

## The effect of date palm pollen & zinc sulphate in the treatment of human male infertility.

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### Abstract

This study was performed to determine the possible synergistic effects between zinc sulphate & pollen of Date palm in the treatment of men infertility. Pollen powder was packed as 500 mg in capsules, while zinc sulphate capsule was prepared by packing 100 mg of zinc sulphate with 400 mg glucose in gelatinous capsule. A combined therapy used for treatment of 25 infertile men as one capsule for each patient twice daily for 3 months. The treatment was significantly increased serum LH, FSH, & testosterone levels. It was also, increased significantly sperm count & motility. Sexual desire was also significantly increased. Wives of treated men got pregnancy during the treatment period. Combined therapy of Date palm pollen & zinc sulphate cause no biochemical & hematological toxicities.

### تأثير حبوب طلع النخيل وسلفات الزنك في عقم الذكور

علي اسماعيل السنافي عز الدين فخر الدين فرح ماربين موسى محمود مربوط

### المستخلص

اجريت هذه الدراسة لقياس التأثير التعاوني بين سلفات الزنك وحبوب طلع النخيل في علاج عقم الذكور. ان مسحوق الطلع تم تعبئته في عبوات حجم 500 مغم بينما حضرت عبوات سلفات الزنك بخلط 100 غم سلفات الزنك مع 400 غم سكر الكلوكوز الجيلاتيني. استخدم العلاج في معالجة 25 شخص عقيم باخذ عبوة واحدة من كلا التحضيرين لكل شخص ولمرتتين باليوم ولمدة ثلاث اشهر . اثبت العلاج في زيادة ملحوظة في كوية الهرمونات LH, FSH, testosterone في مصل الدم وكذلك لوحظ زيادة في حركة واعداد الحيوانات المنوية وكذلك تم زيادة الرغبة الجنسية للاشخاص المعالجين. اما بالنسبة لزوجات الاشخاص المعالجين فقط اصبحن حوامل بعد اخذ العلاج من قبل ازواجهما. ان العلاج بواسطة حبوب طلع النخيل وسلفات الزنك لايسبب أي تأثير سمي او تغيرات بايوكيمياوية او تغيرات على شكل كريات الدم.

## Introduction

Infertility is a major health problem. Male infertility is defined as inability of the wife to conceive after one year of unprotected sex in the absence of female cause (1). The causes of male infertility were includes, deficient sperm production, incomplete development of testes, testicular maldescent, vascular testicular defect, diseases of reproductive system, increased scrotal temperature, environmental factors (such as smoking, alcohol consumption & therapeutic agents), nutritional factors, immunological reactions, anatomical problems & ejaculatory disorder (2-6). Many treatment approaches were used in the treatment of male infertility, but there are no previous studies on the of combined therapy of date palm pollen & zinc sulphate in the treatment of male infertility. Date palm (*Phoenix dactylifera* Linn; Palmaceae) widely grows in Iraq. Stamens are the part of Date palm male flower which produce of pollen grains. The pollen of date palm had a history of use as a male tonic to improve fertility (7-10). Most zinc in human seminal plasma originates from prostate. It is vital to spermatogenesis, testosterone synthesis, sperm formation & motility (11-17). The aim of this study is to investigate the effect of combined therapy of date palm pollen & zinc sulphate on male infertility.

## Patients & methods

The study was carried out on 25 male infertile patients , attending the infertility clinic in Kirkuk. The patients were recommended to consult fertility specialist in the hospital for complete evaluation. Testicular biopsy & other necessary tests were performed to exclude testicular causes.

Pollen's capsules were prepared by

packaging 500 mg of dried pollen in gelatinous capsule. While the zinc sulphate (100 mg) capsules were prepared by packing of 100 mg with 400 mg glucose. During the period of treatment , each patient was advised to attend the infertility clinic weekly. The patients were treated with a combined therapy of date palm pollen & zinc sulphate twice daily. The semen was collected in the hospital laboratory by masturbation after 3-7 days of sexual abstinence. The blood samples were collected for biochemical, hematological & hormonal analysis. The seminal analysis & biochemical parameters were determined by routine methods. FSH, LH & testosterone levels were determined by radioimmunoassay. All parameters were measured before & after treatment period. Paired T-test & percentage were used for statistical analysis (18).

## Results

Sperm count & motility were increased significantly in infertile patients who treated with 500 mg pollen powder & 100 mg zinc sulphate capsules twice daily for 3 months ( $p < 0.05$ ). There is an increase in the percentage of sperm count up to 36.39% & increase in sperm motility up to 82.6% (Table 1). FSH, LH, & testosterone were significantly increased ( $p < 0.05$ ). The percentage of hormonal increase was 31.89%, 49.799, & 78.9% respectively (table 2). Intercourse rate per week was significantly increased ( $p < 0.05$ ). The percentage of the increase was 244.7% (table 3). No hematological & biochemical change on all blood parameters. These results reveal that there are no side effects as a result of using of Date palm pollen & zinc sulphate twice daily for three months



**Table (1): Show the mean & standard deviation (SD) of sperm count & % of active sperm motility of infertile men after treatment with pollen powder (500mg) & zinc sulphate (100mg).**

Semen parameters	Before treatment	After treatment	Percentage of increase
Sperm count (million/ml)	18.133 ± 3.715	24.733 ± 5.0	+ 36.397
% of active sperm motility	17.214 ± 3.497	31.428 ± 4.844	+ 82.57

**Table (2): Show the mean & standard deviation (SD) of the FSH, LH & testosterone in infertile men after treatment with pollen powder (500mg) & zinc sulphate (100mg)**

Hormones	Before treatment	After treatment	% of increase
FSH (mIU/ml)	10.269 ± 2.508	13.544 ± 2.309	+ 31.892
LH (mIU/ml)	5.996 ± 0.656	8.982 ± 0.601	+ 49.799
Testosterone (nmol/l)	12.09 ± 5.472	21.631 ± 4.155	+ 78.916

**Table(3): Show the mean & standard deviation (SD) of sexual desire (intercourse/week) of infertile men after treatment with pollen powder (500mg) & zinc sulphate (100mg).**

Before treatment	After treatment	P value	% of increase
2.136 ± 1.134	7.363 ± 1.85	0.05	244.71

### Discussion

Sperm count; active sperm motility, sexual desire & the rate of sexual intercourse per week were increased significantly in the infertile men after

treatment with combined therapy of date palm pollen & zinc sulphate twice daily for three months. All these results could be attribute to the increment in the testosterone level. Testosterone regulates spermatogenesis, epididymal,



permatozoa maturation & sperm motility & sexual desire (4).

The increase in testosterone level could be due to the presence of gonadotropically active substances (5), & growth hormone like material in pollen of date palm (9). Moreover, the presence of steroid precursor in the pollen of date palm (10), may enhance testosterone synthesis. On the other hand, testosterone synthesis is zinc dependent (12), & zinc increases testosterone concentration because it acts at the level of testes. While the increase of sperm motility after the pollen therapy may also attributed to cholesterol (10), which has a role in the stabilizing of sperm structure (7). The ability of wives of the treated men to conceive could be attributed to the improvement of sexual desire & semen analysis (3).

All biochemical & hematological tests clearly proved that there is no side effects for combined therapy of Date palm pollen & zinc sulphate which used twice daily for 3 months.

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