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Therapeutic evaluation of anisoon (*Pimpinella anisum* seeds) in Sailan-ur-rahem caused by *Gardnerella vaginalis*

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ORIGINAL RESEARCH ARTICLE

ABSTRACT

Background: *Pimpinella anisum* is medicinally an important herb, used for centuries in Unani system of medicine for the management of various ailments. In the present paper, its seed is shown to possess antimicrobial activity in women suffering from bacterial vaginosis.

Materials and Methods: The patients were divided into four groups, after confirming the diagnosis by clinical and microbiological examination. The patients in group I served as control group while in group II, III and IV served as tests group. The patients in group I were administered standard drug Tab. Metronidazole 400 mg, three times a day for seven days by oral route. The patients in group II were administered decoction of 5 gm seeds twice a day by oral route for fourteen days. The patients in group III were treated by per vaginal application of tampon prepared from 5 gm powdered seeds, at bed time for two weeks. While the patients in group IV were treated with both decoction and tampon by same manner as in above groups.

Results: This study clearly showed that the test drug is very effective in bacterial vaginosis, which is evident by decrease in amount of abnormal vaginal discharge, malodour, low backache, lower abdominal pain, pH and clue cells. It was further strengthened by negative amine test. The efficacy of test drug may be attributed to its antimicrobial activity which was almost equal to that of Metronidazole.

Conclusion: The findings suggest that the test drug has been proved to be effective and safe in treatment of bacterial vaginosis. The study further indicates that simultaneous administration of decoction and tampon is more effective.

Key words: Bacterial Vaginosis, *Sailan-ur-rahem*, *Pimpinella anisum*, *Anisoon*.

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INTRODUCTION

Sailan-ur-rahem is a condition in which abnormal discharges comes from the uterus, cervix and vagina other than blood. It covers almost all types of discharges caused by genital tract infection (Ibn Sina, 2007). Leucorrhoea is not appropriate translation of *Sailan-ur-rahem*. The term leucorrhoea means a 'running of white substance' and it is an excessive amount of the normal vaginal discharge (Kumar and Malhotra, 2008). In *Sailan-ur-rahem*, the excess useless matters are present in the uterus, which is accumulated due to *Zoef-e-quwat-e-dafea* (Ibn Sina, 1992), and hence excretory waste of uterus is present in the form of *Sailan-ur-rahem* (Ibn Hubal, 2007). The disease occurred due to irregular and disproportional distribution of the *Akhlat* (humors). The mucous fluid secreted from the vagina is a kind of *Balghami khilt* (Ahmad, 1980). This disease also occurs due to change in the quality and quantity of *Balgham* (Majoosi, 2005). Thus, either the temperament (*kaifiyat*) of *Balgham* is itself altered or some other normal or abnormal *khilt* is mixed with *Balgham* to the extent of altering its

temperament and making it abnormal, or its quantity is altered. When it becomes abnormal *Quwate maska* (retentive power) does not absorb and *Quwate dafea* (expulsive power) excretes it. Thus, the retention of morbid matters leads to the causation of vaginitis, and invites various organisms to grow (Ahmad, 1980; Ahmad et al., 2011). *Sailan-ur-rahem* is caused due to poor nutritional faculty of uterus (*Zoef-e-quwat-e-ghazia of rahem*) or if there are excessive waste products in the body or the *Quwat-e-jazba* (absorptive power) of the uterus becomes weak. Normally, this excessive waste product is expelled out from the uterus or vagina as *Istefragh* (excretion) (Khan, 1286H; Majoosi, 2005). In case of *Sailan-ur-rahem, Sue Mizaj* afflicts the uterus and affects on the *Quwat-e-Ghazia* (nutritive faculty). It is *Quwat-e-Maseka* (retentive faculty) which remains at the receiving end predominantly and becomes unable to hold back the nutrients in the uterus for a sufficient time till the *Quwat-e-Hazema* (digestive faculty) acts upon these nutrients to convert them into a matter suitable for assimilation and incorporation. This half-braked material subjugates the *Hararat-e-Gharizia.* In relative deficiency of *Hararat-e-Gharizia, Hararat-e-Ghariba* overpowers the uterus and turns the accumulation of uterine waste into infected material. This infected material may be deviated from normalcy in colour, consistency and odour. This harmful and toxic material is excreted out by *Quwat-e-Dafea* (excretory power). This harmful material is irritant in nature and when flows out of the genital tract cause burning and irritation and when accumulates, causes ulceration (erosion) especially in the cervix. This discharge flowing out of the genital tract is known as *Sailan-ur-rahem* (Majoosi, 2010). In fact, from the above discussion, any vaginal discharge that is frankly purulent and contains pus cells should be considered to be due to a specific vaginal infection (Kumar and Malhotra, 2008). In Unani medicine, *Sailan-ur-rahem* is a diseased condition and a wide term, includes all those infections which are defined under different names in modern medicine like trichomoniasis, moniliasis, bacterial vaginosis or gonnococcal cervicitis etc (Kumar and Malhotra, 2008). Two approaches of treatment are usually adopted by Unani physicians. In case of chronic and recurrent cases of *Sailan-ur-rahem* both systemic and local drugs are used to normalize the quality of phlegm in the body and to improve the symptoms however in acute day to day cases local application is considered sufficient. If treatment with local application of medicament fails then both oral and local treatment are given simultaneously (Zeenat and Hasan, 2016).

Bacterial vaginosis is a polymicrobial condition associated with alteration in the normal vaginal flora, which leads to considerable decrease in the number of lactobacilli and predominance of anaerobic bacteria, with 100 folds increase in growth of other anaerobic bacteria. *Gardnerella vaginalis* is the organism most commonly associated with bacterial vaginosis (Khan, 2000). It is the commonest cause of vaginal discharge in reproductive age group (Kumar and Malhotra, 2008). About 50% women are asymptomatic carriers of infection but majority complaints of vaginal discharge without itching (Padubidry and Daftary, 2011). It is more prevalent in women at childbearing age (Giraldo et al., 2007). It occurs in approximately 30% women of childbearing age and is the result of the shift of protective resident microorganisms as *Lactobacillus spp.* by opportunistic pathogenic bacteria *Gardnerella vaginalis* (Filho et al., 2010). It is also most common form of vaginitis in the United States (Berek, 2007) and common among African women (Yudin and Money, 2008), where prevalence rates of more than 50% has been reported (Taha et al., 1998). It is an extremely common infection worldwide and is associated with important public health problem. The complications associated with bacterial vaginosis in women include recurrent infection leading to PID, premature rupture of the membranes, preterm delivery, endometritis, second trimester miscarriage (Dutta, 2008) chorioamnionitis, and postpartum endometritis (Schwebke, 2009; Workowski et al., 2006). *G. vaginalis* produce endotoxins that make some women more susceptible to the production of cytokines and prostaglandins that may trigger labour (Morris et al., 2001).

In spite of prevalence of disease at mass level, the choice of treatment available for bacterial vaginosis in modern system of medicine is comparatively few. Even the drugs available for the purpose are reported to cause side effects and often fail to cure the disease completely. The disease is usually treated with Metronidazole (Tripathi, 2008), a 5-nitroimidazole drug derived from the antibiotic azomycin. Common adverse reactions of Metronidazole are usually mild, although some patients do have reactions severe enough to necessitate halting Metronidazole therapy (Cudmore et al., 2004). Such a situation warrants some alternative arrangement for the treatment of bacterial vaginosis. There are a number of safe and effective drugs in Unani system of medicine that have been described to be effective in bacterial vaginosis, vaginitis and *Sailan-ur-rahem* etc. In Unani medicine the line of treatment of *Sailan-ur-rahem* is to remove the cause at first step, by those drugs which possess the properties of *Mukhrije balgham* (expectorant), *Muqawwi* (tonic), *Habis* and *Qabiz* (astringent) (Kabiruddin, 2003). Unani system of medicine has a rich source of drugs for *Sailan-ur-rahem.* Few important drugs mentioned in classical Unani literature for *Sailan-ur-rahem* are, acacia

(*Acacia arabica*), Mazu (*Quercus in fectoria*), Shibb-e-Yamani (alumen), Gulnar (*Punica granatum*), Anisoon (*Pimpinella anisum*), Neem *(Azadirecta indica)* etc (Jeelani, 2005). However, many important drugs used extensively in *Sailan-ur-rahem* by Unani physicians have not been scientifically evaluated for their efficacy and safety. One such Unani drug Anisoon (*Pimpenella anisum* seed), is described to be effective both in form of tampon and decoction in the conditions mentioned above (Ghani, 2011; Razi, 2001) and is commonly used by Unani physicians in gynecological practice. Therefore, present study was designed to study the efficacy of *Anisoon* in the management of *Sailan-ur-rahem* due to *Gardnerella vaginalis.*

SUBJECTS AND METHODOLOGY

The drug Anisoon (*Pimpinella anisum* seed) was procured from local market of Malegaon and dried at room temperature. It was prepared in suitable dosage form after getting its identity and purity confirmed by a pharmacognocist. Its decoction (joshanda) was prepared by boiling of 5 gm half crushed seeds in 80 ml of water (i.e. sixteen times) until 20 ml ($1/4^{th}$) remains and this filtered joshanda was taken as per treatment schedule. Each dose was freshly prepared during the whole treatment. In preparation of Humool (tampon) it was powdered finely in an electric grinder and sewed in 100 N meshes and 5 gm drug was kept in a gauze piece or thin cotton cloth to make tampon for local use.

The patients who were visited the OPD of Department of Ilmul Qabalat wa Amraz-e-Niswan, Mohammadia Tibbia College and Assayer Hospital, Mansoora, Malegaon during 2014-2016, were screened for the *Sailan-ur-rahem* (due to *Gardnerella vaginalis*) on the basis of clinical signs and symptoms compatible with the classical description of the disease. The patients thus selected provisionally were underwent the pathological investigation for the confirmation of the diagnosis. After taking informed consent, 44 diagnosed patients of 18-45 years of age group were included in this study. They were informed about the disease, examination performed and type of treatment given. The patients suffering from candidiasis, trichomoniasis, chlamydial vaginitis, diphtheritic vaginitis, granular vaginitis, senile vaginitis, emphysematous vaginitis, vaginitis adhaesiva, neoplasm of cervix or vagina or any other systemic disease were excluded from the study. The permission of Institutional Ethics Committee (IEC) was taken prior to the initiation of the clinical trial. The patients were divided (Table 1) into four groups of 11 patients each with the help of computer randomized tables/ numbers. The patients in group I, were administered Tab. Metronidazole in a dose of 400 mg, thrice a day (orally) for seven days. The patients in group II, were treated with Decoction of Anisoon (*Pimpinella anisum* seeds) 5 gm, twice a day (orally) for 2 weeks. The patients in group III, were treated with tampon of powdered seeds of 5 gm Anisoon, at bed time (locally) for 2 weeks. While the patients in group IV, were treated by simultaneous administration of oral decoction of Anisoon 5 gm, twice a day + local tampon of 5 gm, at bed time for 2 weeks.

Table 1. Treatment schedule.

Group	Drug Treatment	Dose	Duration
Group I	Tab. Metronidazole	400 mg x TDS	1 Week
Group II	Decoction of Anisoon (*Pimpinella anisum* seed)	5 gm x BD	2 Weeks
Group III	Tampon of Anisoon (*Pimpinella anisum* seed)	5 gm x HS	2 Weeks
Group IV	Decoction of Anisoon Tampon of Anisoon	5 gm x BD 5 gm x HS	2 Weeks

Before and after the treatment, Specific investigations such as vaginal pH determination, amine (whiff) test and saline wet mount examination of vaginal discharge were done to confirm the diagnosis and used as important objective parameters for the assessment. This is the most efficient and cost effective way to diagnose bacterial vaginosis and trichomoniasis. The pH was measured (Khan, 2007) by using a Ranbaxy pH indicator paper with a range of 4.5 to 7 with distinct colour keys to 4.5, 5, 5.5, 6, 6.5 and 7. The paper was applied to the anterior vaginal fornix to avoid contamination with cervical mucous, withdrawn and the colour developed on the moistened paper was matched with the colour scale provided. The amine test (Egan and Lipsky, 2000) was performed by adding 2 to 3 drop of 10% KOH directly to swab or to the discharge on the speculum; release of fishy or amine odour was recorded as positive Amine or Whiff test. Differentiation between bacterial vaginosis and trichomoniasis depends on microscopic evaluation of material recovered from the vagina. The most useful approach for evaluation in the clinical setting is the wet mount. A drop of vaginal discharge was collected by a pipette or swab from the posterior vaginal fornix and placed on a clean warm glass slide. Two drops of normal saline were added and mixed with the vaginal discharge. A glass cover slip was placed over it. The wet film was immediately examined (hpf45^{x}). *Gardnerella vaginalis* were recognized by presence of vaginal epithelial cells covered with these coccobacilli and the cells appear as strippled or granular at times the cells borders are

obscured, these strippled epithelial cells are called clue cells. Clue cells are diagnostic feature of bacterial vaginosis. The presence of clue cells in bacterial vaginosis was recorded in the case record form (CRF). The clinical features were graded on point scales and the changes were noted in CRF on every follow up.

The patients were advised for weekly follow up and abstinence was advised and no concomitant therapy was allowed during the period of treatment. At each visit the patients were carefully and thoroughly interviewed for the assessment of different parameters. Scoring system for overall evaluation of each patient was done. The vaginal discharge was graded (Mirza et al., 2011) as none (-) for no discharge, mild (+) for normal moistness of vagina without staining or moistening the underclothes, moderate (++) for undeniably soiled the underclothes that require changing and washing frequently and severe (+++) that requires the wearing of some extra absorbent pad. Malodour was classified as none (-), mild (+), moderate (++) and severe (+++). Low backache and lower abdominal pain were assessed by visual analogue scale (Lin et al., 2005) as none (-), mild (+), moderate (++) and severe (+++). The percentage decrease in scores was determined by comparing the baseline and post treatment scores. Finally, recorded findings were statistically analyzed using Kruskal-Wallis test to determine the significance.

RESULTS AND DISCUSSION

The test drug was studied in the management of bacterial vaginosis by observing clinical features and laboratory investigations. The subjective and objective findings (Table 4) were tabulated, analysed and compared with the standard drug.

On the day of registration, abnormal discharge was found in all the patients included in the study, while after treatment it remained only in 27.27%, 27.27%, 18.18% and 9.09% ($p>0.05$) of the patients and improvement was observed in 72.72%, 72.72%, 81.81% and 90.9% of the cases in group I, II, III and IV, respectively. Malodour on day zero was found in 81.81%, 72.72%, 81.81% and 72.72% of the cases whereas after treatment it was reduced to 11.11%, 25%, 33.33% and 25% ($p>0.05$) of the patients and improvement was observed in 88.89%, 75%, 66.67% and 75% of the cases in groups I, II, III and IV, respectively. Prior to the treatment low backache was found in 100%, 63.63%, 72.72% and 63.64% of the patients whereas after treatment it was reduced and found only in 18.18%, 42.85%, 25% and 28.57% of the cases and improvement was observed in 81.81%, 57.14%, 75% and 71.43% of the patients in group I, II, III and IV, respectively. Before the treatment, pain in lower abdomen was found in 81.81%, 72.72%, 90.9% and 81.82% of the cases, while after treatment it remained only in 33.33%, 25%, 30% and 33.33% of the patients and improvement was observed in 66.67%, 75%, 70% and 66.67% of the cases.

Table 2 (A). Effect of test drug on subjective parameters.

Symptoms (Subjective Parameters)	Group I (Standard Control)						Group II (Joshanda)						Group III (Humool)						Group IV (Joshanda + Humool)					
	Baseline		After Treatment		Improvement		Baseline		After Treatment		Improvement		Baseline		After Treatment		Improvement		Baseline		After Treatment		Improvement	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Discharge	11	100	3	27.27	8	72.72	11	100	3	27.27	8	72.72	11	100	2	18.18	9	81.81	11	100	1	9.09	10	90.9
Malodour	9	81.81	1	11.11	8	88.89	8	72.72	2	25	6	75	9	81.81	3	33.33	6	66.67	8	72.72	2	25	6	75
Low Backache	11	100	2	18.18	9	81.81	7	63.63	3	42.85	4	57.14	8	72.72	2	25	6	75	7	63.64	2	28.57	5	71.43
Pain in lower abdomen	9	81.81	3	33.33	6	66.67	8	72.72	2	25	7	75	10	90.9	3	30	7	70	9	81.82	3	33.33	6	66.67

On examination, prior to the treatment pH>4.5 was found in 100% of the patients included in each group, whereas after treatment it was reduced and found only in 27.27%, 36.36%, 18.18% and 18.18% of the cases ($p>0.05$) and improvement was observed in 72.72%, 63.63%, 81.81% and 81.81% of the patients in group I, II, III and IV, respectively. Positive amine test on day zero was found in 100% of the cases in each group, whereas after treatment it was reduced and found only in 18.18%, 27.27%, 9.09% and 18.18% of the patients ($p>0.05$) and improvement was observed in 81.81%, 72.72%, 90.9% and 81.81% of the cases in group I, II, III and IV, respectively. Prior to the treatment clue cells in slide was found in 100% of the patients in each group, whereas after treatment it was reduced and found only in 18.18%, 36.36%, 18.18%and 18.18% of the cases ($p>0.05$) and improvement was observed in 81.81%, 63.63%, 81.81% and 81.81% of patients in group I, II, III and IV, respectively.

Table 2 (B). Effect of test drug on subjective parameters.

Subjective Parameters		Group I		Group II		Group III		Group IV	
		BT	AT	BT	AT	BT	AT	BT	AT
Discharge	N	11	11^{+}	11	11^{+}	11	11^{++}	11	11^{+++}
	Mean	2.72	0.63	2.81	0.81	2.81	0.45	2.72	0.18
	Median &Range	3(2,3)	0(0,3)	3(2,3)	0(0,3)	3(2,3)	0(0,3)	3(2,3)	0(0,2)
	Kruskal-wallis statistics KW= 55.92 (corrected for ties)								
Malodour	N	11	11^{+}	11	11	11	11	11	11
	Mean	2.27	0.27	1.72	0.45	2.27	0.81	2	0.45
	Median & Range	3(0,3)	0(0,3)	2(0,3)	0(0,3)	3(0,3)	0(0,3)	3(0,3)	0(0,3)
	Kruskal-wallis statistics KW= 29.92(corrected for ties)								
Low Backache	N	11	11^{+}	11	11	11	11	11	11
	Mean	2.09	0.27	1.54	0.63	2	0.45	1.81	0.72
	Median & Range	2(1,3)	0(0,2)	2(0,3)	0(0,3)	3(0,3)	0(0,3)	3(0,3)	0(0,3)
	Kruskal-wallis statistics KW= 25.63 (corrected for ties)								
Pain in lower abdomen	N	11	11	11	11^{+}	11	11	11	11
	Mean	1.81	0.63	1.90	0.36	1.72	0.72	2.27	0.72
	Median & Range	2(0,3)	0(0,3)	2(0,3)	0(0,2)	2(0,3)	0(0,3)	3(0,3)	0(0,3)
	Kruskal-wallis statistics KW= 23.20 (corrected for ties)								

N=no of patients in each group.

Test used: Kruskal Wallis test with post multiple pair comparison test (One way ANOVA)

+ $p<0.05$ (significant), ++ $p<0.01$ (highly significant), +++ $p<0.001$ (very highly significant) with respect to before treatment of each group (intra group comparison) and $p>0.05$ ns with respect to after treatment of each group (inter group comparison).

Table 3 (A). Effect of test drug on objective parameters.

Objective Parameters	Group I (Standard Control)						Group II (Joshanda)						Group III (Humool)						Group IV (Joshanda + Humool)					
	Base-line		After Treatment		Improvement		Base-line		After Treat-ment		Improvement		Base-line		After Treat-ment		Improvement		Base-line		After Treat-ment		Improvement	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
pH > 4.5	11	100	3	27.27	8	72.72	11	100	4	36.36	7	63.63	11	100	2	18.18	9	81.81	11	100	2	18.18	9	81.82
Positive Amine Test	11	100	2	18.18	9	81.81	11	100	3	27.27	8	72.72	11	100	1	9.09	10	90.9	11	100	2	18.18	9	81.82
Clue cells in Slide	11	100	2	18.18	9	81.81	11	100	4	36.36	7	63.63	11	100	2	18.18	9	81.81	11	100	2	18.18	9	81.82

Table 3 (B). Effect of test drug on objective parameters.

Objective Parameters		Group I		Group II		Group III		Group IV	
		BT	AT	BT	AT	BT	AT	BT	AT
PH> 4.5	N	11	11^{+}	11	11	11	11^{++}	11	11^{++}
	Mean	1	0.27	1	0.36	1	0.27	1	0.18
	Median & Range	1(1,1)	0(0,1)	1(1,1)	0(0,1)	1(1,1)	0(0,1)	1(1,1)	0(0,1)
	Kruskal-wallis statistics KW= 50.49 (corrected for ties)								
Positive Amine test	N	11	11^{++}	11	11^{+}	11	11^{++}	11	11^{++}
	Mean	1	0.18	1	0.27	1	0	1	0.18
	Median & Range	1(1,1)	0(0,1)	1(1,1)	0(0,1)	1(1,1)	0(0,1)	1(1,1)	0(0,1)
	Kruskal-wallis statistics KW= 57.73 (corrected for ties)								
Clue cells in slide	N	11	11^{++}	11	11	11	11^{+}	11	11^{++}
	Mean	1	0.18	1	0.36	1	0.27	1	0.18
	Median & Range	1(1,1)	0(0,1)	1(1,1)	0(0,1)	1(1,1)	0(0,1)	1(1,1)	0(0,1)
	Kruskal-wallis statistics KW= 53.25 (corrected for ties)								

N=no of patients in each group.

Test used: Kruskal Wallis test with post multiple pair comparison test (One way ANOVA)

+ $p< 0.05$ (significant), ++ $p < 0.01$ (highly significant), +++ $p < 0.001$ (very highly significant) with respect to before treatment of each group (intra group comparison) and $p > 0.05$ ns with respect to after treatment of each group (inter group comparison).

Relief in clinical symptoms along with reduction in clue cells was considered as the criteria of efficacy. The cases having relief from abnormal vaginal discharge along with absence of clue cells in slide after treatment were rated as cured, while the patients having no relief in these two findings were rated as not cured. The complete cure was observed in 63.63% of the cases in group II, while 81.81% of the patients in group I, III and IV.

Table 4. Response to treatment.

Response	Group I		Group II		Group III		Group IV	
	N	%	N	%	N	%	N	%
Cured	9	81.81	7	63.63	9	81.81	9	81.81
Not Cured	2	18.18	4	36.36	2	18.18	2	18.18

The findings in respect of different parameters indicated that there was no statistical difference between each group suggesting that the two drugs produced almost equal degree of response. The findings suggested that simultaneously local and oral administration of test drug rather than alone are equally effective as the oral administration of Metronidazole. In Unani medicine both local and oral treatment is suggested simultaneously to treat the patients of *Sailan-ur-rahem* with the aims to improve the quality of phlegm that has undergone through derangement and to improve the local pathology. But only local treatment is also advised commonly to treat such a condition. Present study indicated that only local application or oral administration is also sufficient to cure the majority of the patients. The result is in consonance with the Unani principle of treatment suggests that the disease arises following the disturbance in the quality, quantity or composition of the phlegm (Majoosi, 2005). *Sailan-ur-rahem* may develop as sequelae of systemic derangement of phlegm but it may also develop because of its local overthrow that is frequently compounded with other factors that trigger the pathology (Zeenat and Hasan, 2016).

Since the bacterial vaginosis is a disease of *Khilt Balgham* having the symptoms of cold and wet temperament therefore it is obvious to treat it with the drugs that have hot and dry temperament. Anisoon is attributed to be hot and dry therefore suitable for the treatment of bacterial vaginosis. It has been described in Unani and ethnopharmacological literature to be *Jali* (detergent) (Ramlubhaya, 1982; Kareem, YNM), *Habis* (astringent) (Ibn Baitar, YNM), *Mukhrije Balgham* (Ghani, 2011), *Mohallile Waram* (anti-inflammatory) (Ghani, 2011; Ibn Baitar, YNM), *Musakkin* (calorific) (Ramlubhaya, 1982), *Muddir* (diuretic) (Kabiruddin, YNM; Ramlubhaya1982; Ghani, 2011), *Mulattif* (demulscent) (Ghani, 2011; Kareem, YNM) mentioned to be effective in vaginal

discharge and *Sailan-ur-rahem* (Ghani, 2011). Due to these medicinal properties, it produces constriction in the vaginal wall, absorbs the vaginal secretions and resolves the discharge and improves the inflammatory condition.

This study clearly showed that the test drug is very effective in bacterial vaginosis, which is evident by decrease in amount of abnormal vaginal discharge, malodour, low backache, lower abdominal pain, pH and clue cells. It was further strengthened by negative amine test. The efficacy of test drug may be attributed to its antimicrobial activity which was almost equal to that of Metronidazole. Thus, the study validated the therapeutic regimen proposed by Unani physicians and their age-old practice with the test drug Anisoon in the management of *Sailan-ur-rahem* due to *Gardnerella vaginalis*.

CONCLUSION

In the light of the above finding and discussion it can be concluded that Unani drug Anisoon (*Pimpinella anisum* Seed) possesses significant effect against *Sailan-ur-rahem* (bacterial vaginosis). Therefore, it can be used effectively and safely in patients afflicted with it and its associated conditions.

CONFLICT OF INTEREST

None declared.

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