

# Comparative Analytical Study of the Efficacy of Unani Formulations with Reference to Oligospermia

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## Abstract

A retrospective study was conducted to elaborate the successful treatment for oligospermia. For comparison, four studies with six common parameters were taken into account involving one hundred twenty six diagnosed patients with idiopathic oligospermia. The study was divided into four groups namely A, B, C and D and it was observed that among the six common parameters, the semen volume was improved in C and B group, semen liquefaction time was raised in A, B and C groups, sperm count was maximally raised in D group, sperm motility was improved in A group, and sperm morphology was almost equal in all groups and pH of semen has shown no change in all groups.

**Keywords:** Oligospermia, Unani treatment, Herbal Medicine, Qillat-e-Huwaniya.

## Introduction

As per the WHO guidelines, a sperm count of <20 millions/ml is considered as oligospermia (Dhaliwal *et al.*, 2011). It is one of the main factors of infertility in 60% of couples. Among them male infertility is involved in 40% while 20% of the cases there is a combination of both male and female factors. The factors responsible for male infertility are low sperm count, abnormal sperm morphology and impaired sperm transport. As a remedy, a number of nutritional supplements are used to improve sperm count and sperm motility including Amino acids like carnitine, arginine, minerals like zinc, selenium, numerous vitamins and antioxidants like vitamin B12, vitamin C, vitamin E and glutathione and co-enzymes Q10 in treating male infertility (Mukherjee *et al.*, 2003). Male infertility also involves harmful environmental and occupational risk factors along with underlying nutritional imbalances therefore; to overcome these factors including correction of nutritional imbalances to produce optimum sperm count and their functions, a multifaceted therapeutic approach can be a management tool to improve male infertility (Prdani, 1976; Solepure *et al.*, 1979; Sengupta, 1982).

The Unani medical literature regarding male sexual disorders is enriched with its contents and therapeutics but the terminologies of various disorders are ill defined that may be due to primitive knowledge of Physiology of the ancient and traditional Unani scholars. But the contents of therapeutics of ancient Unani physicians clearly indicate that they were well aware about oligospermia. Unani Medical literature has several authentic manuscripts that are rich and full of knowledge of sexual disorders. To explore the things on scientific parameters to validate the ancient knowledge before the present medical fraternity and public domain has encouraged us to analyzed oligozoospermia which is a major challenge before sexual internist and general physician as well.

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## Purpose of the study

Extensively and critically reviewing and analyzing already carried out four studies which have similar methodology using different drugs so as to put forth the most promising drug/drug combination that can be reassessed for its efficacy by using more comprehensive and standard protocols.

## Material and Methods

This retrospective study was carried out to elaborate the promising drug combination studied in the past for the treatment of *Qillat-e-huwaniya-e-maniyat* (Oligospermia) on one hundred Twenty Six patients pre-diagnosed with idiopathic oligozoospermia. The study was divided into four groups namely A, B, C and D. In Group A the test drug “Safoof-e-Saalab” (a combination of Moosli Sainbhal (*Bombax malabaricum* DC), Saalab Panja (*Orchis latifolia* Linn) and Satawar (*Asparagus racemosus* Wild), in Group B the test drug was a powdered combination of “Saalab Misri (*Orchis latifolia* Linn), Khoolanjan (*Alpinia galanga* Wild) and Koonch (*Mucuna pruriens* Bak)”, in Group C the test drug was Laboob-e-Kabir Khaas (a Unani polyherbal pharmacopieal preparation) and in Group D the test drug was a powdered combination of Saalab Gatta (*Orchis laxiflora* Linn), Salaajeet (*Styrax officinale* Linn), Moosli Safaid (*Asparagus adscendens* Roxb), Moosli Sainbhal (*Bombax malabaricum* Linn) and Sataawar (*Asparagus racemosus* Wild). All the drugs have six gram dose in each case orally twice a day for a period of sixty days.

## Results and Discussion

In the study the average semen volume before treatment was observed 3.5ml, 2.1 ml, 2.9ml, and 3.4ml in groups A, B, C and D respectively. After treatment it was improved to 4.7ml, 3.8ml, 4.6ml and 4.4ml in the same sequence. The average improvement in semen volume was observed as 1.2ml, 1.7ml, 1.7ml and 1.0 ml in groups A, B, C, and D respectively. The maximum improvement was noted in group B and C cases, this improvement of the semen volume was may be due to drugs such as *Orchis latifolia* and *Asparagus racemosus* which possess tonic and spermatagogue activities (Alok *et al.*, 2013)

In the study, the sperm count improvement was observed as 2.8 million sperm count in group A, 6.5 million sperm count in group B, 6.4 million sperm count in group C and 8.2 million sperm count in Group D. This effect of the formulations may be due to the drugs like *Asparagus adscendens*, *Bombax malabaricum*, which enhances the production of sperm (Sinha and Jagdale, 2013) and the drug like *Orchis latifolia* which correct the sluggishness of sperms and helps in better

**Table 1:** Effect of test samples on volume of semen

Before treatment				After treatment				
Group	Volume of semen in ml	No. of patients	%age	Average volume in ml	No. of patients	%age	Average volume in ml	Improvement in ml
A	2.0-3.9	14	66.7	3.5	06	28.5	4.7	1.2
	4.0-7.0	07	33.3		15	71.5		
B	2.0-3.9	25	83.3	2.1	25	83.3	3.8	1.7
	4.0-7.0	05	16.7		05	16.7		
C	2.0-3.9	17	68	2.9	01	04.0	4.6	1.7
	4.0-7.0	08	03		24	96.0		
D	2.0-3.9	39	78	3.4	16	32.0	4.4	1.0
	4.0-7.0	11	22		34	68.0		

(Siddiqui, 1991; Qasmi, 1994; Khan, 1996; Ahmad, 2011)

penetration. The formulation ingredients like *Styrax officinale* is suppose to be a Muqawwi-e-Aza-e-Raisa wa Umoomi (General tonic) and Muqawwi-e-Baah (Aphrodisiac) leads to increase the capacity of testes to produce more sperms.

**Table 2:** Effect of test samples on mean sperm count in millions

Group	Mean sperm count before treatment	Mean sperm count after treatment	Mean improvement in sperm count
A	9.9	12.7	2.8
B	14.3	20.8	6.5
C	13.3	19.7	6.4
D	14.6	22.8	8.2

(Siddiqui, 1991; Qasmi, 1994; Khan, 1996; Ahmad, 2011)

**Table 3:** Effect of test samples on sperm motility in percent

Group	Mean sperm motility before treatment	Mean sperm motility after treatment	Mean Improvement in sperm motility
A	35.0	50.0	15.0
B	42.6	53.9	11.3
C	41.4	54.5	13.1
D	37.0	47.0	10.0

(Siddiqui, 1991; Qasmi, 1994; Khan, 1996; Ahmad, 2011)

The increase in sperm count may also be attribute to the drugs like *Asparagus adscendens* and *Orchis latifolia* which contain Protein Saponins, micronutrients like Iron, Selenium and Zinc (Ainslie, 1984; Kirtikar and Basu, 1996)

Similar to above, it was observed that group A has the maximum mean improvement in sperm motility followed by group C, group B and lastly group D.

**Table 4:** Effect of test samples on sperm morphology

Group	Mean normal sperm before treatment	Mean normal sperm after treatment	Mean Improvement
A	37.0	47.0	10.0
B	39.4	50.0	10.6
C	42.0	52.8	10.8
D	37.0	44.8	07.8

(Siddiqui, 1991; Qasmi, 1994; Khan, 1996; Ahmad, 2011)

**Table 5:** Effect of test samples on Liquefaction time

Group	Before treatment			Avg. in min	After treatment			
	Liquefaction time (in min)	No. of patients	%		No. of pts	%	Avg. in min	Improvement in min
A	06-10	14	66.7	11	00	00	18	07
	11-15	04	19.0		13	62.0		
	16-20	03	14.3		08	38.0		
B	06-10	19	63.3	10	01	3.3	15	05
	11-15	08	26.6		16	53.3		
	16-20	03	10.1		13	43.3		
C	06-10	15	60	9.4	01	04	14.9	5.2
	11-15	09	36		13	52		
	16-20	01	04		11	44		
D	≥ 25	05	10	25	12	24	17	-08
	25-30	15	30		10	20		
	30-35	20	40		16	32		
	35-40	10	20		12	24		

(Siddiqui, 1991; Qasmi, 1994; Khan, 1996; Ahmad, 2011)

The motility of the sperms increased may due to the combined and stimulant effect of the herbs. This activity is attributed to the drugs like *Orchis latifolia*, and *Styrax officinale* that improve the strength by virtue of general tonic as well as aphrodisiac properties (Ainslie,1984; Khan, 1885; Ghani, ynm; Majoosi, 1993)

In the study the effect of test samples on sperm morphology showed that trialed combinations have restored normal morphology of the sperms to a significant level. All the groups showed equal mean improvement but with a little difference i.e 10.8 and 10.6 in the Group A and B followed by 10.0 in Group C and 7.8 in Group D. The improvement in sperm morphology may possible due to actions of the drugs like *Asparagus adscendens*, *Bombax malabaricum*, and *Asparagus racemosus* (Kirtikar and Basu, 1996; Ghani, ynm; Majoosi,1993) The possible explanation to improve the morphology of the sperm may due to the strengthening of the Quwwat-e-Tanasuliya (reproductive power) of the body which in turn strengthens its Quwwat-e-Musawwira (Formative power) that is responsible for the formation and maintenance of the shape of sperm.

In the parameter 'liquefaction time' of semen, it was observed that in group A, B and C liquefaction time was increased by 07, 05, and 5.2 minutes respectively and this effect was attributed to the action of drugs like *Asparagus adscendens*, *Bombax malabaricum*, and *Asparagus racemosus* which possess Mughalliz and Moallid Mani effect claimed by various writers (Khan, 1885; Ibne sina, 1906; Majoosi, 1933;and Rabban, 1996)

**Table 6:** Effect of test samples on pH of semen

Before treatment			After treatment		
Group	pH of semen	No. of pts	Percentage	No. of pts	Percentage
A	7.0-7.9	05	23.8	05	23.8
	≤ 8	16	67.2	16	67.2
B	7.0-7.9	10	33.3	10	33.3
	≤ 8	20	66.6	20	66.6
C	7.0-7.9	06	24.0	06	24.0
	≤ 8	19	76.0	19	76.0
D	7.0-7.9	20	40.0	20	40.0
	≤ 8	30	60.0	30	60.0

(Siddiqui, 1991; Qasmi, 1994; Khan, 1996; Ahmad, 2011)

Finally, it was observed that there was no change in the pH of semen before and after the treatment in all the groups. This means that all the formulations experimented do not interfere with pH of the semen.

## Conclusion

Over all, it was concluded that all the four combinations studied possess aphrodisiac/ rejuvenative, spermetogenesis, spermetagogue, antidepressive an anxiolytic activity. They increase the level of testosterone, libido. These action made the formulations therapeutically active to treat male oligospermia.

Although all the four groups have nearly similar therapeutic uses and are trialed for the same conditions but as per observations, semen volume was increased more in group C and B cases, semen liquefaction time is increased in group A, B, and C cases, sperm count was increased more in group D cases as compared to other groups, sperm motility is increased in group A as compared to rest of the groups, as far as sperm morphology is concerned it increases in all groups. Therefore, to manage oligospermia the formulation of all four groups may be specifically used as per the individual case requirement in respect to the parameters taken into account.

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