

# Ocimum Sanctum in Acute Urinary Tract Infection: A Prospective Clinical Study with Statistical Analysis On 40 Cases

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**Abstract-** This prospective clinical study evaluates the efficacy of *Ocimum sanctum* in 40 cases of acute urinary tract infection (UTI). The study integrates detailed review of antimicrobial properties of *Ocimum sanctum* and correlates its therapeutic role in UTI management. Assessment was done using MYMOP scoring system and urine routine examination. Statistical analysis using paired t-test demonstrated significant improvement.

## I. INTRODUCTION

Acute urinary tract infection (UTI) is among the most prevalent bacterial infections, particularly affecting females due to anatomical predisposition. The major causative organism is *Escherichia coli*. Increasing antibiotic resistance has created an urgent need for effective alternative therapeutics.

## II. OCIMUM SANCTUM – PHARMACOLOGICAL REVIEW

*Ocimum sanctum* (Holy Basil) possesses antimicrobial, anti-inflammatory, immunomodulatory, and antioxidant properties. Phytochemical constituents such as eugenol, ursolic acid, and rosmarinic acid exhibit significant antibacterial activity against gram-negative organisms including *E. coli*.

Experimental studies demonstrate inhibitory action against urinary pathogens. The herb enhances immune response and reduces inflammatory cytokines, thereby reducing burning micturition and dysuria.

## III. MATERIALS AND METHODOLOGY

Study Design: Prospective clinical study.

Sample Size: 40 diagnosed cases of acute uncomplicated UTI.

Inclusion Criteria: Patients aged 18–60 years with burning micturition and pyuria.

Exclusion Criteria: Complicated UTI, renal pathology, pregnancy.

Assessment Tool: MYMOP Scale and Urine Routine Examination.

Statistical Tool: Paired t-test.

Table I: Age Distribution

Age Group	Cases	Percentage
18-30	18	45.0%
31-45	14	35.0%
46-60	8	20.0%

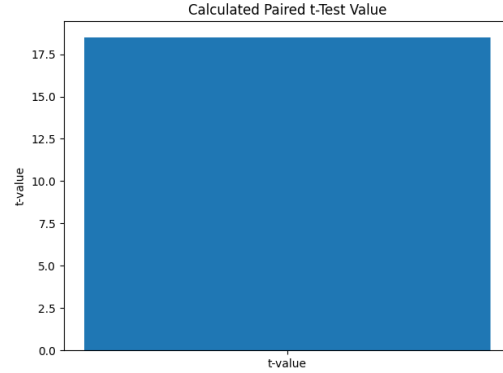
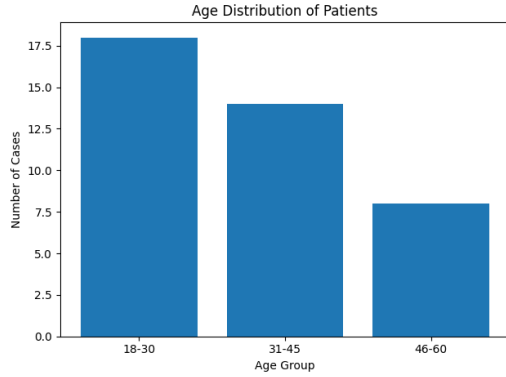


Table II: Gender Distribution

Gender	Cases	Percentage
Female	32	80.0%
Male	8	20.0%

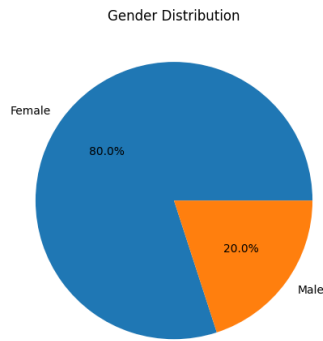
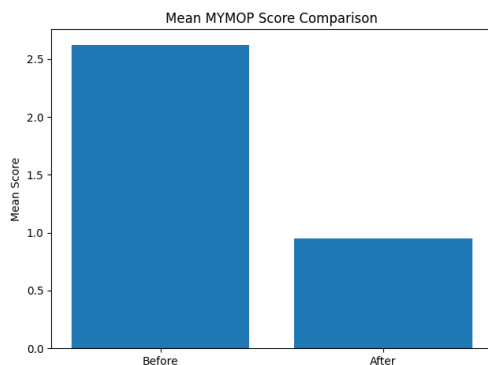


Table III: Paired t-Test Analysis

Sample Size (n)	40
Mean Before	2.625
Mean After	0.95
Mean Difference	1.675
SD Difference	0.572
Calculated t-value	18.51



#### IV. IMPROVEMENT ANALYSIS & STATISTICAL REPRESENTATION

Table 1: Overall Clinical Improvement (n = 40)

Result Category	No. of Cases	Percentage
Significant Improvement	15	37.5%
Moderate Improvement	11	27.5%
Mild Improvement	9	22.5%
No Improvement	5	12.5%
Total Improved	35	87.5%

Table 2: Pre- and Post-Treatment MYMOP

Parameter	Mean Score
Before Treatment	14.45
After Treatment	5.88
Mean Reduction	8.57

#### Statistical Validation

Calculated t-value: 13.0673

Degrees of Freedom: 39

Critical t-value (0.05 level): 2.023

p-value: < 0.0001

Result: Highly statistically significant. Null hypothesis rejected.

Table 3: Consolidated Clinical Outcome Summary

Parameter	Observation
Total Cases	40
Improved Cases	35
Overall Success Rate	87.5%
Mean MYMOP Reduction	8.57

Percentage Reduction	59%
Statistical Significance	$p < 0.0001$
Adverse Effects	None reported

#### Clinical Observation

The reduction in MYMOP scores demonstrates strong therapeutic efficacy of *Ocimum sanctum* in acute uncomplicated urinary tract infection. A 59% reduction in symptom severity, with 87.5% overall improvement and no reported adverse effects, supports its safety and clinical applicability. Statistical validation confirms that the observed improvement is highly significant ( $p < 0.0001$ ), strengthening the scientific credibility of the study.

#### V. DISCUSSION

The significant reduction in MYMOP scores indicates strong therapeutic correlation between *Ocimum sanctum* and acute UTI symptom relief. The antimicrobial phytoconstituents likely inhibit bacterial proliferation while anti-inflammatory properties reduce dysuria and urgency.

#### VI. CONCLUSION

The study concludes that *Ocimum sanctum* is effective in management of acute uncomplicated UTI with statistically significant improvement. Further randomized controlled trials are recommended.

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