










# THE EXTRACT THAT MATCHES THE SCIENCE

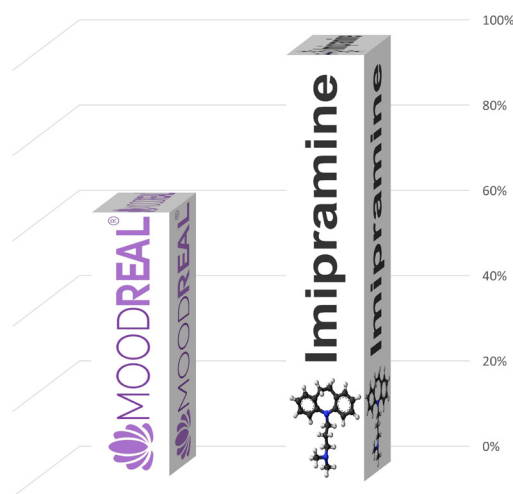


## MOODREAL®

-  **Original patent**, the one to which most of other patents are attached
-  100% **Iranian saffron**, from the **Sargol** vintage, free of any adulteration and dyes
-  **Internal study**: Serotonin Reuptake Inhibition equivalent to 63% of Imipramine
-  Process that **preserves** its active ingredients and its natural composition
-  **Water ethanolic** extract, as per most of the **clinical studies** and **EFSA** claims
-  From the **biggest extractor of Saffron in Europe** (excl. culinary use)
-  The **whole profile** mentioned in the main scientific data, without marketing or fancy names of its molecules or groups of molecules
-  **EFSA** (pending) : Positive mood, Emotional balance, Promote relaxation
-  Halal, Kosher, Vegan, Produced in France

### Iranian saffron, Sargol vintage

Because of its other branded and patented product Satiereal®, Inoreal is a very important player in the saffron market - undoubtedly the leading European producer for food supplements - and Saffron extracts. Based on this experience and their preferred access to the Sargol vintage from Iranian saffron, Inoreal has developed Moodreal®, the extract that provides safranal (2%) as well as crocin and picrocrocin.



### Tested vs. Imipramine

MOODREAL® showed an inhibition potency of Serotonin re-uptake equivalent to 63% of Imipramine, the standard SSRI used as an antidepressive medication.

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Depression is a state of low mood and aversion to activity, and the most common mental disease – close to 300 millions people of all ages suffer from depressions. Depressed mood is also often associated with oxidative stress, inflammation, immune deficiency, neurotransmitters disruption, etc... Conventional antidepressants for depression, anxiety and neurodegenerative diseases are tricyclic antidepressants (TCA) such as Imipramine (Tofranil®), serotonin noradrenaline reuptake inhibitors (SNRIs) and selective serotonin reuptake inhibitors (SSRI) such as Fluoxetine (Prozac®, Sarafem®). *Crocus sativus* - the saffron - is a well-known spice for its use in culinary and in traditional medicine since antiquity. Numbers of studies and publications have demonstrated the effects of saffron and saffron extract on mental health and mood as well as on other numerous human diseases.

## Treatment of mild to moderate depression

Moodreal® matches exactly the extracts described in studies that most players refer to, including those describing activity against stress and depression, versus imipramine and fluoxetine (ie. Prozac®, etc....

For example, published clinical studies confirm that:

- The effectiveness of hydroethanolic saffron extract (15mg x 2 / d saffron ext. >2% safranal) is similar to fluoxetine (Prozac®, 20mg / d) - 6 weeks, 40 adults, depression scoring >18<sup>(1)</sup>
- In an other study (6 weeks, 30 adults, depression scoring >18), hydroethanolic saffron extract (10mg x 3 / d saffron ext. >2% safranal) is as efficient as the tricyclic antidepressant Imipramine (Tofranil®, 100 mg/d ), without any side effects<sup>(3)</sup>.
- Iranian Saffron Sargol significantly relieves anxiety and depressive symptoms, at a dose of 30 mg / day and within one week<sup>(4)</sup>, and again in 2019 on 57 obese adults (Depression scoring +/- 22 Beck Depression).

## Safety

**Acute Toxicity** : safe LD50 > 5g/kg body weight

**Mutagenicity** (Ames test) : Non mutagen

**Tolerance** : Well tolerated no serious undesirable events

**Blood and urinary data** during clinical trials:

- No change in glucose, bilirubin, leukocytes, RBCs, nitrites, protein.
- No modification of blood cholesterol, liver enzymes, renal constants

**Regulatory status:** Notified to most of the EU National authorities (EU), Self affirmed GRAS acknowledge by a Lawyer (US), NPN Number (CANADA), TGA registered (AUSTRALIA).

**Contraindications** : None well established.

## From Saffron

**Moodreal® is extracted from Sargol Saffron Stigmas**, using water ethanolic process of extraction as per the extracts described in the science and the studies. Saffron is a perennial herbaceous plant, planted between July and September to harvest the flowers between October and December - 200,000 flowers are needed to get 1 kg of stigmas. The life of flowers is ephemeral (48h max), so they must be harvested daily - preferably in the morning when they are still closed. As the flowering stage varies, it is not possible to make an industrial harvest, and it has to be done by hand.

Before starting the extraction, the saffron goes through a **set of internal controls**, including botanical identification (Ph Eur), the dosage of markers (bio-actives) according to the ISO3632 standard, and the control of the total absence of addition of dyes by an analysis on each batch.

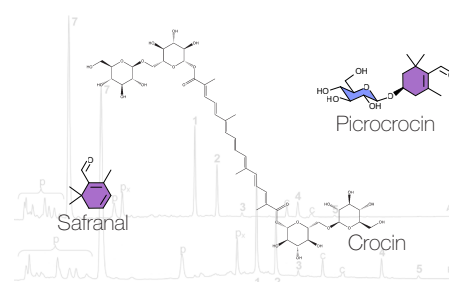
The process preserves its active ingredients and its natural composition.

## Actives

Moodreal® is not offered with marketing or fancy names to name its molecules or groups of molecules, as it corresponds to the natural extract mentioned in the scientific data.

Moodreal® contains a combination of Safranal (aroma, less bitter), Crocin (carotenoid dye, golden yellow-orange), Picrocrocin (flavor, bitter glucoside, a truncated version of the carotenoid zeaxanthin, can be transformed to Safranal by aglyconation) and other isomers found in the stigmas such as crocetin, a saffron carotenoid also referred to other properties<sup>(2)</sup>.

Those bioactive compounds are known to help to improve mood.



## Moodreal® a potent SRI, studied versus Imipramine

Moodreal® showed an inhibition potency of Serotonin re-uptake equivalent to 63% of Imipramine (TOFRANIL® a "golden standard" Selective Serotonin Reuptake Inhibitor (SSRI), used as antidepressive medication and considered as the reference compound in inhibiting 100% of Serotonin reuptake. An inhibition over 50% of Serotonin reuptake in this test that demonstrates a significant effects of SSRI.

## Dosing and Claims

30mg of Moodreal® [EU health claims [ID 2038] : 30mg/day of extract (or the equivalent of 0,5-1g powder) : "Contributes to emotional balance", "Helps to support relaxation", "Helps to maintain a positive".

Other claims [ID 2247, ID 2251]

### Serotonin Reuptake Inhibitor

Serotonin (5-HT, 5-hydroxytryptamine) is a neurotransmitter that influences mood, satiety, appetite, compulsiveness and anxiety. After being produced, most Serotonin is degraded or reuptake...not leading to sufficient quantity to lead to its activities after receptor binding. A serotonin reuptake inhibitor (SRI) inhibits the reuptake of the neurotransmitter serotonin (by blocking the action of the serotonin transporter (SERT). Releasing more Serotonin in the brain induces mood well being in most of the concerned people.

Inhibiting Serotonin re-uptake by Selective Serotonin Re uptake Inhibitors (SSRI) as Imipramine (TOFRANIL®) and Fluoxetine (PROZAC®) is a key mechanism of action to relieve depression in modern medicine.

1. Hydro-alcoholic extract of *Crocus sativus* L. versus fluoxetine in the treatment of mild to moderate depression: a double-blind, randomized pilot trial, Noorbala AA and Al., 2005
2. Comparative Study on The Preventive Effect of Saffron Carotenoids, Crocin and Crocetin, in NMU-Induced Breast Cancer in Rats, Meysam Sajadi
3. Comparison of *Crocus sativus* L. and imipramine in the treatment of mild to moderate depression: A pilot double-blind randomized trial, Akhondzadeh and Al., 2004
4. *Crocus sativus* L. in the Treatment of Mild to Moderate Depression: A Double-blind, Randomized and Placebo-controlled Trial, Akhondzadeh S. and Al., 2005, *Phytother Res* Vol 19, 2:148-51
5. A placebo controlled randomized clinical trial of *Crocus sativus* L. (saffron) on depression and food craving among overweight women with mild to moderate depression, Akhondzadeh and Al., 2019, *J Clin Pharm Ther* Vol0 1:10