

Treatment of Men Infertility using Low doses of Fenugreek Oil Extract

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Abstract

Fenugreek seeds are well known herbs that used traditionally as a spices, besides, their uses as a medicine for many diseases. Many researchers worked on the effects of these seeds on many diseases. In 2002, for the 1st time, these seeds used for the treatment of the infertility. In this study, a trial to use the fenugreek seeds oil in the treatment of the infertility in man has been done. The results are so encouraging to consider fenugreek seed oil as a safest, cheapest and an excellent medicine for the treatment of the infertility in men due to oligospermia. Yet, the mode of action can not be explained.

Keywords: infertility, fenugreek seeds oil

1-Introduction

Fenugreek seeds are well known herb seeds used by people in different countries as spices. Besides, the dry seeds used, in many countries, for medical purposes as anti-tussive, analgesic, galactagogue, emenagogue & as anti-microbial agents^{1,2,3}. Fenugreek plants cultivated in Mediterranean area, Africa, central Asia & Australia.^{4,5} Fenugreek plants related to Leguminosae family & its scientific name is *Trigonella Foenum-graceum*.^{1,5} The chemical components of fenugreek seeds are mainly carbohydrate, protein & oil. However, the seeds oil is the important & the effective medical constituent in the fenugreek seeds.^{6,7,8} Fenugreek seeds administration has not been reported to cause any toxicological effects.^{5,9} Therefore, so many researches had been studied the medical effects of fenugreek seeds. One of the most important study was the role of fenugreek seeds in the treatment of infertility in infertile male patients.¹⁰ since the results obtained by above research was the 1st one all over the world, therefore, doctors Maan & Huda had a patentcy for their work from Iraqi government which had national No. 51 A61k 35/ 78 in 2002.

Before this work Maan & Huda did the same research on male normal albino rat, which include histological, histo-chemical study of rat testis tissue & semen analysis. The results were unexpected since they revealed obvious significant increase in the amount of sperms count, besides, increase activities of many enzymes like lipo-protein lipase & B – galactosidase in testicular tissue.^{10,11} Since the effective constituent of fenugreek seeds was unknown, in both studies (experimental & human being) mentioned above, therefore crude grinded fenugreek seeds had been used in those studies. However, many scientists found later on that the effective ingredient of fenugreek seeds was seeds oil. This done after extraction of fenugreek seeds oil by different methods.^{12,13}

2-Aim of study

Study of the effect of fenugreek seeds constituents mainly oil & remaining constituents on the infertile (oligospermic) male patients. This done through studying the sperm analysis (sperm count, motility, shape & activity), besides study the hormonal assay.

Patients & methods

Fenugreek seeds had been purchased from local market in Baghdad (though the fenugreek seeds are of Indian origin). The seeds classified as fenugreek seeds of leguminosae family by a specialist potanist, then cleaned & were ready to be extracted.

Soxhlet apparatus had been used for seeds extraction. The extraction had been done in special lab. in the ministry of sciences & technology in Baghdad. The fixed oil, that had been obtained was characterized by using infra – red spectroscopic technique (Tensor 27 – PRUKER).

The remaining materials (that remained after extraction of oil) had been collected & dried.

Patients

Eighty (80) patients, aging from 20 -30 years, complaining of infertility due to oligospermia for 4-8 years, had been chosen for treatment; this had been done after exclusion of any medical disease (e.g diabetes, hyperlipidemia) or surgical problems like genital system infection, azospermia due to testicular disease (like atrophy or genital tract obstruction) & varicocele. Full instructions & information regarding the way of treatment, duration of treatment, monthly semen analysis & examination of genitalia had been explained to each patient. Besides, their agreements had been obtained by signing a special formula.

The patients had been divided into 2 groups :-

- 1- Group A :- (50) fifty in no. received fenugreek seed oil as drops, in a dose of (12 macro drops) t.d.s.

2- Group B:- (30) thirty in no. received the remaining materials obtained from extraction of seeds oil. This is given orally in a total dose of (10 gm) t.d.s. daily.

The duration of treatment had been lasted for 4 months.

The period of treatment was continued from 2010 – 2013.

Each patient exposed monthly to :-

- 1- Examination of the testis & epididymus clinically.
- 2- Examination of semen for sperm count. , motility, activity & normality.
- 3- Blood aspiration was obtained to examined hormones which include FSH , LH , estrogen , proesteron , prolactin & testeterone. Examination of semen & hormonal assay were done in the teaching lab. Of medical city hospital in Baghdad.

• **Statistical analysis :-**

Student T- test was applied to estimate the degree of significance by comparing the mean & S.D. of each group.

Note:-	*	0.05	mild significant
	**	0.01	significant
	***	0.001	highly significant

Results

1- Chemical analysis of fenugreek seeds :-

The chemical composition of dry fenugreek seeds , using socklet apparatus , revealed the following constituents , each 1 kg of dry fenugreek seeds gives about 100 – 110 ml of oil , leaving the remaining part of extraction of seeds which is weighting 670-700 gm.

The fenugreek seed oil has faint yellowish color with strong aromatic odor.

The chemical compositions of fixed oil are as the following (table 1):-

Table I:- Chemical Compositions of Fixed Oil

Constituents	% range (w/w)
Linoleic acid	44.7 -50
Oleic acid	22.7 – 25.6
Linolenic acid	0.5 – 1.3
Arachidic acid	2.5 – 3.1
Palmitolic acid	3.5
Eicosadienoic acid	2.1 – 2.6
Palmitic acid	11.0 – 13.5
Stearic acid	2.4 – 3.5
Myristic acid	0.13
Sterole	0.5

Patients & Semen analysis :-

all the patients , regarding group A & B , appeared in good general condition , had no changes in life style except they got increase in appetite, yet , no one recorded to have increase in body wt. . However, since the period of experiment was long, some patients had increase or decrease in body weight. These changes (in weights) were attributed to other causes irrelevant to the treatment, yet these changes in body weight were insignificant.

Regarding genitalia , no significant changes could be detected clinically in control & experimental patients before & after treatment .

• **Semen analysis**

Group B showed no significant changes in all parameters of semen analysis.

Group A elicited highly significant increase in all parameters of semen investigation mainly in sperms count. These changes resulted in 60% occurrence of pregnancy after treatment (within 2 – 3 months of treatment).Changes occurred in semen parameters of group A patient viewed in detail in table 2 & as the following:-

Table (2): Changes Occurred In Semen Parameters of Group (A) Patient

Patient of group A / month	Sperm count (million) Mean \pm SD	Motility of sperm Mean \pm SD	PH of semen Mean \pm SD	Sperm abnormality Mean \pm SD
Pre-treatment	6.2 \pm 3.8	43% \pm 5%	7.5 \pm 1.1%	68% \pm 5%
1 st month of TR	10.1 \pm 2.1 **	55% \pm 3% **	7.4 \pm 0.9	60% \pm 4 % **
2 nd month of TR	18.9 \pm 4.9 ***	60% \pm 3.7% **	7.4 \pm 2.1	50% \pm 2.5% **
3 rd month of TR	28.6 \pm 3.6 ***	70% \pm 4% **	7.3 \pm 3.3	41% \pm 2.0%***
4 th month of TR	20.1 \pm 6.3 **	61% \pm 8.1% **	7.4 \pm 3.9	53% \pm 3.0% **

This table revealed highly significant increase in sperm count. Besides, sperm motility & reduction of abnormal sperms elicited significant increase, while PH of semen showed no significant changes.

This significant changes in sperms count , motility & normality reach their peak in the end of the 3rd month of treatment. However, unexpectedly these changes demonstrated significant decrease in all these parameters in the 4th month of treatment, in comparison with these of the 3rd month of treatment.

• **Hormonal studies :-**

This study detailed the results as shown in table 3 :-

Table (3): Detailed the results

Patient of group A per month	LH	FSH	oestrogene	Progesterone	Prolactin	Testosterone
Pre-treatment	3.2	6.3	35 \pm 6.1	0.41 \pm 0.01	9.5 \pm 2.1	6.5 \pm 1.9
1 st month of TR	3.9	6.5	37 \pm 5.4	0.45 \pm 0.11	8 \pm 1.1 *	7.1 \pm 2.0 *
2 nd month of TR	3.8	6.6	36 \pm 3.7	0.41 \pm 0.09	7.1 \pm 0.9 **	7.8 \pm 1.1 **
3 rd month of TR	4.0	6.5	38 \pm 2.5	0.43 \pm 0.1	6.8 \pm 1.2 **	9.1 \pm 1.9 **
4 th month of TR	3.5	6.4	38 \pm 1.1	0.42 \pm 0.08	8.1 \pm 2.3 *	6.7 \pm 2.2 *

In table 3 , LH , FSH , Oestrogene & Progesterone hormones revealed no significant changes in group A throughout time of treatment. While Prolactin revealed significant decrease in group A patients except in the 4th month of treatment while revealed changes yet mildly significant.

Regarding testosterone hormone, the study showed significant increase in its level gradually till reach its peak in the 3rd month of treatment.

Discussion & Conclusion

As mentioned in the introduction, crud Fenugreek seeds had positive significant effect on the spermatogenesis & treatment of male infertility. Yet, the effective ingredient was unknown.¹⁰

In this study, as with other studies , the effective composition of fenugreek seeds is known to be fenugreek oil.^{12,13,14,15,16}

The chemical composition of fenugreek seeds extract , obtained in this study, is the fenugreek seeds fixed oil .this finding agreed with many studies which found that the effective composition of fenugreek seeds, which are used as a medical herb in treatment of many diseases, is the oil of this herb^{15,16,17,18,19,20}

However, the use of fenugreek oil in treatment of male infertility is done for the 1st time in the study & the result is so influential to steal our attention toward the oil of these seeds to be one of the effective safest treatment in the infertility of male patients.

However ,the mechanism of action of fenugreek seeds oil in significant improvement of spermatogenesis is still obscure .

From this study we can conclude that the oil of fenugreek seeds is an important safest and cheapest drug for the treatment of very important disease which is the infertility .

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