

ORGANIC
CERTIFICATION
COMING
SOON



1st SAFFRON EXTRACT (*CROCUS SATIVUS L.*)
FOR MOOD IMPROVEMENT¹⁻⁵

affron[®]

Robust dose-response
evidence¹

PHARM Δ CTIVE
BIOTECH PRODUCTS

Features

- 100 % Spanish saffron (*Crocus sativus* L.). DNA certified.
- Standardized to $\geq 3.5\%$ Lepticrosalides[®] by HPLC.
- High tolerated: No side effects have been reported in +400 participants¹⁻⁵.
- High stability.
- 100% vertically integrated.
- Halal and Kosher certified.



One million people worldwide benefit from affron[®] to maintain a positive mood and mental balance every day.

Differentiated value

- International Patent WO2017182688A1.
- 5 clinical studies¹⁻⁵.
- Unique dose-response study in 128 healthy adults¹.
- 1st saffron extract clinically studied in adolescents³.
- Significant effect in 2 weeks⁵.
- Proven bioavailability (pharmacokinetics study)⁵.
- Rapid absorption in 1 hour⁵.
- Lowest dosage: 28 mg/day.
- Made in Spain. Own fields and extraction plant.
- State of the art proprietary production process.

BEST SAFEST NATURAL ALTERNATIVE TO

Maintain a positive mood¹⁻⁴

Induce relaxation, alleviate anxiety, stress and tension reduction¹⁻⁴

Improve sleep quality⁶

Bioactive compounds: Lepticrosalides[®]

affron[®] is standardized to $\geq 3.5\%$ Lepticrosalides[®], a complex of bioactive compounds responsible for the beneficial and organoleptic properties of affron[®]. They have shown to improve mood in healthy consumers with stress, anxiety or depression symptoms¹⁻⁴.

They are analysed by the high-reliable technique HPLC, which is more precise than the traditional ISO3632 (2003), and which distinguishes between molecular isomers and enables detection of adulteration.

affron[®] improves mood

In a randomized, double-blind, placebo-controlled study (N=128) affron[®] intake of 28mg/day for 4 weeks, significantly improved mood disorders, such as tension, anger, depression, fatigue and confusion¹.

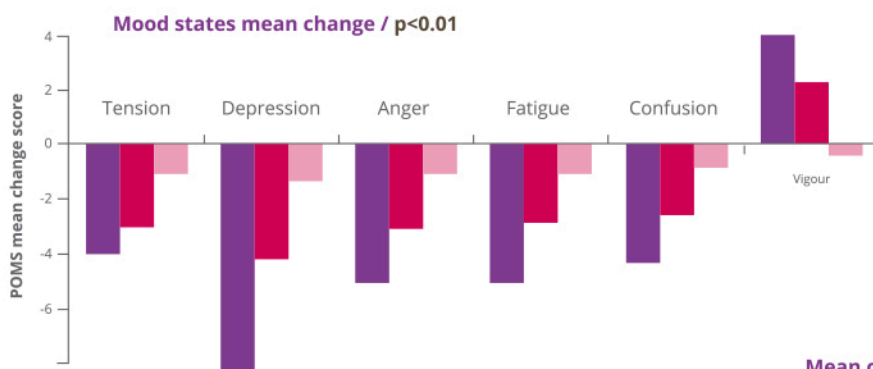


Figure 1: POMS "Profile of Mood States".

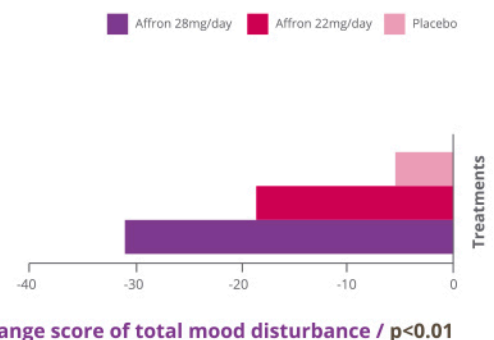


Figure 2: Mean change score of total mood disturbance after 4 weeks of treatment.

affron® evidence in adolescents

In a randomised, double-blind, placebo-controlled study (N=68), the administration of **affron®** for 8 weeks improved anxiety and depressive symptoms in adolescents (12-16 years old) with mild-to-moderate symptoms, from the perspective of the adolescent³.

Revised children's anxiety and depression scale (youth version)

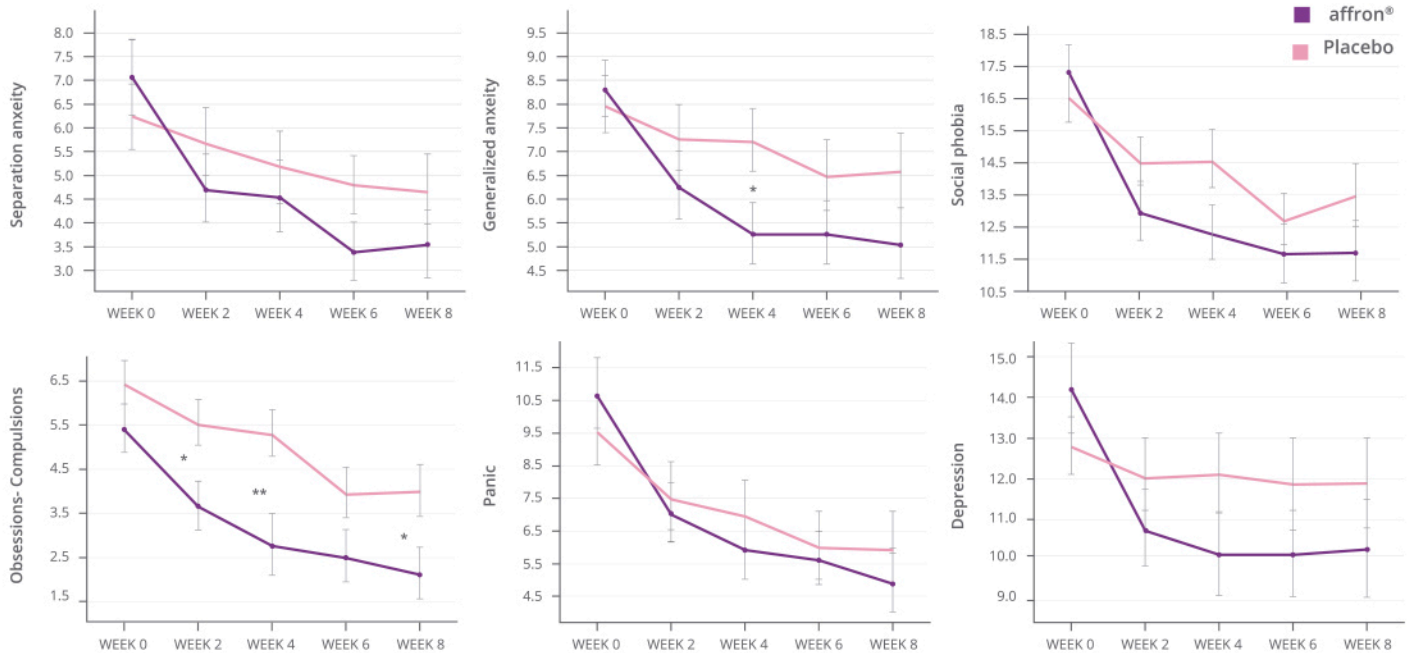


Figure 3: Change in RCADS (Revised Children's Anxiety and Depression Scale). Youth raw scores over 8-week intervention. (*) $p < 0.05$; (**) $p < 0.01$.

Safranal improves sleep quality

Safranal, one of the main bioactive compounds of **affron®**, showed an improvement of the quality of sleep through the increase of NREM sleep duration (Non-Rapid Eye Movement), the decrease of NREM sleep latency, and the enhancement of delta power activity of NREM sleep, *in vivo*⁶.

Pharmacokinetics of affron®

After single intake of **affron®**, crocin isomers are rapidly transformed into crocetin, whose maximum serum levels are reached within 60-90 min. This suggests a faster action than other antioxidant molecules (such as zeaxanthin, lutein or β -carotene)⁵.

Main mechanism of action

affron® acts mainly at two levels:

- Reuptake inhibition of dopamine, norepinephrine and serotonin, increasing the concentrations of these neurotransmitters in the synaptic cleft of neurons, thereby improving mood balance^{7,8}.
- Antioxidant effect against the excessive oxidative stress produced during anxiety or stress processes in the central nervous system^{9,10}.

References

(1) Kell G., et al. *Complement Ther Med*. 2017 Aug; 33:58-64. (2) Lopresti AL., et al. *J Affect Disord*. 2017 Jan 1; 207:188-196. (3) Lopresti AL., et al. *J Affect Disord*. 2018 May; 232:349-357. (4) Lopresti AL., et al. 2019. *Pending to publish*; (5) Almodovar P., et al. *Oral communication*. Presented at 3rd W. Congr. on Nutr., Diet. and Nutra. 2019, Prague, Czech Republic. (6) Liu Z., et al. *CNS Neurosci Ther*. 2012 Aug; 18(8):623-30. (7) Hosseinzadeh H., et al. *Phytother Res*. 2009 Jun; 23(6):768-74. (8) Georgiadou G., et al. *Neurosci Lett*. 2012 Oct; 18;528(1):27-30. (9) Mehri S., et al. *Iran J Basic Med Sci*. 2015 Sep; 18(9): 902-908. (10) Oruc S., et al. *Life Sci*. 2016 Jun; 1;154:79-86.

Botanical info

Botanical name: *Crocus sativus* L.

Family: *Iridaceae*.

Common name: Saffron.

Part of the plant: Stigma.

Recommended daily dose

28 mg/day.

Other info

Shelf life: Three years*.

Non-GMO. Non-Irradiated.

MOQ: 1 Kg.

Water-soluble.

Multiple applications. Accurate for food matrices.



*When stored at room temperature, sheltered from light and moisture.

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