

# Saffron

60 vegetable capsules / Code FE3387



Saffron is a spice derived from the dried stigmas and styles of the *Crocus sativus* flower. The main bioactive compounds in saffron stigmas are: crocins, crocetin, picrocrocin and safranal. In addition, saffron also contains other active components such as carotenoids, zeaxanthin, lycopene, beta-carotene and polysaccharides. Saffron, in addition to its culinary use, has been used in traditional medicine, among other uses, to promote a healthy mood balance.

New Roots Herbal Saffron provides clinically studied saffron (*Crocus sativus*) stigmas extract (affron™) of the highest quality. Our saffron extract is standardised to 3.5% Lepticrosalides®, by HPLC. Lepticrosalides® is a patented combination of the active substances in saffron: crocin, safranal and picrocrocin.



The quality of affron® lies in its origins, cultivated in fields in Castilla-La Mancha, the selection of the *Crocus sativus* L. species and the exclusive patented low-temperature extraction process that allows the bioactive compounds to be preserved at a minimal energy cost.

**HEALTH CLAIMS (EU Regulation 432/2012):** *Crocus sativus* contributes to emotional balance, helps to support the relaxation and to maintain a positive mood.

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**FORMAT:** 60 vegetable capsules

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## FORMULA

**Ingredients:** Bulking agent (microcrystalline cellulose), saffron stigma extract (*Crocus sativus*), anticaking agent (silicon dioxide and magnesium salts of fatty acids), vegetable capsule (glazing agent: hydroxypropylmethylcellulose; humectant: purified water).

### Nutritional information:

	2 caps. (534 mg)
Saffron ( <i>Crocus sativus</i> ) (3,5% Lepticrosalides®)*	500 mg

\*providing crocins and safranal.

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**Cautions:** Do not use if you are pregnant or breastfeeding, if you are taking anticoagulants or if you have a coagulation disorder. Consult a healthcare practitioner prior to use this product if you are taking antidepressants or if you have a psychological disorder and/or condition such as anxiety or depression.

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**Recommended daily dose:** 1 capsule twice daily. Consult a healthcare practitioner for use beyond 12 weeks. Do not exceed the stated recommended daily dose

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### Indications and uses:

- Helps in the management of depression and anxiety. Also in adolescents (12-16 years) and in women with menopause.
- Occasional insomnia.
- Improves cognitive function in Alzheimer's disease.
- Improves sexual function in men and women.
- Relieves symptoms of premenstrual syndrome.
- Supports eye health.
- It may be helpful as an adjuvant in cancer therapy and fibromyalgia.

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### DETAILS:

Saffron has been used in traditional medicine as an antidepressant, anticonvulsant, analgesic, aphrodisiac, antispasmodic and expectorant. A large number of preclinical and clinical studies suggest anti-inflammatory, antioxidant, anti-platelet and anti-cancer properties of saffron. In particular, evidence and randomised clinical studies support the potential benefits of saffron in the management of depression, Alzheimer's disease, sexual function in men and women, premenstrual syndrome, glaucoma, macular degeneration, and as an adjunct to cancer therapy and fibromyalgia.

## **INGREDIENTS:**

**SAFFRON:** it is a spice derived from the dried stigmas and styles of the violet saffron flower (*Crocus sativus L.*). The four main bioactive compounds are found in saffron stigmas: crocins (a family of six monoglycosyl or diglycosyl polyene esters), crocetin (a natural carotenoid precursor of the dicarboxylic acid crocin), picrocrocin (a monoterpene glycoside precursor of safranal and a degradation product of zeaxanthin) and safranal. These compounds contribute to the colour, flavour and aroma of saffron and are recommended for their health-promoting properties. In addition, saffron also contains other active components, such as carotenoids, zeaxanthin, lycopene, beta-carotene and polysaccharides <sup>(1)</sup>.

Saffron has been used in traditional medicine as an antidepressant, anticonvulsant, analgesic, aphrodisiac, antispasmodic and expectorant and more recent pharmacological studies suggest anti-cancer, anti-inflammatory, antioxidant and antiplatelet properties of saffron. Several human clinical trials have recently demonstrated the potential benefits of saffron in the management of depression and anxiety, Alzheimer's disease, glaucoma, macular degeneration, dysmenorrhoea and erectile dysfunction <sup>(1)</sup>.

### Depression and anxiety

One of the most studied aspects of saffron is its role in the treatment of depression and anxiety. Studies on saffron range from major depressive disorders (MDD) to the treatment of mild to moderate depression. A systematic review combining data from 12 clinical trials evaluating the effectiveness of saffron on psychological and behavioural aspects showed that saffron can improve the symptoms and effects of depression, sexual dysfunction and stress-related eating behaviours <sup>(2)</sup>.

Another meta-analysis reviewing data from six randomised placebo-controlled trials concluded that saffron had great benefits, and compared to antidepressant drugs, showed similar antidepressant efficacy. The antidepressant effects of saffron are potentially due to its serotonergic, antioxidant, anti-inflammatory, neuroendocrine and neuroprotective effects <sup>(1)</sup>. In a study of 60 patients with anxiety and depression, they randomly received either a 50mg capsule of saffron (dried stigma) or a placebo capsule twice daily for 12 weeks. Saffron supplementation significantly improved symptoms compared to placebo, with almost no side effects <sup>(3)</sup>. In a randomised, double-blind, placebo-controlled clinical pilot study, the efficacy of 30mg/day of crocin as an add-on treatment (together with an SSRI fluoxetine/sertraline/citalopram) was studied for 4 weeks in 40 patients with major depressive disorder. Crocin combined with SSRIs showed a significant reduction in depression <sup>(4)</sup>.

In a meta-analysis by Hausenblas et al, it was shown that saffron supplementation significantly reduced depressive symptoms compared to placebo and that saffron supplementation was equally effective as an antidepressant therapy in reducing depressive symptoms <sup>(5)</sup>. Other studies have also corroborated the complementary usefulness of saffron with antidepressant drugs (imipramine and fluoxetine), especially in patients with mild to moderate depression, including postpartum depression and in patients after percutaneous coronary intervention <sup>(6,7)</sup>.

Administration of saffron and its components is known to increase glutamate and dopamine levels in the brain in a dose-dependent manner. Saffron and its components also interact with the opioid system to help control withdrawal symptoms<sup>(8)</sup>.

In a randomised, double-blind, placebo-controlled study with 128 patients, the intake of 28mg/day of affron® for 4 weeks significantly improved mood disorders, depression, fatigue and confusion. The intake of affron® was well tolerated and no side effects were associated<sup>(9)</sup>.

In another randomised, double-blind, placebo-controlled study in 68 adolescents (12-16 years), administration of 28mg/day of affron® for 8 weeks improved anxiety and mild to moderate depressive symptoms in adolescents<sup>(10)</sup>.

In a randomised, double-blind, placebo-controlled study of 139 patients, administration of 28mg/day of affron® for 8 weeks was associated with a reduction in side effects associated with antidepressant intake and an increase in antidepressant effects in adults taking antidepressant medication <sup>(11)</sup>.

The combination of curcumin (250mg) and saffron (15mg of patented affron® extract) administered twice daily are effective in reducing depressive and anxiolytic symptoms in people with major depressive disorder according to a randomised, double-blind, placebo-controlled study of 123 patients <sup>(12)</sup>.

Saffron extract (affron®) administered for 12 weeks at a dose of 14mg twice daily was associated with improvements in psychological symptoms (anxiety and depression) in perimenopausal women. This randomised,

double-blind, placebo-controlled study involved 86 women (40-60 years) <sup>(13)</sup>.

## Occasional insomnia

Taking Affron® for 28 days was associated with greater improvements in sleep quality (most of the changes occurring in the first 7 days of treatment), restful sleep, with fewer awakenings after sleep onset and increased wakefulness upon awakening. The intake of affron® was well tolerated and without side effects <sup>(14)</sup>.

A subsequent clinical trial studied the effects on sleep of taking a single dose 1 hour before bedtime. In this randomised, double-blind, placebo-controlled study of 120 adults with insomnia, placebo, 14mg or 28mg of affron® was administered as a single dose before bedtime for 4 weeks. Compared to the placebo, affron® supplementation was associated with greater improvements in sleep quality, mood after awakening, the "Insomnia Symptom Questionnaire" (ISQ) total score and ISQ insomnia ratings. Improvements in sleep were similar for the two doses of saffron administered. Compared to placebo, saffron supplementation was associated with increases in melatonin concentrations at night, but did not affect cortisol at night. Supplementation with affron® was well tolerated and no significant adverse effects were detected <sup>(15)</sup>.

In a recent study, affron® supplementation in rats demonstrated its ability to promote the synthesis of enzymes that convert tryptophan into melatonin while inhibiting enzymes that convert tryptophan into quinurenine, a compound that may be associated with stress and other disorders. These effects are possibly through its antioxidant and anti-inflammatory properties <sup>(16)</sup>.

## Cognitive function in Alzheimer's disease

Clinical studies have been conducted to evaluate the potential of saffron in the treatment and management of Alzheimer's disease (AD). It has been suggested that saffron could potentially inhibit the aggregation and deposit of beta-amyloid in the human brain and could therefore be useful in AD. In a 16-week double-blind study in 46 patients with mild to moderate AD, administration of 30mg/day of saffron extract (0.26-0.30mg of safranal and 3.70-3.50mg of crocin) produced a significant improvement in cognitive function over placebo and no adverse effects were reported <sup>(17)</sup>. In another 22-week, randomised, double-blind, multicentre study, 54 adults (aged 55 years and older) received 30mg/day of saffron extract (0.26-0.30mg of safranal and 3.70-3.50mg of crocin) or donepezil 10mg/day. The results of the study showed that saffron extract had similar efficacy to donepezil in the treatment of mild to moderate AD <sup>(18)</sup>.

## Sexual function

Saffron has traditionally been used to promote sexual function and several clinical studies support its clinical utility in the treatment of sexual dysfunction. In a randomised, double-blind, placebo-controlled study, researchers evaluated the safety and efficacy of saffron in selective serotonin reuptake inhibitor-induced sexual dysfunction in women. In this study, 38 women with major depression who were stabilised on fluoxetine 40mg/day for at least 6 weeks and who had experienced a subjective sense of sexual dysfunction were randomly assigned to receive saffron extract (30mg/day), (0.26-0.30mg of safranal and 3.70-3.50mg of crocin) or placebo for 4 weeks. The female sexual function index (FSFI) was used as a measure at the start of the study, at week 2 and at week 4. By the end of the fourth week, patients in the saffron group had experienced significantly greater improvement in the total FSFI, arousal, lubrication and pain aspects of FSFI, but not in the desire, satisfaction or orgasm aspects <sup>(19)</sup>.

In another 4-week, randomised, double-blind, placebo-controlled study, 36 male patients with MDD whose depressive symptoms had been stabilised on fluoxetine and who had subjective complaints of sexual impairment were randomly assigned to receive either saffron extract (15mg twice daily), (0.26-0.30mg of safranal and 3.70-3.50mg of crocin) or placebo. The International Index of Erectile Function scale was used to assess sexual function at start of the study and at weeks 2 and 4. The results of the study showed that saffron extract significantly improved erectile function and sexual satisfaction compared to placebo. These results suggest that saffron could be used effectively for the treatment of fluoxetine-related erectile dysfunction (20). Interesting results from another open-label pilot study in 20 male patients with erectile dysfunction who were supplemented with a tablet containing 200mg of saffron extract (containing 3.9mg of crocin and 0.05mg of safranal) showed a significant improvement in sexual function, with an increased number and duration of erectile events even after taking it for only ten days (21). The study had some limitations, including lack of double-blinding, lack of control and a small sample size. However, the results suggest a potential role for saffron in erectile dysfunction and future well-controlled clinical trials are needed to confirm the observations of this pilot study.

## Premenstrual syndrome

A double-blind, placebo-controlled study in women aged 20-45 years with regular menstrual cycles and premenstrual syndrome (PMS) symptoms were randomly assigned to receive saffron extract capsules of 30mg/day (15mg twice daily) or placebo for two menstrual cycles. Women given saffron extract experienced significant relief of PMS symptoms in cycles 3 and 4, as well as a reduction in the Hamilton depression rating scale. These results are encouraging in supporting the use of saffron as an alternative treatment for premenstrual syndrome. However, further studies are needed to confirm these findings <sup>(22)</sup>.

## Eye health

Several studies support the beneficial effects of saffron on eye health. In a prospective, comparative, randomised pilot intervention study, the clinical use of saffron as an adjunct to improve intraocular pressure (IOP) in the eyes of patients with primary open-angle glaucoma (POAG) was evaluated. In this study, 34 patients with clinically stable POAG receiving treatment with timolol and dorzolamide eye drops were randomised to receive 30mg/day of oral saffron aqueous extract (17 patients) or placebo (17 patients) for one month as an adjunct. The researchers observed that IOP decreased significantly compared to placebo after 3 weeks of treatment. Even at four weeks, IOP was still significantly lower in the group taking saffron. Notably, none of the patients experienced side effects during the study <sup>(23)</sup>. The efficacy of saffron in improving early age-related macular degeneration (AMD) was studied in a study in which 25 patients with AMD were randomly assigned to receive either 20mg/day oral saffron stigma or placebo for a period of 3 months. Saffron administration was found to improve retinal flicker sensitivity in early AMD <sup>(24)</sup>. These beneficial properties could be attributed to the various carotenoids such as zeaxanthin and lycopene present in saffron.

## Cancer

Several pre-clinical studies have suggested the potential use of saffron in the adjunctive treatment of cancer. Studies in animal models and with human tumour cell lines have demonstrated their anti-tumour and cancer-preventive properties <sup>(25)</sup>. A small randomised, double-blind, placebo-controlled clinical trial in 13 patients with liver metastases in which, along with the standard chemotherapy regimen, patients in one group were administered a saffron capsule (50mg twice daily) during chemotherapy periods, while patients in the other group received placebo. The results of the study showed that in the saffron-treated group, two patients showed a partial and complete response (50%), while no response was observed in the placebo group. In addition, there were two deaths in the placebo group and one in the saffron group. However, due to the low number of participants in the study, further research with a larger sample size is needed <sup>(26)</sup>.

## Fibromyalgia

In one study, 54 fibromyalgia (FM) patients, aged 18-60 years, were randomly assigned to take one capsule containing 30mg of duloxetine or one capsule containing 15mg of saffron extract (0.13-0.15mg of safranal and 1.65-1.75mg of crocin) daily for the first week. Patients then took two capsules of duloxetine or saffron a day for the second week and continued at that dose for a total of 2 months. Results showed changes in Hamilton Rating Scale for Depression score, Fibromyalgia Impact Questionnaire score and Brief Pain Inventory pain score from the start of the study to eight weeks. Secondary outcomes were changes in VAS pain score, fatigue assessments, and hospital anxiety and depression scores from the start of the study to eight weeks. The mean scores for all outcome assessments improved after eight weeks in both the saffron and duloxetine groups and were not statistically different from each other. There was no significant difference in the number of adverse events between the groups. These results certainly provide good preliminary evidence of a measurable level of improvement in fibromyalgia symptoms. The lack of a placebo group, small sample size and shorter study duration were weaknesses of the study, but the results are encouraging for considering saffron as part of a treatment strategy for fibromyalgia sufferers <sup>(27)</sup>.

## Summary of clinical trials of the patented affron® extract:

<b>Mood, occasional stress, tension and anxiety</b>			
<b>Design</b>	<b>Dose</b>	<b>Result</b>	<b>Ref.</b>
Randomised, double-blind, placebo-controlled study of 128 patients with low mood but no diagnosis of depression.	Affron® 11 or 14mg twice daily. 4 weeks	Significant decrease in negative mood and symptoms related to stress and anxiety at a dose of 28mg/day. None observed with the 22mg/day dose.	9
Randomised, double-blind, placebo-controlled study of 68 adolescents (12-16 years) with mild to moderate anxiety or depressive symptoms.	Affron® 14mg twice daily. 8 weeks	Improvement of anxiety and depression symptoms in young people with mild to moderate symptoms.	10
Randomised, double-blind, placebo-controlled study of 139 adults with persistent depression treated with an antidepressant.	Affron® 14mg twice daily. 8 weeks	Reduction of side effects associated with antidepressant intake and an increase in antidepressant effects in adults treated with antidepressant medication.	11
Randomised, double-blind, placebo-controlled study of 123 adults with major depressive disorder.	Affron® 15mg + 250mg of curcumin twice daily. 12 weeks	The combination of curcumin and saffron was effective in reducing depressive and anxiolytic symptoms in people with major depressive disorder.	12
Randomised, double-blind, placebo-controlled study of 86 perimenopausal women.	Affron® 14mg twice daily. 12 weeks	Improves psychological symptoms of menopause, depression and anxiety.	13
<b>Occasional insomnia</b>			
Randomised, double-blind, placebo-controlled study of 63 adults with insomnia.	Affron® 14mg twice daily. 4 weeks	Saffron intake was associated with improvements in sleep quality in adults.	14
Randomised, double-blind, placebo-controlled study of 120 adults with insomnia.	Affron® 14mg or 28mg as a single dose 1 hour before bedtime. 4 weeks	A single dose of affron® 1 hour before bedtime showed a significant improvement in sleep quality compared to placebo. Increases melatonin levels.	15

A study of the standardised and patented affron® extract demonstrated its rapid absorption and high oral bioavailability. Furthermore, with a 28mg dose of affron®, the blood crocetin values obtained were similar to values obtained in other studies with higher doses of purified crocetin <sup>(28)</sup>.

## REFERENCES:

- 1) Lopresti, Adrian L., and Peter D. Drummond. "Saffron (*Crocus sativus*) for depression: a systematic review of clinical studies and examination of underlying antidepressant mechanisms of action." *Human Psychopharmacology: Clinical and Experimental* 29.6 (2014): 517-527.
- 2) Hausenblas, Heather Ann, et al. "A systematic review of randomized controlled trials examining the effectiveness of saffron (*Crocus sativus* L.) on psychological and behavioral outcomes." *Journal of integrative medicine* 13.4 (2015): 231-240.
- 3) Mazidi, Mohsen, et al. "A double-blind, randomized and placebo-controlled trial of Saffron (*Crocus sativus* L.) in the treatment of anxiety and depression." *Journal of Complementary and Integrative Medicine* 13.2 (2016): 195-199.
- 4) Talaei, Ali, et al. "Crocic, the main active saffron constituent, as an adjunctive treatment in major depressive disorder: A randomized, double-blind, placebo-controlled, pilot clinical trial." *Journal of affective disorders* 174 (2015): 51-56.
- 5) Hausenblas, Heather Ann, et al. "Saffron (*Crocus sativus* L.) and major depressive disorder: a meta-analysis of randomized clinical trials." *Journal of integrative medicine* 11.6 (2013): 377-383.
- 6) Kashani, Ladan, et al. "Comparison of saffron versus fluoxetine in treatment of mild to moderate postpartum depression: a double-blind, randomized clinical trial." *Pharmacopsychiatry* 50.02 (2017): 64-68.
- 7) Shahmansouri, Nazila, et al. "A randomized, double-blind, clinical trial comparing the efficacy and safety of *Crocus sativus* L. with fluoxetine for improving mild to moderate depression in post percutaneous coronary intervention patients." *Journal of Affective disorders* 155 (2014): 216-222.
- 8) Khazdair, Mohammad Reza, et al. "The effects of *Crocus sativus* (saffron) and its constituents on nervous system: A review." *Avicenna journal of phytomedicine* 5.5 (2015): 376.
- 9) Kell, Graham, et al. "Affron® a novel saffron extract (*Crocus sativus* L.) improves mood in healthy adults over 4 weeks in a double-blind, parallel, randomized, placebo-controlled clinical trial." *Complementary Therapies in Medicine* 33 (2017): 58-64.
- 10) Lopresti, Adrian L., et al. "Affron®, a standardised extract from saffron (*Crocus sativus* L.) for the treatment of youth anxiety and depressive symptoms: a randomised, double-blind, placebo-controlled study." *Journal of affective disorders* 232 (2018): 349-357.
- 11) Lopresti, Adrian L., et al. "Efficacy of a standardised saffron extract (affron®) as an add-on to antidepressant medication for the treatment of persistent depressive symptoms in adults: A randomised, double-blind, placebo-controlled study." *Journal of Psychopharmacology* 33.11 (2019): 1415-1427.
- 12) Lopresti, Adrian L., and Peter D. Drummond. "Efficacy of curcumin, and a saffron/curcumin combination for the treatment of major depression: A randomised, double-blind, placebo-controlled study." *Journal of affective disorders* 207 (2017): 188-196.
- 13) Lopresti, Adrian L., and Stephen J. Smith. "The Effects of a Saffron Extract (affron®) on Menopausal Symptoms in Women during Perimenopause: A Randomised, Double-Blind, Placebo-Controlled Study." *Journal of Menopausal Medicine* 27.2 (2021): 66.
- 14) Lopresti, Adrian L., et al. "Effects of saffron on sleep quality in healthy adults with self-reported poor sleep: a randomized, double-blind, placebo-controlled trial." *Journal of Clinical Sleep Medicine* 16.6 (2020): 937-947.
- 15) Lopresti, Adrian L., Stephen J. Smith, and Peter D. Drummond. "An investigation into an evening intake of a saffron extract (affron®) on sleep quality, cortisol, and melatonin concentrations in adults with poor sleep: a randomised, double-blind, placebo-controlled, multi-dose study." *Sleep Medicine* 86 (2021): 7-18.
- 16) De la Fuente Muñoz, Mario, et al. "Effects of Supplementation with the Standardized Extract of Saffron (affron®) on the Kynurenine Pathway and Melatonin Synthesis in Rats." *Antioxidants* 12.8 (2023): 1619.
- 17) Akhondzadeh, Shahin, et al. "Saffron in the treatment of patients with mild to moderate Alzheimer's disease: a 16-week, randomized and placebo-controlled trial." *Journal of clinical pharmacy and therapeutics* 35.5 (2010): 581-588.
- 18) Akhondzadeh, Shahin, et al. "A 22-week, multicenter, randomized, double-blind controlled trial of *Crocus sativus* in the treatment of mild-to-moderate Alzheimer's disease." *Psychopharmacology* 207 (2010): 637-643.
- 19) Kashani, Ladan, et al. "Saffron for treatment of fluoxetine-induced sexual dysfunction in women: randomized double-blind placebo-controlled study." *Human Psychopharmacology: Clinical and Experimental* 28.1 (2013): 54-60.
- 20) Modabbarnia, Amirhossein, et al. "Effect of saffron on fluoxetine-induced sexual impairment in men: randomized double-blind placebo-controlled trial." *Psychopharmacology* 223 (2012): 381-388.
- 21) Shamsa, Ali, et al. "Evaluation of *Crocus sativus* L. (saffron) on male erectile dysfunction: a pilot study." *Phytomedicine* 16.8 (2009): 690-693.
- 22) Agha-Hosseini, Marzieh, et al. "*Crocus sativus* L. (saffron) in the treatment of premenstrual syndrome: a double-blind, randomised and placebo-controlled trial." *BJOG: An International Journal of Obstetrics & Gynaecology* 115.4 (2008): 515-519.
- 23) Jabbarpoor Bonyadi, Mohammad Hossein, Shahin Yazdani, and Saeed Saadat. "The ocular hypotensive effect of saffron extract in primary open angle glaucoma: a pilot study." *BMC complementary and alternative medicine* 14.1 (2014): 1-6.
- 24) Falsini, Benedetto, et al. "Influence of saffron supplementation on retinal flicker sensitivity in early age-related macular degeneration." *Investigative ophthalmology & visual science* 51.12 (2010): 6118-6124.
- 25) Samarghandian, Saeed, and Abasalt Borji. "Anticarcinogenic effect of saffron (*Crocus sativus* L.) and its ingredients." *Pharmacognosy research* 6.2 (2014): 99.
- 26) Hosseini, Azar, et al. "Effect of saffron on liver metastases in patients suffering from cancers with liver metastases: A randomized, double blind, placebo-controlled clinical trial." *Avicenna Journal of Phytomedicine* 5.5 (2015): 434.
- 27) Shakiba, Mansoor, et al. "Saffron (*Crocus sativus*) versus duloxetine for treatment of patients with fibromyalgia: A randomized double-blind clinical trial." *Avicenna journal of phytomedicine* 8.6 (2018): 513.
- 28) Almodóvar, Paula, et al. "Bioaccessibility and pharmacokinetics of a commercial saffron (*Crocus sativus* L.) extract." *Evidence-Based Complementary and Alternative Medicine* 2020 (2020).