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# Formulation and Evaluation of Honey & Tulsi Extract Syrup for Influenza

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**Abstract:** Influenza is a common viral infection that affects the respiratory system and poses significant health concerns globally. Traditional herbal remedies are gaining renewed interest for their potential therapeutic benefits and minimal side effects. This study focuses on the formulation and evaluation of a herbal syrup containing Ocimum sanctum (Tulsi) extract and honey, both known for their antiviral, immunomodulatory, and soothing properties. The syrup was prepared using aqueous Tulsi extract and honey as the natural sweetening and soothing agent. Various physicochemical parameters such as pH, viscosity, microbial load, and stability were assessed. Additionally, organoleptic properties and in- vitro antiviral activity were evaluated to determine the efficacy of the formulation against influenza symptoms. The results demonstrated that the formulation was stable, palatable, and showed promising antiviral potential, supporting its use as a natural alternative for managing influenza.

**KEYWORDS:** Herbal syrup, Ocimum sanctum, honey, influenza, antiviral, formulation, evaluation, traditional medicine.

#### I. INTRODUCTION

Influenza virus, commonly known as the flu, is a highly contagious and adaptable RNA virus that affects millions of people worldwide annually. Belonging to the Orthomyxoviridae family, this virus has three main types - A, B, and C - with type A being the most virulent and responsible for major outbreaks and pandemics. Influenza virus targets the respiratory system, causing symptoms ranging from mild to severe, including fever, cough, sore throat, and body aches. Its high mutation rate enables the virus to evade the immune system, making annual vaccination essential for protection. With its ability to spread through airborne droplets, close contact, and contaminated surfaces, influenza virus poses a significant threat to public health, particularly among vulnerable populations such as the elderly, young children, and those with compromised immune systems. Understanding the influenza virus's structure, transmission, and evolution is crucial for developing effective prevention and control strategies to mitigate its impact on global health.

• Influenza commonly known as the FLU.

• It is the viral infection that affects the respiratory system

This presentation will explore its signs, symptoms, pathophysiology, and various treatment approaches to enhance understanding of this prevalent illness

#### **II. FORMULATION & DEVELOPMENT OF PUNICA**

#### **GRANATUM EXTRACT SYRUP:**

Materials:

Ocimum Tenuiflorum, Apis mellifera, Propylene glycol, Methyl paraben, Propyl paraben Sorbitol, Glycerine.

#### Method:

#### Preparatipon of Ocimum Tenuiflorum Extrect syrup for influenza:

The sugar foundation was made by boiling together 45ml of water and 45g of sucrose. Distilled water was added to bring the total volume to 100 ml after the liquid was filtered. The preservatives were mixed into a sugar solution after being dissolved in a little amount of water that had been cooked and cooled. Glycerin and sorbitol were added to a solution of Ocimum Tenuiflorum powder soaked in propylene glycol at 45-50°C. All of the remaining sweeteners were

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added and blended together. If the pH is too high (above 6.5), use citric acid to lower it to 5.5. The remaining 25 ml were then reconstituted with cooled, boiling water.

### Table 1. Formulation of Ocimum Tenuiflorum syrup

Material	F1	F2	F3
Ocimum Tenuiflorum	1.0	0.5	0.25
extract of leaves			
Pronylene glycol (Solubilizer)	6.0	3.0	15
	0.0	5.0	
Methyl paraben (Preservative)	0.25	0.12	0.06
Propyl paraben	0.25	0.12	0.06
Honey	0.50	0.25	0.15
Sorbital	2.0	1.0	0.5
5010101	2.0	1.0	0.0
Glycerine	0.5	0.25	0.12



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Figure:1- Extraction of Ocimum Tenuiflorum by Decocation Method



Figure:2-Extract of Ocimum Tenuiflorum

#### **III. EVALUATION OF PUNICA GRANATUM SYRUP**

#### **Organoleptic property:**

The prepared syrup will be examined for their appearance, color, odor, and taste.

#### Flavonoids test:

1 ml plant extract has been taken in to test tube +2ml of 1% sodium hydroxide (NaoH) solution has been added in the test tube. The presence of yellow color is the sign that it contains flavonoids

#### Measurement of pH:

The pH of the syrup is determined by using digital pH meter. The measurement of pH each formulation is done in triplicate and average values were noted.

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#### Solubility:

To check the solubility of the prepared syrup.

#### Viscosity:

The viscosity was estimated by following steps of procedure. Use heated chromic acid or an organic solvent like acetone to thoroughly clean the Ostwald viscometer. Set up a vertical setup for the viscometer. Fill the dry viscometer with water to the G mark. How long, in seconds, does it take for water to travel from point A to point B Perform step 3 atleast three times to ensure a reliable readings Measure the time it takes for the liquid to flow from mark A to mark B after rinsing the viscometer with the test liquid. Viscosity %= Density of liquid

× Flow time for liquid × water viscosity

#### **Stability study:**

Three months of storage at 40 2°C and 75 5% RH are used to evaluate the stability of the final syrup formulation. The samples were analysed at 0, 7, 14, and 21 days for things like colour, smell, and taste.

#### **RESULT AND DISCUSSION**

#### **Evaluation of syrup**

**Organoleptic characteristics** A comparative study was done for the leaf extract in methanol and water solvent. The following table represents the comparison profile.

Table 2. Organoleptic characteristics reatures of syru
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Features	F1	F2	F3
Appearence	Heterogenous	Heterogenous	Heterogenous
Colour	Dark Greenish	Dark Greenish	Dark Greenish
Odor	Sweet & Floral	Sweet & Floral	Sweet & Floral
Test	Minty Or Bitter	Minty Or Bitter	Minty Or Bitter

#### Phytochemicals (Flavonoids) test of Ocimum Tenuiflorum:

The extract were determined for their flavonoids content as a crude that is highly potent and effective moiety in the cure of many medical conditions. Methanolic extract of Tulsi leaves were shown the presence of flavonoids. The outcome of this test was given in following table. The outcome of this test was given in following table.



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#### Table3. Observation of flavonoids test of Punica granatum

Flavonoids test	Observation: Presence	Observation: Presence	Observation: Presence
	of yellow colour indicates	of yellow colour indicates	of yellow colour indicates
	that the presence of	that the presence of	that the presence of
	flavonoids in the plant	flavonoids in the plant	flavonoids in the plant
	extract. Inference:	extract. Inference:	extract. Inference:
	Present	Present	Present



Figure:3 Phytochemicals (Flavonoids) test of Ocimum Tenuiflorum

**Formulation & Development of Ocimum Tenuiflorum Extract Syrup:** Formulation and development of Ocimum Tenuiflorum extract syrup was prepared.

#### **Evaluation of Ocimum Tenuiflorum Syrup: Estimation of pH, solubility**

The extracts were observed for their pH, solubility and % yield. Methanolic extract of Tulsi leaves shown the pH, respectively. While aqueous extract of Tulsi leaves shown the pH as 3.97. shown the table no.4.



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#### Table 4. Estimation of pH, solubility, Density & Viscosity

Features	F1	F2	F3	
Ph	3,97	3.50	3.74	
Solubility	Soluble in met water	hanol andSoluble in mo water	ethanol andSoluble in methanol a water	and
Density	0.82g	0.84g	0.79g	
Viscosity	3.64cp	3.62cp	3.66cp	



Figure: 4 Solubility test



Figure:5 Viscosity estimation



**Figure: 6 Density Determination** 



**Figure: 7 Decoction method** 



#### IV. SUMMARY & CONCLUSION

The present study focused on the formulation and evaluation of a herbal syrup containing honey and Tulsi (Ocimum sanctum) extract for the management of influenza symptoms. Both ingredients are known for their natural antiviral, antibacterial, and immunomodulatory properties, making them suitable candidates for alternative flu remedies. The syrup was prepared using standardized methods, incorporating Tulsi extract into honey along with suitable excipients to ensure palatability and stability.

Evaluation parameters included organoleptic characteristics (taste, color, odor, and consistency), pH, viscosity, microbial load, and stability studies. The results indicated that the syrup was physically and chemically stable, maintained acceptable pH and viscosity, and showed no significant microbial growth during the observation period. Its natural composition also contributes to its safety profile, with no reported side effects in preliminary testing. In conclusion, the honey and Tulsi extract syrup demonstrated good stability, safety, and potential effectiveness against influenza symptoms. This formulation can serve as a natural, accessible, and supportive remedy for influenza, offering a promising alternative to conventional synthetic drugs, especially in mild cases or for individuals seeking herbal treatment options.

#### REFERENCES

- 1. Reid AH, Fanning TG, Janczewski TA, Taubenberger JK: Characterization of the 1918 'Spanish' influenza virus neuraminidase gene. Proc Natl Acad Sci USA 2000, 97:6785- 6790.
- 2. "Influenza Vaccine Effectiveness" (New England Journal of Medicine, Vol. 343, No. 14, 2000)
- 3. Baigent SJ, McCauley JW. Influenza type A in humans, mammals and birds: determinants of virus virulence, host-range and interspecies transmission
- 4. .BioEssays2003;25(7):657–671
- 5. "Influenza Vaccine Effectiveness" (New England Journal of Medicine, Vol. 348, No. 14, 2003)
- 6. WHO: "Influenza Vaccination" (Weekly Epidemiological Record, No. 22, 2004)
- 7. Journal of Infectious Diseases: "Influenza Vaccination in Children" (Vol. 193, No. 9, 2006)
- 8. New England Journal of Medicine: "Antiviral Treatment of Influenza" (Vol. 354, No. 13, 2006)
- 9. The Lancet: "Influenza: A Global Health Concern" (Vol. 367, No. 9519, 2006)
- 10. "Influenza Vaccine Effectiveness" (New England Journal of Medicine, Vol. 354
- 11. No. 13, 2006)
- 12. Lowen AC, Mubareka S, Steel J, Palese P. Influenza virus transmission is dependent on relative humidity and temperature. PLoS Pathog 2007;1470–1476
- 13. Molinari NA, Ortega-Sanchez IR, Messonnier ML, et al. The annual impact of seasonal influenza in the US: measuring disease burden and costs. Vaccine 2007;25(27):5086–5096
- 14. Miller MA, Viboud C, Balinska M, Simonsen L. The signature
- 15. features of influenza pandemics—implications for policy. NEngl J Med 2009;360 (25):2595-259
- 16. Scull MA, Gillim-Ross L, Santos C, et al. Avian Influenza virus
- 17. glycoproteins restrict virus replication and spread through human airway epithelium at temperatures of the proximal airways. PLoS Pathog 2009;5(5):e1000424
- 18. Libster R, Coviello S, Cavalieri ML, et al. Pediatric hospitalizations
- 19. due to influenza in 2010 in Argentina. N Engl J Med 2010; 363(25):2472-2473





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