



“Insight into Research Work on Pharmaceutical and Analytical Study of 3TE Immune Drops- An effective immuno-Modulator”

Maitry Jagdishchandra Sachinwala¹, Anitha H.², Hemant D. Toshikhane³

¹ 2nd year PG scholar, Department of Rasashastra evam Bhaishajya Kalpana, Parul Institute of Ayurved, Parul university, Vadodara, Gujarat

² Professor & HOD, Department of Rasashastra evam Bhaishajya Kalpana, Parul Institute of Ayurved, Parul university, Vadodara, Gujarat

³ Dean, Department of Shalya tantra, Parul Institute of Ayurved, Parul university, Vadodara, Gujarat

*Corresponding Author

Email: maitrysachinwala35@gmail.com

ABSTRACT

Arka prakasha considers arka in panchavidha Kashaya Kalpana & its uncomplicated method of preparation with easy administration is making it popular in present era where infections are frequent & all are aiming for boosting immunity. 3TE immune drops are one such solution as the ingredients possesses immunomodulatory effect and are in form of tasteless drops which are easy to consume. Here, an attempt was made to acknowledge those based on its pharmacological & analytical parameters.

KEY WORDS: Arka, Tulasi, Trikatu, Twak, Ela, immunomodulator.

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INTRODUCTION

Ayurveda is natural healing systems often called as the “Mother of All Healing”. The system’s core strength is its holistic approach to health and disease using natural remedies derived from medicinal plants and minerals. *Ayurveda* comprises an extensive pharmacopoeia, predominantly herbs, metals, and minerals. Although being pre-eminent with original form, *Ayurvedic* practitioners often modify classical dosage forms to suit the individual *Prakriti*, palatability, compliance & bio availability. Few of new forms includes-capsules, granules, liposomes, effervescence, distillation etc.

Distillate is the purest form in which water-soluble components of drugs can be obtained. In *Ayurveda*, distillate is correlated with “*Arka*”. *Lankapati ravana* in the auspicious book of *Arkaprakasha*, stated *Arka* under *Panchavidha Kashaya Kalpana* along with *Kalka, curna, swarasa & taila*- with *Arka* being the most potent form. *Arka prakasha* narrates more than 500 of *Arka* preparations. Several of them encompasses metals and minerals also. The system’s core strength is its holistic approach to health and disease using natural remedies derived from medicinal plants and minerals.

3TE immune drops (3TEID) are distillate liquid/*Arka* composing 4 main ingredients. Among them 3 ingredients starting with ‘T’- *Trikatu, Twak, Tulasi* & rest one with ‘E’ i.e., *Ela*, hence named as 3TE. Its widely used in- common cold, cough, sore throat, mild fever with uplifting immunity & appetite, have increased shelf life and reduced dosage. Here, an attempt was made to acknowledge those based on its pharmacological & analytical parameters.

MATERIAL AND METHODS

The Methodology is divided into pharmaceutical study and analytical study. In the pharmaceutical study 3 different batches of 3TEID were collected from the Parul Ayurved Pharmacy, Parul Institute of Ayurveda, Vadodara, Gujarat. For Analytical study, different parameters mentioned for assessment of *Arka* were carried out.

Plant materials:

The drugs required for preparation- *Trikatu, Twak, Tulasi & Ela* were procured from department of Rasashastra & Bhaishajya Kalpana, Parul Institute of Ayurveda, Vadodara, Gujarat. Authentication of raw drugs was done at department of Dravyaguna, Parul Institute of Ayurveda, Vadodara, Gujarat; based on macroscopic & organoleptic characters.

INGREDIENTS (Table No. 1)

INGREDIENTS		LATIN NAME	INDICATION
Tulasi		<i>Occimum sanctum Linn.</i>	<ul style="list-style-type: none"> • Immunity • Cough • Cold • Sore throat • Appetizer • Mild fever Dose: 10-12 ml, divided dose Anupana: Water
Trikatu	Shunthi	<i>Zingiber officinale</i>	
	Maricha	<i>Piper nigrum</i>	
	Pippali	<i>Piper longum</i>	
Twak		<i>Cinnamomum zeylanicum</i>	
Ela		<i>Elettaria cardamomum Maton.</i>	

Method of preparation of 3TEID:

REQUIREMENTS:

1. Stainless steel vessels for soaking drugs
2. Distillation apparatus
3. Gas Stove
4. Vessels for collecting distillate

PROCEDURE:

Distillate was prepared using Ingredients, amount & temperature mentioned in Table No.2. Before processing them for distillation, all the ingredients were soaked 24 hours priorly. The soaked drugs were transferred to the distillation apparatus/ *Arka yantra* and heated continuously. 50% of yield is then collected in the receiver as condensed vapor. After cooling of distillate, it preserved in airtight container.

METHOD OF PREPARATION (Table No. 2)

INGREDIENTS		Amount (gm)	water	Temperature
Tulasi		250 gm	2.5 lit	Initiation from 40-50°C, not exceeding 60-65°C. For 1 hour & 50 % yield collected.
Trikatu	Shunthi	100 gm	10 parts	
	Maricha	100 gm	10 parts	
	Pippali	100 gm	14 parts hot water (soaked)	
Twak		100 gm	12 parts	
Ela		100 gm	10 parts	

RESULTS**ANALYTICAL STUDY:**

The analytical study of samples was done with organoleptic parameters like colour, taste, odour, appearance. Physico-chemical parameters like pH, specific gravity, and refractive index, viscosity, TSS by following the method prescribed in Ayurvedic pharmacopoeia of India (API) is done as mentioned in Table no. 3 & 4 given below.

Table No. 3: Study of organoleptic parameters

NO.	ORGANOLEPTIC PARAMETERS	RESULTS
1	Colour	Colourless
2	Taste	Characteristic
3	Appearance	Liquid
4	Odour	Aromatic pleasant

Table 4: Physico-Chemical Parameters of Drugs

NO.	PHYSICO-CHEMICAL PARAMETERS	RESULTS
1	pH	6.5
2	Specific gravity	1
3	Viscosity	0.0018
4	TSS (Total Suspended Solids)	0.5
5	Refractive index	1.32

DISCUSSION AND CONCLUSION

Arka Kalpana is one of the neat & ingenious dosage form of *Ayurvedic* pharmaceuticals. An ultimate book *Arka prakasha on Arka*, narrates more than 500 of *Arka* formulations, few of them include metals and minerals also.

The herbs taken here are easy to pound and soaking them overnight makes the tissue to swell up cause, the cell wall of drug takes up the liquid. Which in turn makes them softer & helps in release of essential volatile principles while boiling as they're rich in volatile content. As *Pippali & Twak* are hard in nature than others, 14 & 12 parts of water has been used respectively.

The temperature was maintained for the preparation for the drug to remain in contact with water and to allow the heat energy to play a role to give enough time for the active principles to get extracted in the media of water.

Tulasi is known as "the elixir of life" since it improves immunity & promotes longevity. The leaves contain 0.7% volatile oil comprising about 71% eugenol and 20% methyl eugenol. It prevents and cures many illnesses like cough, influenza, common cold, headache, fever, digestive disorders etc.³

Trikatu possesses immune modulatory, expectorant, Anti-viral & anti-inflammatory properties. Which contains Gingerols, Gingiberene, Shagol from *Shunthi*. 3.5% of Volatile oil which contains Piperine, sabinene, linalool, pinene and more from *Maricha*. *Pippali* contains 3-5 % of piperine with methyl piperine, piperettine, bisabolene, terpinoline etc. ⁴

Twak consists of a variety of resinous compounds, including cinnamic acid, innamaldehyde, cinnamate & numerous essential oils which makes it a potent antioxidant, anti-inflammatory, antimicrobial & protects against seasonal allergies while increasing immunity.⁵

Ela arka comprises 0.1 % v/v of essential oil. It is predominant with *katu- madhura rasa, laghu- ruksha guna, sheeta veerya, katu vipaka* and is cardio-tonic, digestive, carminative, expectorant and has anti-oxidant & anti-microbial may be due to- Cineole, the major active component of cardamom.⁶

CONCLUSION

Arka Kalpana is becoming point of attraction between *Ayurvedic* physicians due to its uncomplicated & appealing method. 3TE immune drops were formulated based on principle of *Arka Kalpana* due to its uniqueness. Selected ingredients are easily accessible & cost effective, contains chemical compositions & active principles needed for the immunomodulatory effect.

The Analytical & Physico-chemical characters states that 3TE immune drop encounters a potent immunomodulator activity with relieving cough, cold, sore throat too. To a greater extent, experimental studies can be done to throw light on the efficacy of the same.

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