs. **Aim** of the proposed study is to evaluate the efficacy of the Tonsenorm compound in *Tundikeri*. **Material and Methods:** The present study is planned to be conducted under the strict protocol of an open-label clinical trial, in 40 patients. Tonsenorm compound will be given for 60 days at 250 mg thrice a day. Assessment of the patients will be done on the basis of subjective parameters with a grading/scoring system on every 15th day during the study, with a post-intervention follow-up after 1 month. **Results:** The result will show the effectiveness of the trial drugs, which will be economical and safe for long-term use in the patients of *Tundikeri*. **Discussion & Conclusion:** The outcome of this herbomineral drug change in scoring/ grading of symptoms of *Tundikeri* /chronic tonsillitis (will be assess after the completion of the trial work).

Key words: Tonsenorm compound, *Tundikeri*, Chronic tonsillitis.

INTRODUCTION

Tonsillitis is an inflammation of the pharyngeal tonsils. The name "*Tundikeri*" in *Ayurveda* refers to a condition

Address for correspondence:

Dr. Ashok Kumar Pushkar

Post Graduate Scholar, Department of Kaumarbhritya, National Institute of Ayurveda, Deemed to be University (De- novo), Jaipur, Rajasthan, India.

E-mail: drashokpushkar131@gmail.com

Submission Date: 12/06/2023 Accepted Date: 19/07/2023

Access this article online

Quick Response Code



Website: www.jaims.in

DOI: 10.21760/jaims.8.8.8

that affects the oral cavity, which is described as swelling at the base of the temporomandibular joint that resembles a cotton fruit.^[1] The inflammation may affect other areas of the back of the throat, including the adenoids and the lingual tonsils.^[2] In children, chronic tonsillitis is a very common problem that peaks between the ages of 3 and 10 and then subsides.^{[3],[4]} Tonsillitis is categorized into acute, chronic, recurrent and severe. Recurrent tonsillitis is defined by arbitrary criteria that have recently been adopted as a measure of severity. Severe tonsillitis is defined as five or more episodes of tonsillitis in a year, symptoms lasting at least a year, and episodes that are incapacitating and interfere with daily activities.^[5] Chronic tonsillitis has a global frequency of 4 to 15%; according to various authors, accounts for 23.7 percent of all pharyngeal

disorders.^[6] In one of the studies on morbidity patterns in rural areas of Jaipur district, Rajasthan, it was found that patients with URTI and tonsillitis attending the OPD during 2013 were 21.06%.^[7] The causative factors of tonsillitis are both viral and bacterial. Viral infection is more common in younger children, and bacterial tonsillitis is mainly caused by group-A beta hemolytic *Streptococcus pyogenes* (GABHS). *Streptococcus* species usually affect children aged 5-15 years.^[8] Symptoms include pain or tenderness in the throat, fever, swollen tonsils with a white or yellow coating, painful blisters or ulcers on the throat, headache, and loss of appetite, ear pain, trouble swallowing, bad breath, a scratchy or muffled voice, and a stiff neck.^[9] *Tundikeri* mentioned in Ayurveda classics is a similar disease condition in origin, sign, and symptoms to chronic Tonsillitis. *Tundikeri* is described in *Sushruta Samhita's Mukharoga Nidanasthan*,^[10] and *Mukharoga Chikitsasthan*^[11] under chapters 16th and 22nd, respectively. According to *Madhava Nidan*,^[12] *Ashtang Samgraha*^[13] and *Ashtang Hridaya*,^[14] *Tundikeri* is a large swelling caused by *Kapha* and *Rakta* with pricking pain, burning sensation, and suppuration. According to *Acharya Sushruta*, swelling in the throat located at the meeting place of the lower jaw, resembling the fruit of a *Karpasa* (cotton), slimy, with mild pain, and hard to touch, is known as *Tundikeri*.^[15] Its signs and symptoms are *Toda* (pricking pain), *Shopha* (Tonsillar enlargement), *Daha* (burning sensation), and *Prapak* (Inflammation).

Modern treatment options for tonsillitis have several limitations that hinder its effectiveness in providing comprehensive and long-term solutions. One major concern is the development of antibiotic resistance, resulting from the overuse of antibiotics to treat tonsillitis. This makes certain bacterial infections more challenging to treat, posing a significant problem for healthcare providers. Moreover, even after receiving treatment, patients may experience recurring episodes of tonsillitis, leading to a cycle of relief and relapse. The medications used to alleviate symptoms can also have adverse side effects, causing additional discomfort and health issues for patients. Otorhinolaryngologists generally recommend tonsillectomy for recurrent

attacks, but tonsillectomy has a profound detrimental effect on the local IgA response in preventing infection. To overcome these limitations, it is crucial for individuals experiencing tonsillitis to collaborate closely with their healthcare providers. By exploring alternative treatment options and adopting preventive measures, patients can work towards a more personalized approach to managing their condition effectively.

Ayurveda offers sufficient references for treating *Tundikeri* based on *Doshika* predominance, symptoms, and indicators.^[16] One of its treatments includes *Bhedana***and *Chedana**** by the help of *Mandalagra* instrument. Although there are lots of formulations available to manage and treat the disease tonsillitis in *Ayurveda*, it is always needed to develop such formulations that will be economical and safe for long-term use in the patients of *Tundikeri*. To overcome such clinical problems, limitations, and side effects, it becomes necessary to elucidate another safe and cost-effective drug therapy within the reach of the general population to treat tonsillitis (*Tundikeri*) and give better results. Thus, the prescribed medicine should be economical and easily available, so anyone can use it for a longer period of time to get rid of the disease. So, the Tonsenorm compound is proposed to evaluate its efficacy and utility in the treatment of *Tundikeri* (Tonsillitis).

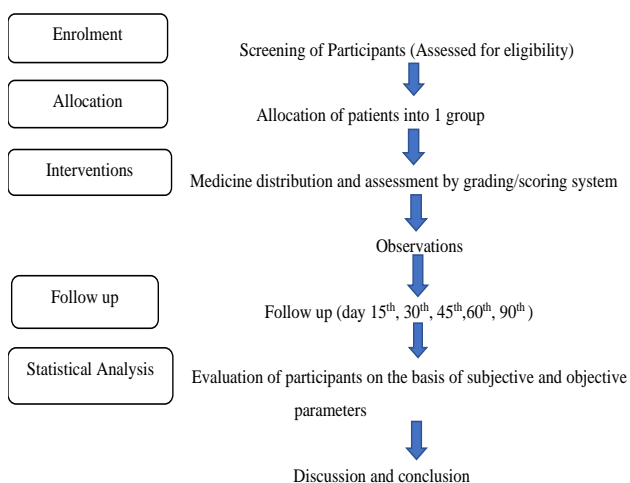
Tonsenorm Compound

S N	Name of Drug	Properties of drug	
		Properties as per modern science	As per Ayurveda
1.	<i>Shirish</i>	Antihistaminic ^[17] Immunomodulatory, ^[18] Anti-microbial, ^[19]	<i>Kasahar</i> , ^[20] <i>Shwasahar</i> ^[21]
2.	<i>Guduchi</i>	Immunomodulatory, ^[22] Anti-inflammatory, Antimicrobial, Antiviral ^[23]	<i>Tridoshashamak</i> ^[24]
3.	<i>Ativisha</i>	Analgesic, Anti-inflammatory ^[25]	<i>Tridoshahar</i> , <i>Specially Kaphapittashamak</i> , <i>Shothahar</i> ^[26]

4.	<i>Trikatu</i>	Anti-inflammatory ^[27] Anti-allergic, ^[28] Antiviral, Expectorant, Carminative ^[29]	<i>Shwasa Har</i> ^[30] <i>Deepan, Kphahar,</i> <i>Medohar</i> ^[31]
5.	<i>Gandhak</i>	Antibacterial, Antifungal ^[32]	<i>Kapha-vatashamak</i> [33]
6.	<i>Tankan</i>	Anti-inflammatory, Healing properties ^[34]	<i>Kasahar,</i> <i>Shwasahar,</i> <i>Kaphanissarak,</i> <i>Lekhana,</i> <i>Jatharagnideepak</i> ^[35]
7.	<i>Yashad</i>	Anti-asthmatic ^{[36],[37]} Immunomodulatory ^[38]	<i>Kasa-Shwasahar</i> ^[39] <i>Kaphapittanashak,</i> <i>Shleshmakala</i> <i>Sankochak</i> ^[40]

Fig no. 1

EXECUTION PLAN OF STUDY



METHODOLOGY

The Following materials and methods will be adopted for conducting the present clinical trial:

Source: For the proposed clinical study, the patients will be selected from OPD and IPD of the Kaumarbhryta and Shalakyia Tantra departments of the National Institute of Ayurveda, deemed to be The University (de-novo), Jaipur.

Sample Size: 40 Patients

Study Type: Open-label Clinical Trial.

Total Duration of Clinical Trial: 60 Days with a follow-up period

Inclusion Criteria

1. Children of either sex in the age group of 5 to 10 years.
2. Patients presenting with symptoms of Tundikeri and/or Chronic tonsillitis.
3. Patients clinically having symptoms of chronic tonsillitis from grades 1 to 3.

Exclusion Criteria

1. Patients clinically having symptoms of chronic tonsillitis of grade 4.
2. Patients presenting with Acute pharyngotonsillitis.

Discontinuation Criteria: Parents/attendants are not willing to participate in or continue the treatment. Appearance of any additional acute sickness during the therapy. Patient develops severe complications during the course.

Administration of Drug

The subjects satisfying inclusion criteria will be given Tonsenorm compound.

Dose and Duration

- **Dose** - Tonsenorm compound - 250 mg- TID
- **Time and Anupan / Sahapan** - Medicine will be given three times a day with Honey.
- **Total Duration of Clinical trial** - 60 days. Patient will be assessed on every 15th day during the course of the trial.
- **Follow-Up Period** - 1 month after completion of the clinical trial.

Trial Drug - Hypothetical Tonsenorm compound

SN	Name	Latin name	Part used	Volume in each Capsule
1.	<i>Shirish</i>	<i>Albizia lebbek</i>	Stem bark	60 mg
2.	<i>Guduchi</i>	<i>Tinospora cordifolia</i>	Stem	50 mg
3.	<i>Ativisha</i>	<i>Aconitum heterophyllum</i>	Tuber	50 mg

4.	<i>Trikatu</i>	<i>Zingiber officinale</i> <i>Piper longum</i> <i>Piper nigrum</i>	Rhizome Fruit Fruit	25 mg
5.	<i>Shuddha Gandhak</i>	Sulphur	-	25 mg
6.	<i>Tankan</i>	Na ₂ B ₄ O ₇ ·10H ₂ O	<i>Bhasama</i>	25 mg
7.	<i>Yashad</i>	ZnO	<i>Bhasma</i>	15 mg

Assessment criteria

The primary outcome will be assessed on the basis of the change in scoring/grading of symptoms of *Tundikeri* /chronic tonsillitis, and the secondary outcome will be assessed on the basis of the change in scoring/ grading of the size of the tonsillar mass. Objective Criteria will be used for the assessment of the tonsil's size (as per standard grading), CBC, ESR, LFT, and RFT.

Table 1: Dysphagia

Symptoms	Grading
No difficulty in swallowing	0
Patient feels difficulty in swallowing of solid diet	1
Difficult during taking semi solid diet	2
Difficulty during taking liquid diet	3

Table 2: Enlarged Lymph nodes

Symptoms	Grading
No palpable lymph nodes	0
Palpable lymph node unilateral	1
Palpable lymph node bilateral	2
Enlargement bilateral, visible and prominent	3

Table 3: Sore throat

Symptoms	Grade
No pain in throat	0

Mild pain on swallowing the saliva	1
Painful and moderate difficulty in swallowing the saliva	2
Patient cannot swallow the saliva	3

Table 4: Halitosis

Symptoms	Grade
Halitosis absent	0
Halitosis observed by others/ observer/ examiner	1
Halitosis observed by patient and observer	2

Table 5: Toda (pricking pain)

Symptoms	Grade
No pain	0
Mild tolerable pain	1
Moderate tolerable pain even during rest	2
Severe intolerable pain affecting routine work	3

Table 6: Daha (Burning sensation in throat)

Symptoms	Grade
No burning in throat	0
Mild burning after taking spicy food	1
Burning sensation after taking any food	2
Continuous burning throughout the day	3

Table 7: Congestion

Symptoms	Grade
No colour change	0
Congestion present only over peritonsillar surface	1
Congestion present on peritonsillar surface and both anterior and posterior pillars	2
Congestion present completely over oropharynx including palate	3

Table 8: Cough

Sign	Grade
Absent	0
Some time	1
Present occasionally	2
All time	3

Table 9: Follicles over the tonsils

Sign	Grade
Absent	0
1-5 Follicles	1
5-10 Follicles	2
More than 10 follicles	3

Table 10: Congestion over tonsils and pillars

Sign	Grade
Normal colour	0
Pinkish tonsils and pillars	1
Between 1 and 3rd	2
Reddened whole tonsil and pillar	3

Table 11: Debris over tonsils crypts

Sign	Grade
Absent	0
1-2 mm	1
3-5 mm	2
More than 5 mm	3

Table 12: Shopha (Tonsillar enlargement)

Sign	Grade
Tonsils are entirely within the tonsillar pillar or previously removed by surgery.	0
Tonsils occupy less than 25% of the lateral dimension of the oropharynx, as measured between the anterior tonsillar pillars (solid yellow arrow).	1

Tonsils occupy 26 to 50% of the lateral dimension of the oropharynx.	2
Tonsils occupy 51 to 75% of the lateral dimension of the oropharynx.	3
Tonsils occupy more than 75% of the lateral dimension of the oropharynx.	4

RESULT

Enrolling of the subject in current study will start from the August 2023 and the study will be completed within 6 months of the commencement of the trial. The assessment of the subjective criteria for signs and symptoms of *Tundikeri* (Chronic Tonsillitis) *Ayurveda* and modern parameters will be adopted. The results will be obtained through the grading and scoring system of the parameters. To determine efficacy, observations recorded throughout the study will be reviewed, and findings will be assessed using statistical analysis for Objective criteria using a paired T test and a Wilcoxon paired Rank test for Subjective criteria. The expected result of this study: the Tonsenorm compound might be effective in relieving the signs and symptoms of *Tundikeri* (chronic tonsillitis).

DISCUSSION

Tonsillitis, characterized by inflammation of the tonsils due to a bacterial infection known as chronic tonsillitis, is often linked to the common cold. While the symptoms are typically mild, patients may experience swollen tonsils coated with a sore throat following a streptococcal infection, accompanied by feelings of unwellness, fever, and bad breath. The conventional approach to treating chronic tonsillitis involves the use of medications with anti-inflammatory and immunomodulatory properties, but these medications have their own limitations. *Ayurveda* describes it under *Tundikeri* disease which is *Shopha*, *Ruja*, *Daha*, *Prapak Yukta*. There is predominance of *Kapha – Rakta Dosha*. The management of *Tundikeri in Ayurveda* includes various formulations for oral intake and different procedures like *Pratisarsan*, *Chedan*, *Bhedana* etc. In this context, recent experimental findings and the principles of *Ayurveda* have shed light on the potential benefits of Tonsenorm, a compound that boasts

various ingredients with anti-inflammatory, antimicrobial, antiviral, and immunomodulatory properties.

The Properties of Tonsenorm's Ingredients:

- **Shirish and Guduchi:** Both possess *Tridosha-Shamaka*^{[22],[25]} properties, helping to balance the three *Doshas* - *Vata*, *Pitta*, and *Kapha*. These herbs may play a crucial role in alleviating inflammation associated with chronic tonsillitis.
- **Ativisha:** Known for its *Kapha-Pitta-Shamaka* and *Shothahar*^[27] properties, *Ativisha* might aid in reducing the swelling of the tonsils and providing relief from discomfort.
- **Trikatu:** With anti-inflammatory, expectorant, and carminative properties, *Trikatu* acts as a *Deepana* and *Pachana*,^[32] stimulating digestion and aiding in the elimination of toxins. Additionally, its *Shothahara* (Anti-inflammatory)^[28] effect in *Tundikeri* may contribute to alleviating tonsillar inflammation.
- **Gandhaka:** This ingredient exhibits antibacterial, antifungal, and *Kapha-Vata-Shamaka*^[34] properties, making it a potential candidate for reducing the size and pain associated with tonsillar masses.
- **Tankan Bhasma:** Renowned for its *Kasahara*, *Shwashara*, *Kaphanissaraka*, *Lekhana*, and *Jatharagnideepaka*^[36] properties, *Tankan Bhasma* possesses healing and anti-inflammatory^[35] characteristics that could aid in reducing tonsillar swelling.
- **Yashad Bhasma:** Known for its *Kaphapittanashaka* and *Shleshmakala Sankochaka*^[41] effects, *Yashad Bhasma* may further contribute to managing inflammation and toning down the symptoms of chronic tonsillitis.

The Potential Benefits of Tonsenorm for Chronic Tonsillitis: Drawing from *Ayurvedic* principles and recent experimental findings, Tonsenorm emerges as a promising solution for chronic tonsillitis. Its combination of ingredients with anti-inflammatory,

antimicrobial, antiviral, and immunomodulatory^{[23],[24]} properties present a comprehensive approach to tackle the infection and associated symptoms effectively.

- **Anti-inflammatory Action:** The presence of various anti-inflammatory agents in Tonsenorm may help alleviate the swelling and discomfort experienced during chronic tonsillitis, providing relief to patients.
- **Immunomodulatory effect:** By influencing the immune response, Tonsenorm could potentially enhance the body's ability to fight off the bacterial infection, promoting a faster recovery.
- **Antimicrobial and Antiviral Properties:** The antimicrobial and antiviral properties of Tonsenorm's components may contribute to combatting the underlying bacterial infection, which is often triggered by streptococcal bacteria.

CONCLUSION

Tonsenorm, with its unique blend of *Ayurvedic* ingredients possessing *Tridosha-Shamak*, anti-inflammatory, antimicrobial, antiviral, and immunomodulatory properties, presents a promising alternative for managing chronic tonsillitis. While further research and clinical studies are warranted to establish its efficacy and safety definitively, the compound holds the potential to offer relief and aid in the recovery of individuals suffering from this condition. As always, it is advisable for patients to consult with a healthcare professional before considering any new treatment approach.

REFERENCES

1. Sahoo I, More SS, Jadhav V, Dalai S, Sahoo M. Clinical Appraisal on Therapeutic Efficacy of Tankana & Sphatika Bhasma with Madhu Pratisarana in Tundikeri. JDDT [Internet]. 15Nov.2019 [cited 20Jul.2023];9(6):130-4.
2. Muhamad Abu Bakar, Judy McKimm, Seraj Zohurul Haque, Md Anwarul Azim Majumder & Mainul Haque (2018) Chronic tonsillitis and biofilms: a brief overview of treatment modalities, Journal of Inflammation Research, 11:, 329-337, DOI: 10.2147/JIR.S162486

3. Sangar B., Genaw I. Role of adenotonsillectomy in the quality of life in the children with obstructive sleep apnoea at Al-Khoms hospital, Libya. *Int J Otolaryngol Res.* 2013;1:31–35
4. Kliegman R.M., Behrman R.E., Jenson H.B., Stanton B.F. 18th ed. Elsevier; New Delhi: 2008. Nelson Textbook of Pediatrics.
5. McKerrow WS. Recurrent tonsillitis. *American family physician.* 2002 Nov 1;66(9):1735-6.
6. Rustamova GR, Samieva GU. Diagnosis and treatment of chronic tonsillitis in children at the present stage (literature review). *British Medical Journal.* 2022 Apr 22;2(1).
7. https://www.researchgate.net/publication/287717960_Morbidity_pattern_in_rural_area_of_Jaipur_district_rajasthan.
8. Alasmari NS, Bamashmous RO, Alshuwaykan RM, Alahmari MA, Alshahrani AA, Alqarni SA, Alhadlag AS, Alotaibi FA, Alassiri AS, Alnaji AA, Alamri SO. Causes and treatment of tonsillitis. *The Egyptian Journal of Hospital Medicine.* 2017 Oct 1;69(8):2975-80.
9. Tonsillitis - Symptoms and causes - Mayo Clinic <https://www.mayoclinic.org/diseases-conditions/tonsillitis/symptoms-icauses/syc-20378479#>.
10. Kaviraj Dr Ambikadatta shastri, Sushrut Samhita part - 1,Chaukhambha Sanskrit sansthan, Reprint2007,Nidan sthan16/42,44 page-298-99.
11. Kaviraj Dr Ambikadatta shastri, Sushrut Samhita part - 1,Chaukhambha Sanskrit sansthan, Reprint2007,Chikitsa sthan sthan22/53-57 page-101.
12. Ayurvedacharya shree Yadunadanopadhyay, Madhav nidan, Part-2, Madhukosh Vidyotini teeka , edition-2014, page 271.
13. Ashtang Sangrah Uttar Tantra 26/64.
14. Ashtang Hridaya Uttar tantra, Vol-3 by prof. K.R.Shrikantha murthy, Edition-1995, Krishnadas academy, Varanasi, page-193.
15. Sushrut Samhita, Dalhana tika, Acharya P. V. sharma, Chaukhambha Vishvabharti-Varanasi English Reprinted Edition 2010, Nidan Sthan 16/ 44, pg-108.
16. Sahoo I, More SS, Jadhav V, Dalai S, Sahoo M. Clinical Appraisal on Therapeutic Efficacy of Tankana & Sphatika Bhasma with Madhu Pratisarana in Tundikeri. JDDT [Internet]. 15Nov.2019 [cited 20Jul.2023];9(6):130-4.
17. Tripathi R M, Das P K, studies on antihistaminic and anti-anaphylactic activity of albizia lebebeck - Indian journal of pharma 1977 vol 9 pg. no.189-194.
18. Barua CC gupta pp, patnaik GK, misra-bhattacharya S, goel RK, kulsh restha DK, Dh awan BN. Immunomodulatory effect of albizia lebeck. *Pharm Biol* 2000; 38 (3): 161-166.
19. Sharma GK, Dubey N. Review of Shirish (Albizia lebeck) therapeutic properties. *International Journal of ayurvedic and herbal medicine.* 2015;5(1):1683-8.
20. Bhavprakash Nighantu (Indian materia medica) of sri bhavmisra (C. 1500-1600 A.D) vatadivarg commentary by Prof.K.C chunekar and edited by late Dr. G.S Pandey published by Chaukhamba Bharti academy Varanasi edition reprint year 2013.
21. Dravyaguna vignana (vegetable drugs), vol 2 by Prof. P.V. Sharama, published by chaukhamba Bharti academy Varanasi. Edition reprint year 2013 pg.No 775.
22. Bharathi C, Reddy AH, Nageswari G, Lakshmi BS, Soumya M, Vanisri DS, Venkatappa B. A review on medicinal properties of Tinospora cordifolia. *International Journal of Scientific Research and Review.* 2018;7(12):585-98.
23. Mittal J, Sharma MM, Batra A. Tinospora cordifolia: a multipurpose medicinal plant-A. *Journal of Medicinal Plants.* 2014;2(2).
24. Dravya Guna Vigyan, Part-2 Acharya Priyavrat Sharma,Chaukhambha Bharti Academy,Reprint 2005, Page no.761.
25. Wani TA, Kaloo ZA, Dangroo NA. Aconitum heterophyllum Wall. ex Royle: A critically endangered medicinal herb with rich potential for use in medicine. *Journal of Integrative Medicine.* 2022 Mar 1;20(2):104-113.
26. Dravya Guna Vigyan, Part-2 Acharya Priyavrat Sharma, Chaukhambha Bharti Academy,Reprint 2005, Page no.355
27. Sabina, E.P., Nagar, S., Rasool,M.(2011). A role of pipeline on monosodium urate crystal induced inflammation – an experimental model of gouty arthritis inflammation, 34:184-192.
28. Maenthaisong, R., Chaiyakunapruk, N., Tiyaboonchai, W., Tawatsin, A., Rojanawiwat, A., Thavara, V. (2014).

- Efficacy and safety of topical trikatu preparation in, relieving mosquito bite reactions: A randomized control trial. *Complementary ther. Med.*, 22:34.39.
29. Kaushik R. Trikatu-A combination of three bioavailability enhancers. *International Journal of Green Pharmacy (IJGP)*. 2018 Nov 6;12(03).
 30. Dravyaguna Vignana (vegetable drugs), vol 2 by Prof. P.V. Sharama, published by chaukhamba Bharti academy Varanasi. Edition reprint year 2013 pg.No 365.
 31. Sharangdhar Samhita, Madhyam Khand 6/12-13
 32. Saokar RM, Sarashetti RS, Kanthi V, Savkar M, Nagthan CV. Screening of antibacterial and antifungal activity of Gandhaka rasayana an ayurvedic formulation. *International Journal of Recent Trends in Science and Technology*. 2013;8(12):134-137.
 33. Dravyaguna vignana (Animal products, Minerals and dietetic substances), vol 3 by Prof. P.V. Sharma, published by chaukhamba Bharti academy, Varanasi. Edition reprint year 2000 pg.No 80.
 34. Ravishankar AG, Mahesh TS. Tankana bhasma kavala in chronic tonsillitis. *UJAHM*. 2013;1(02):41-4.
 35. Ayurvedeeya Rasashastra by Dr Chandrabhushan Jha, Edition 2013, Page no.449.
 36. G. I. Bell and K. S. Polonsky, "Diabetes mellitus and genetical programmed defects in beta-cell function," *Nature*, vol, 414, no. 6865, pp. 788-791,2001.
 37. P. Zimmet, K. G. M. M. Alberti, and J.Shaw, "Global and societal implications of the diabetes epidemic," *Nature*, vol. 414, no. 6865, pp. 782-787 ,2001.
 38. N. Morral, "Novel targets and therapeutic strategies for type 2 diabetes," *Trends in Endocrinology and Metabolism*, vol.14, no. 4, pp. 169-175, 2003.
 39. Text book of Rashesahtra by Dr moharpal meena – Dr Rajendra prasad Sharma "Ayurvediya rashesahtra" by jagdish Sanskrit pustkalaya Jaipur First edition 2013. Pg.No.358
 40. Ayurveeya Rasashastra by Dr Chandrabhushan Jha, Edition 2013, page no.377

How to cite this article: Ashok Kumar Pushkar, Rakesh Kumar Nagar, Prabhakar Vardhan, Savita Pushkar, Shraddha Kumawat, Simmi Rani, Rajkumar. Efficacy of Tonsenorm Compound in the management of Tundikeri with special reference to Chronic Tonsillitis in Children. *J Ayurveda Integr Med Sci* 2023;08:53-60. <http://dx.doi.org/10.21760/jaims.8.8.8>

Source of Support: Nil, **Conflict of Interest:** None declared.
