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**Mohd Zubair**  
Lecturer, Dept. of Tashreeh, A&U  
Tibbia College, New Delhi- 110005,  
India

**Mohd Nayab**  
Lecture, Dept. of Ilaj-Bit-Tadbeer,  
NIUM, Bangalore - 560 091, India

**Shakir Jameel**  
Director General, CCRUM, New  
Delhi- 110 025, India

**Ashar Qadeer**  
Reader, Dept. of Kulliyat, Hamdard  
University, New Delhi – 110062,  
India

## Effect of Unani Formulation on Urine Composition in the Patients of Warm-e-Majra-e-Baul– An Observational Study

Mohd Zubair, Mohd Nayab, Shakir Jameel, Ashar Qadeer

### ABSTRACT

*Warm-e-Majra-e-Baul* (UTI) is an infection that starts in the urinary system. Unani system of medicine lacks the exact description of urinary tract infection as such but various descriptions are found under the caption of *Warm-e-Majra-e-Baul* including *Warm-e-Gurda*, *Warm-e-Masana*, *Hurqat-e-Baul*, and *Warm-e-Ahleel* etc which may be considered as synonymous with clinical findings of urinary tract infections, described in contemporary literature. In the present study, thirty clinically diagnosed patients above the age of 10 years were enrolled for one month from the OPD/IPD of Majeedia Hospital, New Delhi. The combination of four single drugs namely *Sat Behroza*, *Ral Safaid*, *Shora Qalmi* and *Kaphoor* were used in a ratio of 2:2:2:1, respectively, in the form of fine powder. The seven gram mixture of these drugs was given in two divided doses per day for one month. There was significant improvement in objective parameters ( $p < 0.05$ ) except transparency of urine. On the basis of results obtained of the effects of Unani formulation on various objective parameters, it is concluded that tested Unani formulation has significant effect in cases of *Warm-e-Majra-e-Baul*. Further large scaled standard controlled clinical trials on tested formulation are needed to be conducted for advanced characterization of the drugs used in tested formulation.

**Keywords:** Warm-e-Majra-e-Baul, UTI, Warm-e-Masana, Warm-e-Gurda, Warm-e-Ahleel, Hurqat-e-Baul

### 1. Introduction

*Warm-e-Majra-e-Baul* (UTI) is an infection that starts in the urinary system. The urinary tract consists of the *Kulyatain* (kidneys), *Majaree-e-Baul* (ureters), *Masana* (bladder) and the *Ahleel* (urethra). *Warm-e-Majra-e-Baul* could be of the lower urinary tract encompassing the *Masana* and *Ahleel* or of the upper urinary tract infecting the *Majaree-e-Baul* and *Kulyatain*. All areas of the urinary tract above the *Ahleel* in healthy humans are sterile, hence urine is normally sterile. Infection typically occur when bacteria gets entry into the opening of the urethra and multiply. An infection limited to the *Ahleel* is called *warm-e-Ahleel* (urethritis). If bacteria move to the *Masana* and multiply it causes infection in *Masana*, i.e. *Warm-e-Masana* (cystitis). If the infection is not treated promptly, bacteria may then travel further up the *Majaree-e-Baul* to multiply and infect the *Kulliya* causing *Warm-e-Kulliya* (pyelonephritis). *Warm-e-Majra-e-Baul* may also occur by the hematogenous due to bacteraemia. Any systemic infection can lead to the infection of *Kulliya* [1]. As far as the infection is concerned; the basic concept of infection is originated dates back in Unani medicine, though the proper identification of micro-organism could be made possible by Leui's Pasteur in seventeenth century. It has been revealed after going through the writing of physicians of medieval period that they had some knowledge of the *Ufoonat* (sepsis), source of *Ufoonat*, conditions necessary to produce *Ufoonat* etc [2]. Unani system of medicine lacks the exact description of urinary tract infection as such but various descriptions are found under the caption of *Warm-e-Majra-e-Baul* including *Warm-e-Gurda* [3, 4], *Warm-e-Masana* [3-9], *Hurqat-e-Baul* [3, 9], and *Warm-e-Ahleel* [5] etc. which may be considered as synonymous with clinical findings of urinary tract infections, described in contemporary literature. *Warm-e-Majra-e-Baul* (UTI) represents one of the most common diseases encountered in medical practice today with an estimated 150 million patients of *Warm-e-Majra-e-Baul* per annum worldwide. Although *Warm-e-Majra-e-Baul* occurs in both men and women, clinical studies suggest that the overall prevalence of *Warm-e-Majra-e-Baul* is higher in women. Uncomplicated *Warm-e-Majra-e-Baul* in healthy women has an incidence

**Correspondence:**  
**Mohd Nayab**  
Lecture, Dept. of Ilaj-Bit-Tadbeer,  
National Institute of Unani  
Medicine, Bangalore - 560 091  
Email: [nayabdr@gmail.com](mailto:nayabdr@gmail.com)  
Tel: - 9019080556

of 50/1000/year. An estimated 50% of women suffer at least once with *Warm-e-Majra-e-Baul* at some part of their lifetime and between 20% and 40% of women have recurrent episodes. Approximately 20% of all patients of *Warm-e-Majra-e-Baul* occur in men [10].

Most common cause of *Warm-e-Majra-e-Baul* are *Escherichia coli* (up to 85%) and *Staphylococcus saprophyticus* (up to 10%), while *Klebsiella pneumoniae* and *Proteus* species produce the residual infections [10]. According to *Buqrat*, *Ghalba-e-Hararat* (Dominance of heat) in the kidney is responsible for the *Warm-e-Gurda* [5]. *Ibn-e-Sena* and other eminent Unani physicians mentioned the causes of *Warm-e-Haar Gurda* as *Khoon-e-Ghaleez* (Concentrated Blood) [4, 8, 11], *Raqeeq Safravi Khoon* (Diluted Bilious Blood) [4] and it may be due to the passage of stone through the urinary tract [4, 8, 11]. *Rāzi* mentioned the quotation of *Jālineos* that excessive accumulation of *Khilt-e-Kham* (Immature Humour) in urinary bladder causes *Warm-e-Masāna* [5]. *Warm-e-Ahleel* is due to Gonorrhoea [12]. Causes of *Hurqat-e-Baul* include excessive sexual intercourse and debilitating diseases, hot spicy food and strong diuretics, pungent and alkaline urine with preponderance of *saфра* in the body, ulcers in urinary bladders and urethral stone [4].

The common symptoms of *Warm-e-Majra-e-Baul* are frequency of micturition, dysuria, burning pain on urination, urgency, suprapubic discomfort, high grade fever with or without rigors, fatigue etc. Clinical presentation of urinary tract infection may be asymptomatic or symptomatic which includes *Warm-e-Masana Ufooni* (bacterial cystitis), *Warm-e-Masana Ghair Ufooni* (abacterial cystitis), *Warm-e-Ahleel* (urethritis), and *Warm-e-Gurda Haad* (acute pyelonephritis) [13]. The major complications are renal papillary necrosis [14-17], pyonephrosis [15, 16], perinephric abscess [14, 16, 17], *Baul-ud-Dam* (haematuria) [17], renal insufficiency [14, 17, 19, 20], *Ziqtud Dam Qawi* (hypertension) [14, 19, 20], focal segmental glomerulosclerosis with significant proteinuria [19, 20], etc. The goal of the treatment is to eradicate bacteria from the urinary tract in order to relieve sign & symptoms [17, 20]. In Unani system of medicine, the principle of treatment of *Warm-e-Majra-e-Baul* (UTI) contains the drugs having the actions as *Dafe-Ufoonat* (Antiseptic), *Mudir-e-Baul* (Diuretic), *Muhallil-e-Auram* (Anti-inflammatory), *Musakkin-e-Alam* (Analgesic), *Musaffi-ud-Dam* (Blood Purifier), *Dafe-Humma* (Antipyretic) [3].

Various antibacterial compounds can be isolated naturally from the plants. *Raal Safaid* (*Shorea robusta*) is reported to possess antimicrobial properties in its resin and being used in ulcers and found to show anti-aging and wound healing activity [22]. *Sat-e-Behroza* (*Pinus roxburghii* Sarg, syn. *Pinus longifolia* Roxb.) is commonly known as Chir Pine. Turpentine, found in the resin of the tree, acts as *Dafe Ufoonat* (antiseptic), *Mudir-e-Baul* (diuretic), *Muhallil-e-Auram* (Anti-inflammatory), *Daf-e-Humma* (Antipyretic) *Muhammir* (rubifacient) and *Qatil-e-Deedan* (vermifuge). It is an important remedy used internally for the management of kidney and bladder problems [23]. *Shora Qalmi* or Nitrates, particularly potassium nitrate (known also as niter or nitre and saltpeter), have been known since prehistoric times. *Shora Qalmi* has been used as *Mudir-e-Baul* (diuretics) for centuries. It is also documented that *Shora Qalmi* acts as a diuretic and can also potentiates the effects of other diuretics [24]. *Kafoor* (Camphor) is a white, crystalline substance with a strong odour and pungent taste derived from *Cinnamomum camphora*. There are many

pharmaceutical applications for *Kafoor* such as *Maqami Dafe Alam* (topical analgesic), *Dafe Ufoonat* (antiseptic), *Dafe Tashannuj* (antispasmodic), *Muhallil-e-Auram* (anti-inflammatory), etc. [25].

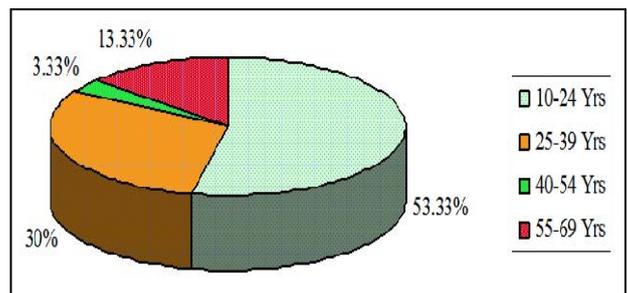
## 2. Material and Method

The study was conducted in the OPD/IPD of Majeedia Hospital, New Delhi, India, after getting ethical clearance from ethical committee of Jamia Hamdard for biomedical research over a period of 12 months from August 1998 to July 1999. Clinically diagnosed patients of *Warm-e-Majra-e-Baul*, above the age of 10 years of either sex, who were agree to follow the protocol of the study were included in the study. Patients of *Warm-e-Majra-e-Baul* having renal failure, hydronephrosis, renal stone, diabetes mellitus, renal tuberculosis were excluded from the study in the beginning of the study. Patients, who did not take the drugs regularly or did not report for the follow up, were excluded from the study at the end of the study. 30 clinically diagnosed patients, enrolled in the study, were tested against the formulation of *Sat-Behroza* -2 gm, *Ral Safaid*- 2 gm, *Shora qalmi*- 2 gm, *Kaphoor* - 1gm, in a dose of 7 gm in two divided doses per day for 30 days. The study was a single blind observational study. Assessment of Patients was done on the basis of objective parameters such as transparency of urine, reaction of urine, albuminuria, pus cells in the urine, RBCs in the urine, urinary cast, epithelial cells in the urine, and bacteria in the urine. Statistical analysis was restricted to those patients who completed the full duration of the study. Student 't' Test was used to analyze the efficacy of *unani* formulation. The confidence level was set to be at  $p < 0.05$  for significant result of *unani* formulation

## 3. Results and Discussion

**Table 1:** Distribution of Patients according to Age

Age Group	No. of Patients	Percentage
10-24 Yrs	16	53.33%
25-39 Yrs	9	30%
40-54 Yrs	1	3.33%
55-69 Yrs	4	13.33%
<b>Total</b>	<b>30</b>	<b>99.99%</b>



**Fig 1:** Distribution of Patients according to Age.

**Table 2:** Distribution of Patients according to Sex

Sex	No. of Patients	Percentage
Male	9	30%
Female	21	70%
<b>Total</b>	<b>30</b>	<b>100%</b>

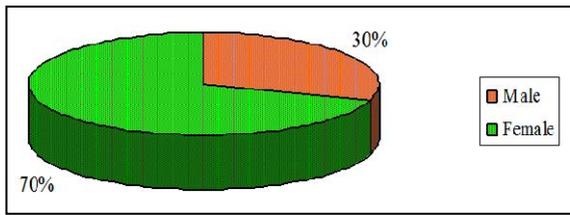


Fig 2: Distribution of Patients according to Sex.

Table 3: Distribution of Patients according to Mizaj (Temperament)

Mizaj	No. of Patients	Percentage
Damvi	13	43.33%
Safravi	15	50%
Balghami	2	6.67%
Saudavi	0	0
<b>Total</b>	<b>30</b>	<b>100%</b>

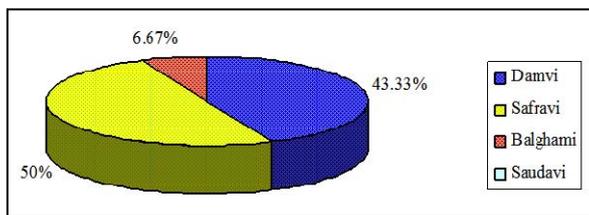


Fig 3: Distribution of Patients according to Mizaj

Out of total patients, 16 (53.33%) patients were found in age group 10-24 years, 9 (30%) patients in age group 25-39 years, 1 (3.33%) patient in age group 40-54 years and 4 (13.33%) patients in age group 55-69 years (Table 1). Out of total patients, 9 (30%) patients were male and 21(70%) patients were female (Table 2). Out of total patients 13 (43.33%) patients were found of *Damvi*

*Mizaj*, 15 (50%) patients of *Safravi Mizaj*, 2 (6.67%) patients of *Balghami Mizaj*. No patient was found of *Saudavi Mizaj* (Table – 3). The mean score of transparency of urine was 0.7 before starting the treatment while it was 0.6 at the end of the treatment. The improvement in transparency of urine at the end of the treatment was 50%, which was not statistically significant at  $p < 0.05$ . The mean score of abnormal reaction of urine was 0.066 before starting the treatment while it was 0 at the end of the treatment. Though, the improvement in abnormal reaction of urine at the end of the treatment was 100%, but due to very small sample size, the result was not found statistically significant at  $p < 0.05$ . The mean score of albuminuria was 0.5 before starting the treatment while it was 0.23 at the end of the treatment. The improvement in albuminuria at the end of the treatment was 50%, which was statistically significant at  $p < 0.05$ . The mean score of pus cells was 0.73 before starting the treatment while it was 0.13 at the end of the treatment. The improvement in pus cells at the end of the treatment was 81.81%, which was statistically significant at  $p < 0.05$ . The mean score of urinary RBCs was 0.57 before starting the treatment while it was 0.17 at the end of the treatment. The improvement in urinary RBCs at the end of the treatment was 70%, which was statistically significant at  $p < 0.05$ . The mean score of urinary cast was 0.2 before starting the treatment while it was 0.1 at the end of the treatment. The improvement in urinary cast at the end of the treatment was 50%, which was statistically significant at  $p < 0.05$ . The mean score of urinary epithelial cells was 1 before starting the treatment while it was 0.57 at the end of the treatment. The improvement in urinary epithelial cells at the end of the treatment was 36.37%, which was statistically significant at  $p < 0.05$ . The mean score of bacteriuria was 0.56 before starting the treatment while it was 0.23 at the end of the treatment. The improvement in bacteriuria at the end of the treatment was 58.82%, which was not statistically significant (Table 4).

Table 4: Effect of Unani formulation on Urine composition

Parameters	Before Treatment Mean $\pm$ S.E.M	After Treatment Mean $\pm$ S.E.M	% of Improvement	p value
Transparency of urine	0.7 $\pm$ 0.192	0.6 $\pm$ 0.22	50%	0.36
Reaction of urine	0.066 $\pm$ 0.05	0 $\pm$ 0	100%	0.08
Albuminuria	0.5 $\pm$ 0.104	0.23 $\pm$ 0.078	50%	0.023
Pus Cells	0.73 $\pm$ 0.203	0.13 $\pm$ 0.104	81.81%	0.001
Urinary RBCs	0.57 $\pm$ 0.18	0.17 $\pm$ 0.108	70%	0.001
Urinary cast	0.2 $\pm$ 0.07	0.1 $\pm$ 0.06	50%	0.04
Epithelial Cells	1 $\pm$ 0.16	0.57 $\pm$ 0.12	36.37%	0.001
Bacteriuria	0.56 $\pm$ 0.09	0.23 $\pm$ 0.08	58.82%	0.0003

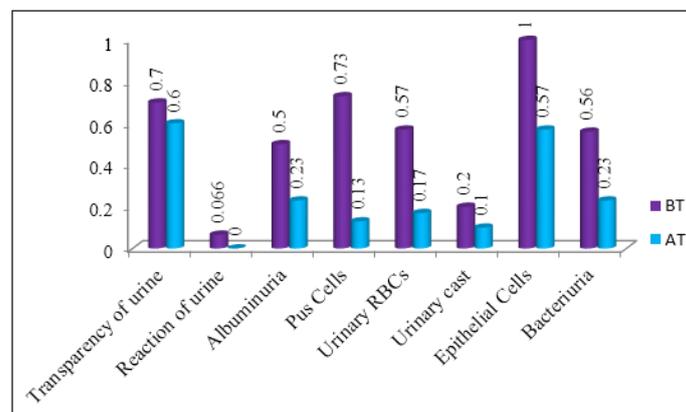


Fig 4: Effect of Unani Formulation on Urine Composition

Bacteria have changed various defence mechanisms against various well known anti-microbial agents, so drug resistant pathogen are on the rise. In present era, incidence of multidrug resistance bacteria has been increasingly documented. Emergence of such type of resistance is raising a question about the future of these drugs. Therefore, the aim of the present study was to evaluate an alternative regimen for the management of UTIs. Tested Unani formulation comprising of *Sat-Behroza*, *Ral Safaid*, *Shora qalmi*, and *Kaphoor*, showed significant antibacterial effect on the patients suffering from UTIs resulting in the change of urinary composition significantly. The findings of the study are coinciding with the statements of G.R.Duddukuri, *et al.*, Mohd Shuaib, *et al.*, and Anthony R. Butler & Martin Feelisch.

#### 4. Conclusion:

Unani drugs have been used traditionally for many years, singly or in combination for the relief of *Warm-e-Majra-e-Baul* (UTI). Unani formulation taken in the present study showed the significant antibacterial effect in the patients of *Warm-e-Majra-e-Baul* (UTI), resulting the change of urinary parameters significantly. Further large scaled clinical trials on tested formulation are needed to be conducted for advanced characterization of the drugs used in tested formulation.

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