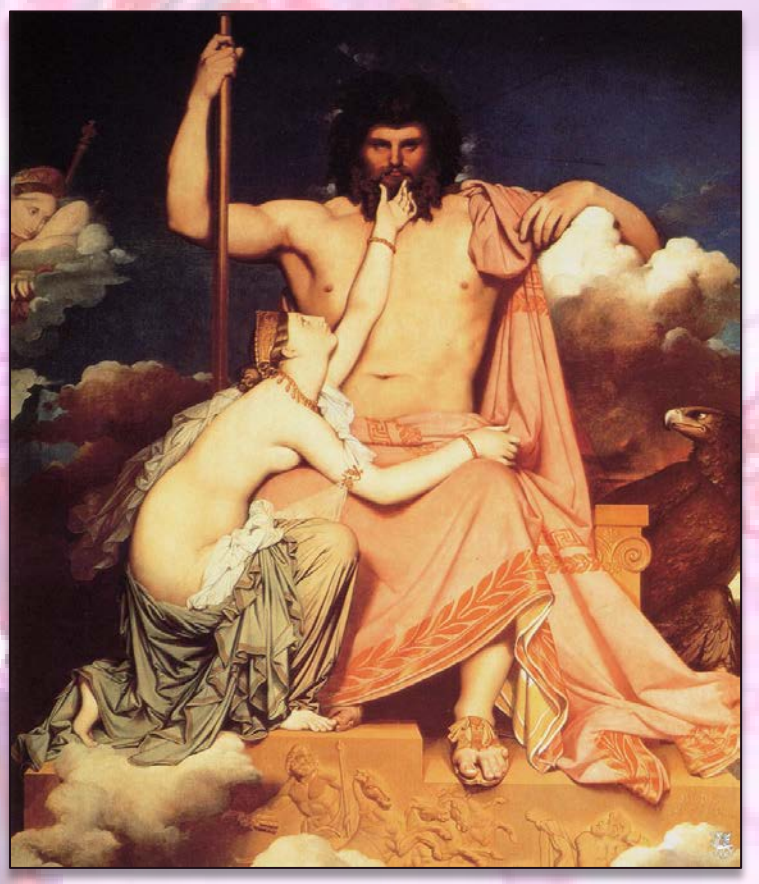
EFFICACIA DELLO ZAFFERANO (CROCUS SATIVUS L.) NELLE DISFUNZIONI SESSUALI

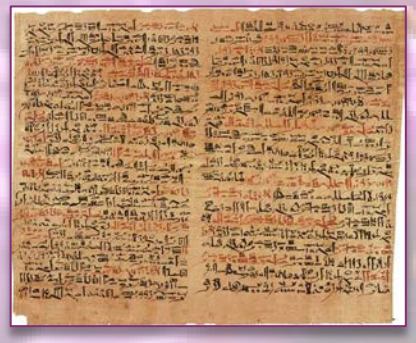
16 Giugno 2018

ZAFFERANO

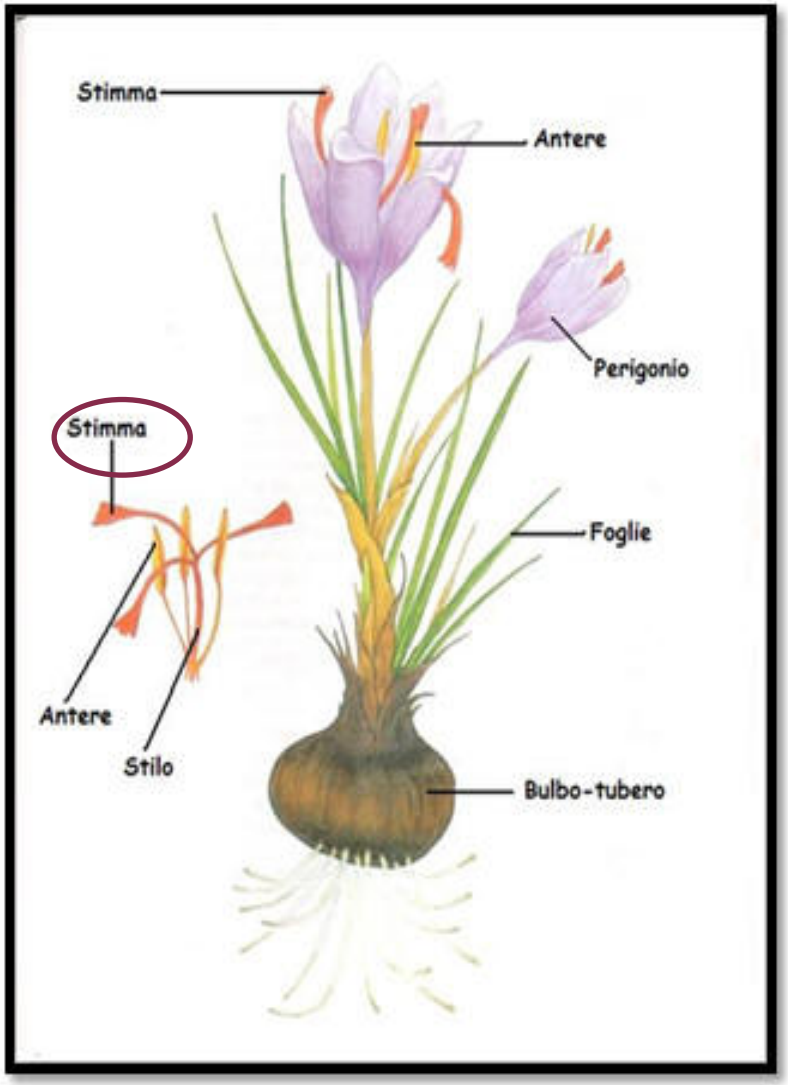
“Profumo degli Dei”

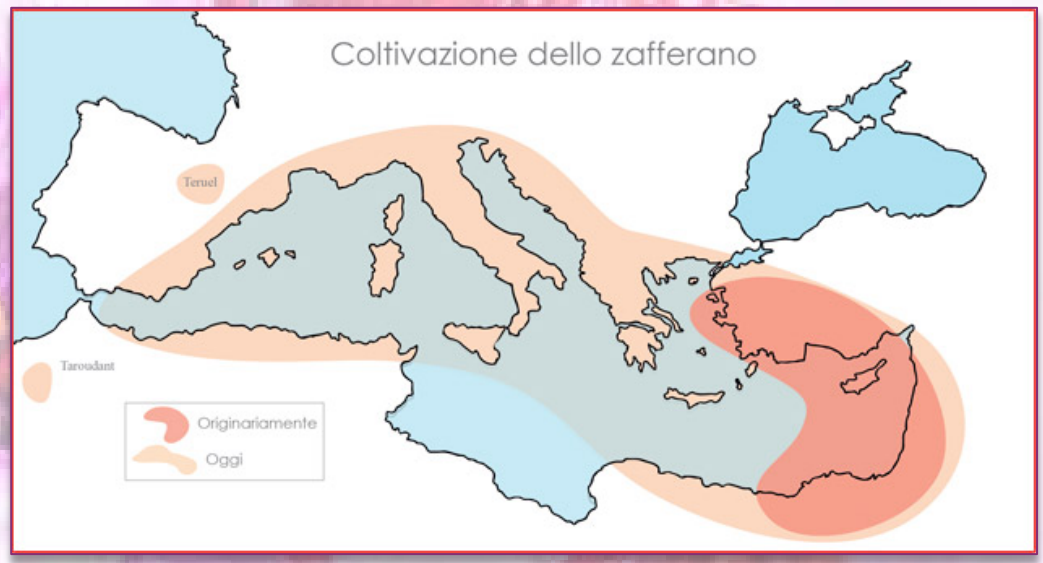


- QUALITÀ MEDICINALI
- QUALITÀ AROMATICHE
- QUALITÀ COLORANTI



CROCUS SATIVUS L. (ZAFFERANO)





Rubio, 1997; Menghini et al., 2018

“Red Gold”

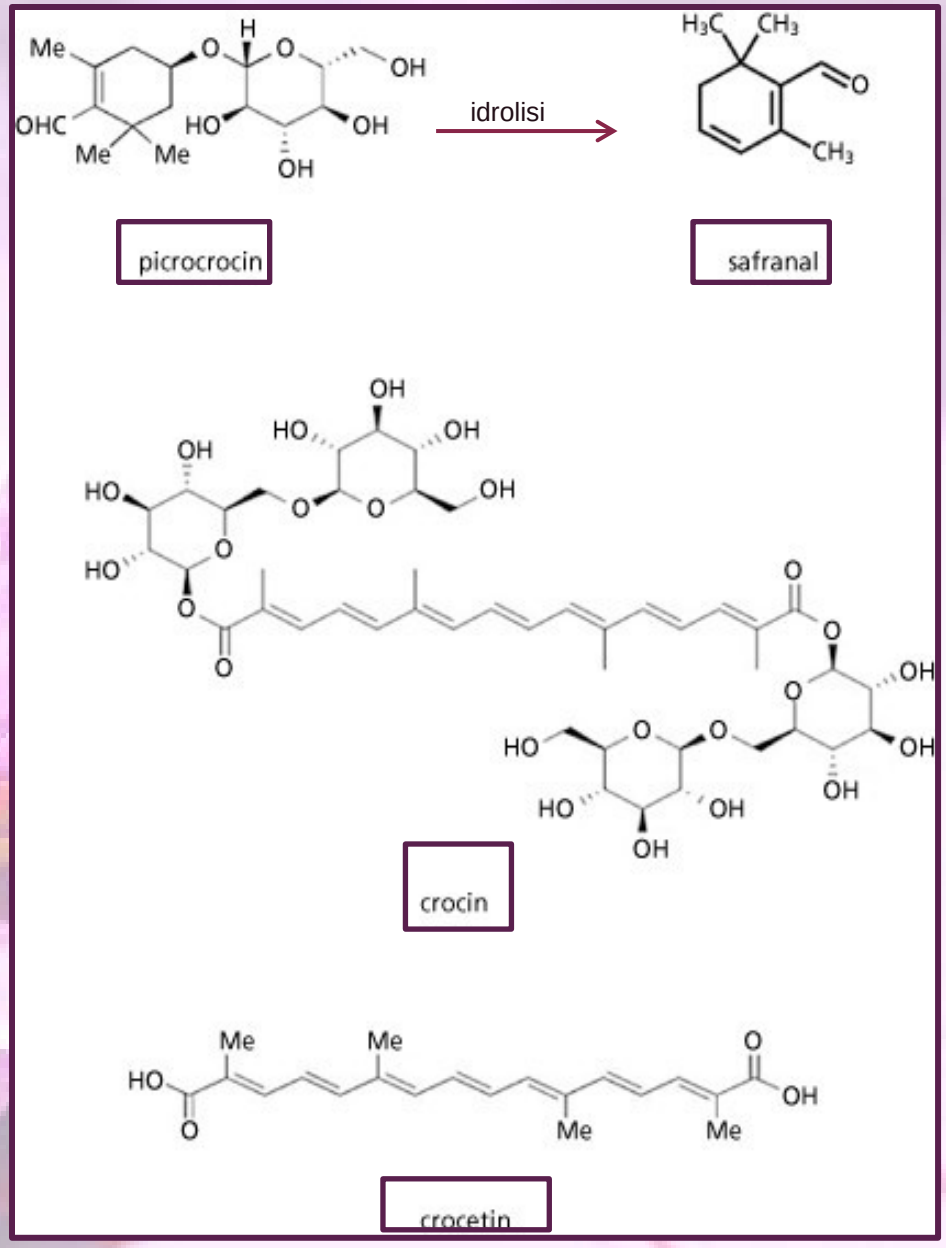
- **Raccolta** seconda metà di ottobre/ 1 settimana novembre

-**Tostatura/essiccamento** - stimmi perdono i 5/6 del loro peso, con 600 grammi di stimmi freschi si ottengono 100 grammi di stimmi secchi

Per 1 **Kg di zafferano** secco occorrono circa **200.000 fiori** e **500 ore** di lavoro.

ISO 3632-1 E 2 (2003-2010-2011)
Standard qualitativi; procedure di titolazione dello zafferano per ricondurlo a livello commerciale

QUALITA' DELLA SPEZIA



-14-16% acqua, 11-13% sost. Azotate; 12-15% di zuccheri, 0.6% olii essenziali, 4-5% di fibre, 4-5% di ceneri
-Riboflavina e tiamina (56-138 e 0,70-4 µg/g rispettivamente)

(Bhat & Broker, 1953; Christodoulou et al., 2015)

Tabella 1.1

Componenti importanti presenti negli Stimmi del *Crocus sativus* L. *(Bathaie et al., 2010).*

Famiglia (strutture chimiche)	Nome	Altri nomi	Ulteriori informazioni
Carotenoidi	Crocetina Methyl-crocetina Dimetil-crocetina Crocine **α-carotene** **β-carotene** **licopene** **zeaxantina** mangicrocina xantone-carotenoide glicoside coniugato	**α-crocetina** o isomero trans-crocetina o crocetina I crocetina II o 13-cis-crocetina isomero **β-crocetina** o monometil estere della crocetina **γ-crocetina** o dimetil ester della crocetina crocina -1 o α-crocina o digentiobioside crocetina crocina-2 o tricrocina o gentioglucoside crocetina crocina-3 o gentiobioside crocetina crocina-4 o glucoside crocetina crocina-5 o dicrocina o di glucoside crocetina	- PRINCIPALI COSTITUENTI ATTIVI DELLO ZAFFERANO E UNICI CAROTENOIDI SOLUBILI IN ACQUA PRESENTI IN NATURA. - PRINCIPALE COSTITUENTE ANTIOSSIDANTE - 25 DIVERSI DERIVATI DELLE CROCINE A SECONDO DELL'ORIGINE GEOGRAFICA
Aldeidi monoterpeniche	**Picrocrocina (1-13%)** **Safranale (OLIO ESSENZIALI)** Isomero del safranale Isomero del safranale	Derivati deglicosilati della picrocrocina o 2,6,6-trimetil-1,3-cicloesadiene-1-carbossaldeide o deidro-β-ciclocitrale 2,6,6-trimetil-2-1,4-dione 2,6,6-trimetil-1,4-cicloesadiene-1-carbossaldeide	Nello zafferano fresco, queste sostanze esistono come componenti stabili

NCBI Resources How To Sign in to NCBI

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed Search
Advanced Help

Format: Abstract Send to

Eur J Drug Metab Pharmacokinet. 2017 Nov 13. doi: 10.1007/s13318-017-0449-3. [Epub ahead of print]

Pharmacokinetic Properties of Saffron and its Active Components.

Hosseini A[1], Razavi BM[2,3], Hosseinzadeh H[4,5].

Author information

Abstract

Saffron as a medicinal plant has many therapeutic effects. Phytochemical studies have reported that saffron is composed of at least four active ingredients which include crocin, crocetin, picrocrocin and safranal. The carotenoids of saffron are sensitive to oxygen, light, heat and enzymatic oxidization. However, regulation of these factors is required for saffron quality. Some pharmacologic effects of saffron and its active compounds include cardioprotective, neuroprotective, memory enhancer, antidepressant and anxiolytic. Among more than 150 chemicals of saffron, the most biologically active components are two carotenoids including crocin and crocetin. Most of the pharmacokinetic studies are related to these compounds. The pharmacokinetic studies have shown that crocin is not available after oral administration in blood circulation. Crocin is converted to crocetin in intestine but after intravenous injection, the level of crocetin in plasma is low. Crocetin can distribute in different tissues because of weak interaction between crocetin and albumin. Also it can penetrate blood-brain barrier and reach CNS by passive transcellular diffusion; thus it can be effective in neurodegenerative disorders. The large portion of crocin is eliminated via feces.

PMID: 29134501 DOI: 10.1007/s13318-017-0449-3

Full text links

SpringerLink FULL-TEXT ARTICLE

Save items

Add to Favorites

Similar articles

Intestinal formation of trans-crocetin from saffron extract (Crocus sativus L.) [Phytomedicine. 2015]

Effects of saffron and its constituents, crocin-1, crocin-2, and crocetin on α-syn [J Nat Med. 2018]

Crocin, safranal and picrocrocin from saffron (Crocus sativus L.) inhibit the [Cancer Lett. 1996]

Review Bioactivity assessment and toxicity of crocin: a comprehens [Food Chem Toxicol. 2014]

Review Saffron: An Old Medicinal Plant and a Potential Novel Functional Foo([Molecules. 2017]

See reviews...

Science Press

Journal of Integrative Medicine
Volume 13, Issue 4, July 2015, Pages 231-240

Systematic Review

A systematic review of randomized controlled trials examining the effectiveness of saffron (*Crocus sativus* L.) on psychological and behavioral outcomes

Heather Ann Hausenblas [a], Kacey Heekin [b], Heather Lee Mutchie [b], Stephen Anton [b]

Effetti avversi	**Zafferano**	**Placebo**
	Nessuna differenza in merito agli eventi avversi	
Fluttuazioni dell’appetito (incremento e decremento)		
Sedazione		
Nausea		
Cefalea		
Ipomanie		

Iranian Journal of Basic Medical Sciences

ijbms.mums.ac.ir

IJBMS

Toxicology effects of saffron and its constituents: a review

Hasan Badie Bostan [1], Soghra Mehri [1,2,3], Hossein Hosseinzadeh [1,2*]

[1] Department of Pharmacodynamics and Toxicology, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran
[2] Pharmaceutical Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
[3] Neurocognitive Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Safranale

Crocine

Zafferano
(*Crocus Sativus*)

Saffron

Depression

Inhibition of the reuptake of
- Dopamine
- Serotonin
- Norephinefrine

Increase CREB, BDNF and VGF livels

Diabetes mellitus

Increases glucose uptake and insulin sensitivity

Atherosclerosis

OX-LDL uptake inhibition

Cancer

DNA and RNA synthesis inhibition

Parkinson and Alzheimer

ROS Inhibition
↓Acetyl-cholinesterase activity

Sexual dysfunction

inhibit extracellular Ca2+
Increase eNOS activity

(He et al., 2004; Williams et al., 2005; Tang et al., 2006)

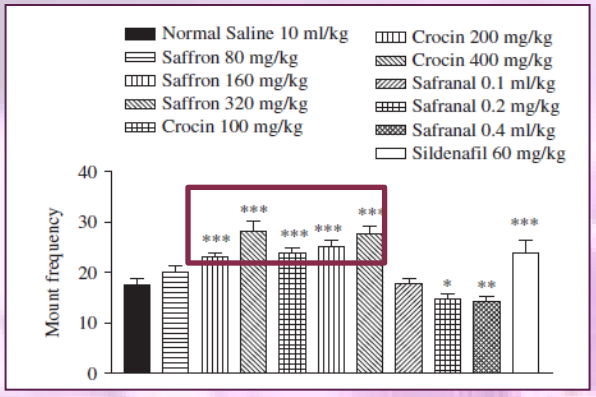
ELSEVIER

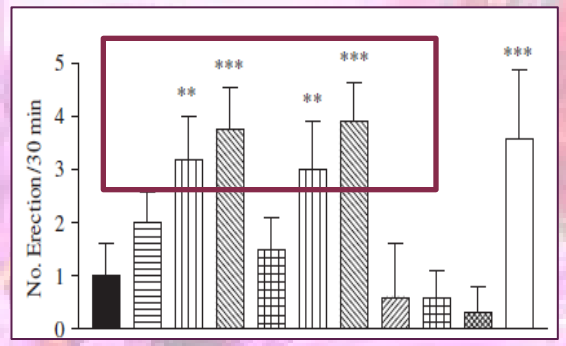
The effect of saffron, Crocus sativus stigma, extract and its constituents, safranal and crocin on sexual behaviors in normale male rats

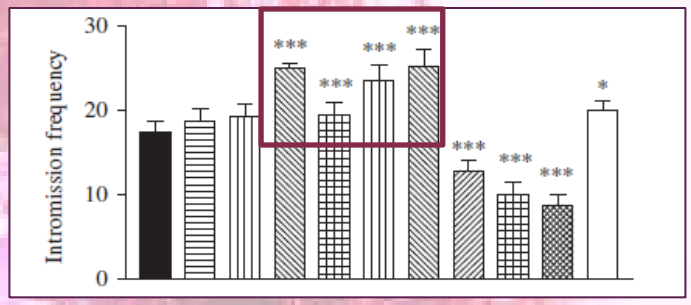
H. Hosseinzadeh et al.

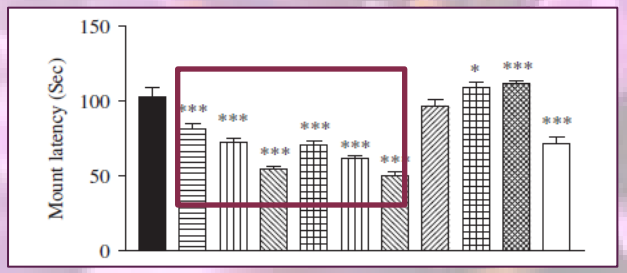
Phytomedicine 15 (2008): 491-495

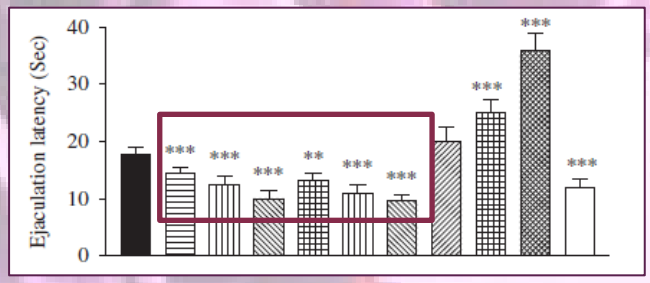
Crocus Sativus stigma acqueous extract-crocin 19.7 mg/g – safranal 0.25 mg/g-(80, 160, 320 mg/kg);
Crocin 100, 200, 400 mg/kg;
Safranal 0.1, 0.2, 0.4 mg/kg;
Sildenafil 60 mg/kg

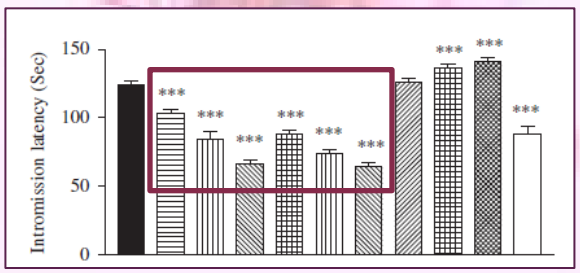












AZIONE SINERGICA DELL'ESTRATTO

Evaluation of Crocus sativus L. (saffron) on male erectile dysfunction: A pilot study

A. Shamsa et al.

Phytomedicine 16 (2009): 690-693

Parametri	Prima del trattamento	Dopo il trattamento	Valore *p*
Punteggio Totale IIEF	25.15±1.44	39.20±1.90	P<0.0001
Domini			
Funzione erettile	11.75±0.92	17.15±0.71	P<0.0001
Desiderio sessuale	3.80±0.22	6.10±0.32	P<0.0001
Soddisfazione rapporto sessuale	3.85±0.30	6.15±0.39	P<0.0001
Funzione orgasmica	2.82±0.29	4.80±0.33	P<0.0001
Appagamento generale	3.00±0.22	5.95±0.49	P<0.0001

Trattamento 200 mg capsule di zafferano per 10 gg
(20 pz con Disfunzione erettile).
Indice Internazionale Funzionalità Erettile (IIEF)
RIGISCAN per l'analisi di Tumescenza peniena notturna (NPT)

Evaluation of Crocus sativus L. (saffron) on male erectile dysfunction: A pilot study

A. Shamsa et al.

Phytomedicine 16 (2009): 690-693

Parametri	Prima del trattamento	Dopo il trattamento	Valore *p*
Numero di episodi per notte	1.85±0.17	3.70±0.26	P<0.0001
Rigidità (%)			
Apice	33.65±3.57	55.05±3.63	P<0.0001
Base	33.85±3.11	57.25±3.21	P<0.0001
Tumescenza (cm)			
Apice	1.11±0.13	2.09±0.14	P<0.0001
Base	1.41±0.14	2.53±0.14	P<0.0001

Trattamento 200mg capsule di zafferano per 10 gg
(20 pz con Disfunzione erettile).
Indice Internazionale Funzionalità Erettile (IIEF)
RIGISCAN per l'analisi di Tumescenza peniena notturna (NPT)

NCBI Resources How To

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed

Advanced

Format: Abstract

Send to

Int J Impot Res. 2010 Jul-Aug;22(4):240-50. doi: 10.1038/ijir.2010.10. Epub 2010 Jun 3.

An open label, randomized, fixed-dose, crossover study comparing efficacy and safety of sildenafil citrate and saffron (Crocus sativus Linn.) for treating erectile dysfunction in men naïve to treatment.

Safarinejad MR[1], Shafiei N, Safarinejad S.

Author information

Abstract

Saffron (Crocus sativus Linn.) have been perceived by the public as a strong aphrodisiac herbal product. However, studies addressing the potential beneficial effects of saffron on erectile function (EF) in men with ED are lacking. Our aim was to evaluate the efficacy and safety of saffron administration on EF in men with ED. After a 4-week baseline assessment, 346 men with ED (mean age 46.6+/-8.4 years) were randomized to receive on-demand sildenafil for 12 weeks followed by 30 mg saffron twice daily for another 12 weeks or vice versa, separated by a 2-week washout period. To determine the type of ED, penile color duplex Doppler ultrasonography before and after intracavernosal injection with 20 microg prostaglandin E(1), pudendal nerve conduction tests and impaired sensory-evoked potential studies were performed. Subjects were assessed with an International Index of Erectile Function (IIEF) questionnaire, Sexual Encounter Profile (SEP) diary questions, patient and partner versions of the Erectile Dysfunction Inventory of Treatment Satisfaction (EDITS) questionnaire and the Global Efficacy Question (GEQ) 'Has the medication you have been taking improved your erections?' No significant improvements were observed with regard to the IIEF sexual function domains, SEP questions and EDITS scores with saffron administration. The mean changes from baseline values in IIEF-EF domain were +87.6% and +9.8% in sildenafil and placebo groups, respectively (P=0.08). We did not observe any improvement in 15 individual IIEF questions in patients while taking saffron. Treatment satisfaction as assessed by partner versions of EDITS was found to be very low in saffron patients (72.4 vs 25.4, P=0.001). Mean per patient 'yes' responses to GEQ was 91.2 and 4.2% for sildenafil and saffron, respectively (P=0.0001). These findings do not support a beneficial effect of saffron administration in men with ED.

ORIGINAL INVESTIGATION

Effect of saffron on fluoxetine-induced sexual impairment in men: randomized double-blind placebo-controlled trial

A. Modabbernia et al.

Psychopharmacology 223 (2012): 381-388

Settimana	Gruppo placebo +Fluoxetina (mean±SD)	Gruppo zafferano +Fluoxetina (mean±SD)	Valore *p*
Totale	0.9±4.5	8.2±3.9	P<0.001
Funzione erettile			
Settimana 2	-1.9±3.4	2.2±1.1	P<0.001
Settimana 4	-2.5±4.6	4.5±2.5	P<0.001
Soddisfazione rapporto sessuale			
Settimana 4	-0.2±1.6	2.1±1.6	P<0.001

Pz (n° 36) tra 18-45 anni con MDD- DSM-IV in trattamento con fluoxetina- Indice Internazionale Funzionalità Erettile (IIEF)<25
Fluoxetina 40 mg/day minimo 6 settimane pre-arruolamento
capsule di zafferano 15 mg-/2 v die o placebo per 4 settimane (1.65-1.75 mg di crocina)

L'incremento delle funzioni sessuali non correlate al miglioramento dei sintomi depressivi

Funzione orgasmica

Desiderio sessuale

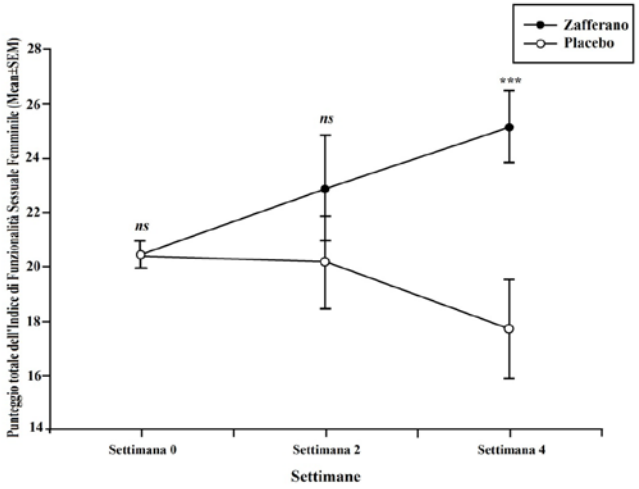
Appagamento generale

Saffron for treatment of fluoxetine-induced sexual dysfunction in women: randomized double-blind placebo-controlled study

L. Kashani et al.

Hum. Psychopharmacol Clin Exp 18 (2013): 54-60

Settimana	Gruppo placebo +Fluoxetina (mean±SD)	Gruppo zafferano +Fluoxetina (mean±SD)	Valore *p*
Dolore			
Settimana 2			0.040
Settimana 4			0.016
Lubrificazione			
Settimana 4			0.035
Eccitazione			
Settimana 4			0.028



Pz (n°38) tra 18-45 anni con MDD- DSM-IV in trattamento con fluoxetina- Indice Funzionalità sessuale femminile< 16

Fluoxetina 40 mg/day minimo 6 settimane pre-arruolamento

capsule di zafferano 15 mg/2 v die o placebo per 4 settimane (1.65-1.75 mg di crocina)

Desiderio -Orgasmo-Soddisfazione

J Evid Based Complementary Altern Med. 2015 Oct;20(4):283-6. doi: 10.1177/2156587215583756. Epub 2015 May 6.

Effects of a Topical Saffron (Crocus sativus L) Gel on Erectile Dysfunction in Diabetics: A Randomized, Parallel-Group, Double-Blind, Placebo-Controlled Trial.

Mohammadzadeh-Moghadam H[1], Nazari SM[2], Shamsa A[3], Kamalinejad M[4], Esmaeeli H[5], Asadpour AA[3], Khajavi A[6].

⊕ Author information

Abstract

Erectile dysfunction is a man's persistent or recurrent inability to achieve and maintain erection for a satisfactory sexual relationship. As diabetes is a major risk factor for erectile dysfunction, the prevalence of erectile dysfunction among diabetic men has been reported as 35% to 90%. This randomized, parallel-group, double-blind, placebo-controlled trial investigated the effects of a topical saffron (Crocus sativus L) gel on erectile dysfunction in diabetic men. Patients were randomly allocated to 2 equal groups (with 25 patients each). The intervention group was treated with topical saffron, and the control received a similar treatment with placebo. The 2 groups were assessed using the International Index of Erectile Function Questionnaire before the intervention and 1 month after the intervention. Compared to placebo, the prepared saffron gel could significantly improve erectile dysfunction in diabetic patients ($P < .001$). This preliminary evidence suggests that saffron can be considered as a treatment option for diabetic men with erectile dysfunction.

Table 2. The Scores of the Intervention and Control Groups in International Index of Erectile Function Questionnaire and Its Dimensions.

Parameter	Intervention Group (n = 25), Mean ± SD	Control Group (n = 25), Mean ± SD	*P* Value[a]
IIEF-15 score			*P* < .001
Pretrial	34.52 ± 4.07	36.44 ± 3.66	
Posttrial	44.32 ± 3.90	37.56 ± 3.68	
Erectile function			*P* < .001
Pretrial	12.92 ± 1.81	13.56 ± 1.67	
Posttrial	17.64 ± 1.87	13.88 ± 1.67	
Sexual desire			*P* < .001
Pretrial	6.08 ± 0.45	6.20 ± 0.45	
Posttrial	6.96 ± 0.38	6.32 ± 0.44	
Orgasmic function			*P* < .001
Pretrial	4.60 ± 0.71	5.12 ± 0.72	
Posttrial	5.56 ± 0.65	5.12 ± 0.72	
Intercourse satisfaction			*P* < .001
Pretrial	5.72 ± 0.85	6.20 ± 0.77	
Posttrial	7.56 ± 0.77	6.40 ± 0.78	
Overall satisfaction			*P* < .001
Pretrial	5.20 ± 0.58	5.36 ± 0.50	
Posttrial	6.60 ± 0.56	5.84 ± 0.52	

Abbreviation: IIEF-15, International Index of Erectile Function Questionnaire.
[a]Mann–Whitney *U* tests on the pre- and posttrial difference scores.

CROCUS SATIVUS E SINTOMI DEL TRATTO GENITO URINARIO

(IPERTROFIA PROSTATICA E DISFUNZIONI ERETTILI)

Crocus sativus estratto secco stigma	100 mg
Pinus Massoniana Lamb.estratto secco corteccia	120 mg
Serenoa Repens estratto oleoso frutto	320 mg

Serenoa repens estratto oleoso frutto del Saw palmetto.

Pinus Massoniana. L -estratto secco corteccia

COPYRIGHT© 2017 EDIZIONI MINERVA MEDICA

© 2016 EDIZIONI MINERVA MEDICA
Online version at http://www.minervamedica.it

Minerva Urologica e Nefrologica 2017 June;69(3):300-6
DOI: 10.23736/S0393-2249.16.02661-8

ORIGINAL ARTICLE

Efficacy of a formulation containing *Serenoa repens*, *Crocus sativus* and *Pinus massoniana* extracts in men with concomitant LUTS and erectile dysfunction

Giuseppe QUARTO [1] *, Arturo COLA [2], Sisto PERDONÀ [1]

[1]Unit of Urology, G. Pascale Foundation and Institute for Cancer Research and Care, Naples, Italy; [2]Private practice, Urocenter Urologia Andrologia, Naples, Italy

*Corresponding author: Giuseppe Quarto, Unit of Urology, G. Pascale Foundation and Institute for Cancer Research and Care, Via Semmola 1, Naples, Italy. E-mail: giuseppe.quarto@gmail.com

Pazienti (n° 140), età media 48 anni sottoposti a trattamento (90 g) e esami clinici/strumentali e questionari IPSS (Internatiolnal Prostatic Symptoms Score) e International Index of Erectile Function.

J Biol Regul Homeost Agents. 2017 Jul-Sep,;31(3):531-541.

Crocus sativus, Serenoa repens and Pinus massoniana extracts modulate inflammatory response in isolated rat prostate challenged with LPS.

Chiavaroli A[1], Recinella L[1], Ferrante C[1], Locatelli M[1], Carradori S[1], Macchione N[2], Zengin G[3], Leporini L[1], Leone S[1], Martinotti S[1], Brunetti L[1], Vacca M[1], Menghini L[1], Orlando G[1].

Author information

Abstract

Prostatitis is a common prostate disease that could be promoted by bacterial or non-bacterial infectious agents. In addition, inflammatory pathways involved in prostatitis have been increasingly studied, and herbal extracts endowed with anti-inflammatory effects are under investigation, individually or in combination, for their efficacy in alleviating the burden of inflammation, with possible improvements in symptoms. Serenoa repens (Serenoa), in combination with Crocus sativus (Crocus) and Pinus massoniana (Pinus), has previously shown to improve sexual function and limit urinary symptoms in patients suffering from concomitant erectile dysfunction and lower urinary tract symptoms. In this context, the aim of the present study is to evaluate the efficacy of Serenoa, Crocus and Pinus extracts, either alone or in combination, on immortalized prostate cells (PC3) and in an experimental model of bacterial prostatitis constituted by ex vivo prostate specimens challenged with lipopolysaccharide (LPS). We found that the tested extracts were able to reduce ROS production by PC3 cells and NFkB and PGE2 activity in prostate specimens challenged with LPS. In addition, the pharmacological association of the extracts displayed synergistic effects indicating a rational use of the mixture of the tested extracts as a novel anti-oxidant and anti-inflammatory formulation in bacterial prostatitis. Finally, we performed analytical and in vitro evaluation to better characterize the phytochemical profile and the mechanism of action of selected secondary metabolites.

KEYWORDS: Serenoa repens; Pinus massoniana Lamb.; Crocus sativus L.; PGE2; NFkB; ROS; viability

GRAZIE!