

Natural Medicines that Affect the Nervous System



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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Nagsh.ir

Natural Medicines that Affect the Nervous System



Sedatives



Sedatives Herbs in Iranian Formulation

<i>Valeriana officinalis</i> سنبل الطيب	<i>Melissa officinalis</i> بادرنجبويه	<i>Borago officinalis</i> گاو زبان اروپايي <i>Echium amoenum</i> گاو زبان ايراني	<i>Matricaria chamomilla</i> هميشه بهار
<i>Lavandula stoechas</i> اسطوخودوس فرانسوي <i>Lavandula angustifolia</i> <i>lavandula officinalis</i> اسطوخودوس انگليسي	<i>Avena sativa</i> جو دو سر، يولاف	<i>Passiflora incarnata</i> گل ساعتی	<i>Hypericum perforatum</i> گل راعي، علف چاي
<i>Ducrosia anethifolia</i> چکمه دو برگ	<i>Crocus sativus</i> زعفران	<i>Humulus lupulus</i> رازک	<i>Salvia officinalis</i> مريم گلي
<i>Zingiber officinale</i> زنجبيل	<i>Zizyphus jujuba</i> عناب	<i>Mentha piperita</i> نعنا فلفلي	<i>Taraxacum officinale</i> قاصدک
<i>Tilia tomentosa</i> زيرفون	<i>Scutellaria lateriflora</i> <i>Scutellaria baicalensis</i> گل کلاه خودی، بشقابی، قاشقک	<i>Crataegus monogyna</i> سرخ وليک <i>Crataegus oxyacantha</i> زالزالک خارتيز	<i>Withania somnifera</i> گيلاس زمستاني
	<i>Althaea officinalis</i> ختمي	<i>Melilotus officinalis</i> يونجه زرد، اکليل الملک	

Mechanisms of Action

- 1.** Modulation of neuronal communication via plant components binding to neurotransmitter receptors
- 2.** Alteration of neurotransmitter synthesis and function
- 3.** Stimulating or sedating central nervous system activity
- 4.** Regulating endocrine system (eg, lowering cortisol secretion)
- 5.** Epigenetic changes and regulating gene expression
- 6.** Lowering inflammation
- 7.** Reducing oxidative stress
- 8.** Modulating brain-derived neurotrophic factor and other relevant pathways
- 9.** Modulation of opioid and cannabinoid systems

Valeriana officinalis

- **Caprifoliaceae**
- Rhizome
- **Iridoids**, including Valepotriates: isovaltrate and valtrate : GABA_A
- **Sesquiterpenes** (Contained in the volatile oil):
 - Valerenic acid
 - Hydroxyvalerenic acid
 - Acetoxyvalerenic acid

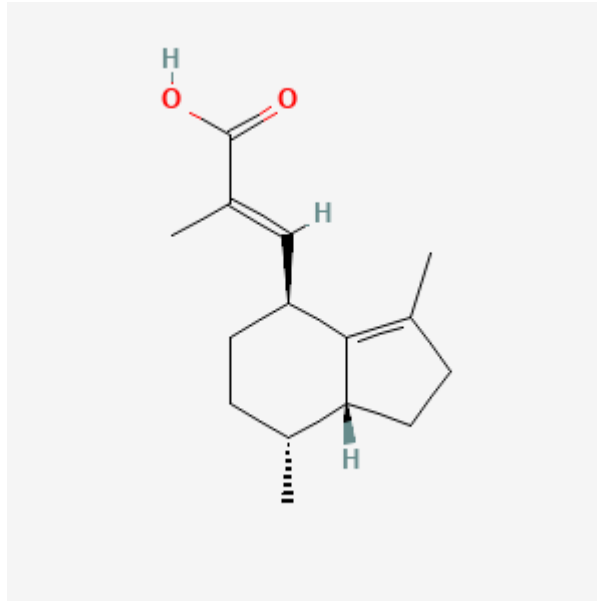
Valeriana officinalis



Nardostachys jatamansi



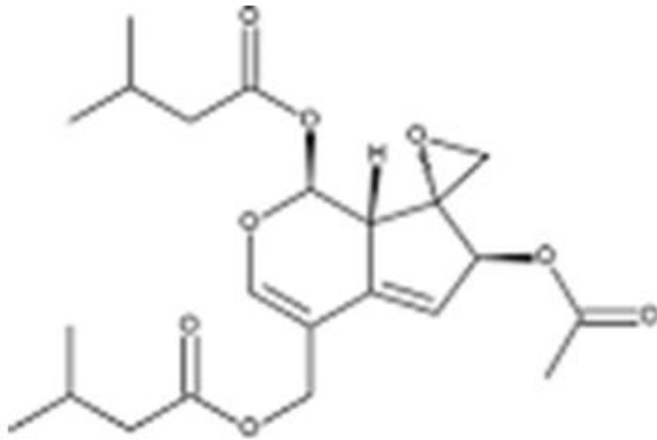
Valeriana officinalis



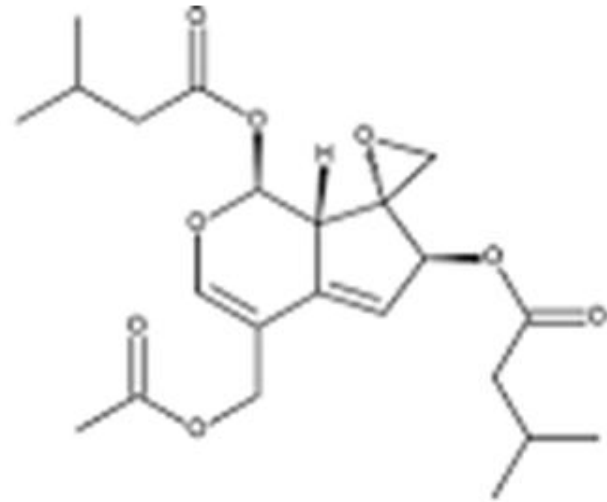
Valerenic acid

Inhibits 3H-GABA uptake and stimulates its release in the synaptosomes, independently of Na-KATPase activity and membrane potential

Valeriana officinalis



isovaltrate [1]



valtrate [2]

Valpotriates

Valeriana officinalis

Caprifoliaceae

- سدامین، والرین، سنبل الطیب زد بی، والی رست، والی ریس
- عوارض مهم منجر به قطع: مشکلات کبدی (خارش شدید، تیرگی ادرار و مدفوع، زردی پوست یا چشم)
- تداخلات مهم: بنزودیازپین ها، باربیتورات ها، مخدرها
- ریزوم



Lavender

Lavandula angustifolia

Lamiaceae

- اسطوخودوس تی اس، لینازپام
- احتیاطات: مصرف موضعی اسانس سبب اختلالات جنسی می شود.
- تداخلات مهم: بنزودیازپین ها، باربیتورات ها
- آروماتراپی و ماساژ درمانی
- اسانس گل
- اسانس برگ فشار خون را بالا میاورد



Lavandula angustifolia

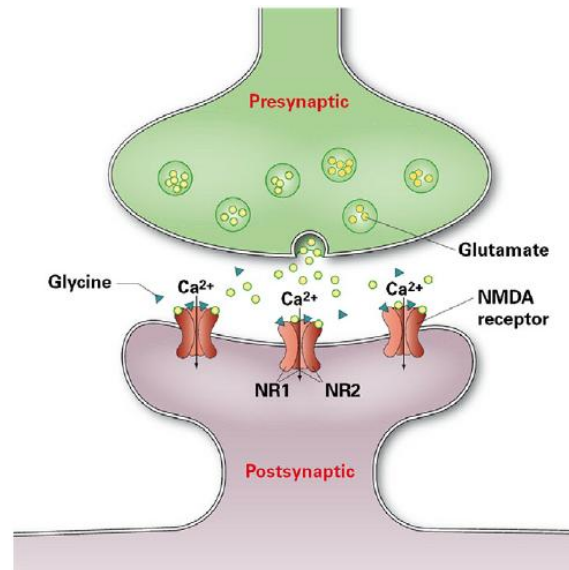
Lavender

- اسطوخودوس تی اس، لینازپام
- احتیاطات: مصرف موضعی اسانس سبب اختلالات جنسی می شود.
- تداخلات مهم: بنزودیازپین ها، باربیتورات ها



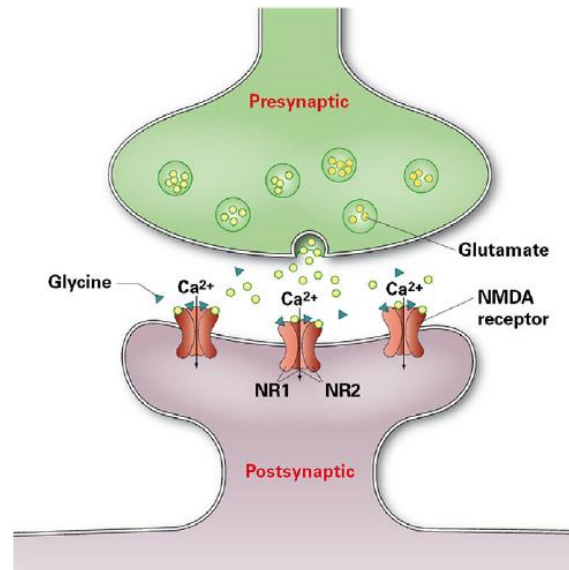
Lavandula angustifolia

- Lavender essential oil is traditionally used and approved by the European Medicines Agency (EMA) as herbal medicine to relieve stress and anxiety.
- Lavender essential oil exert affinity for the glutamate NMDA-receptor and did not show affinity for GABA_A-benzodiazepine receptor



Lavandula angustifolia

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Melissa officinalis

Lemon balm

Lamiaceae

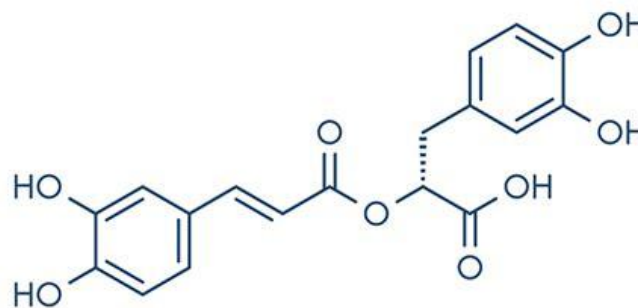
- خواب آور و ضد التهاب،
- احتیاطات: هایپوتیروئیدیسم و گریوز
- تداخلات مهم: بنزودیازپین ها، باربیتورات ها



Melissa officinalis

Lemon balm

- The known major components of lemon balm are reported to include **hydroxycinnamic acid derivatives**, particularly rosmarinic acid, caffeic acids, chlorogenic acid, and metrilic acid , tannins, flavonoids.
- Lemon balm leaf contains roughly 36.5 ± 0.8 mg rosmarinic acid per gram



rosmarinic acid



Humulus lupulus

Hops Cannabaceae



- Insomnia, Restlessness, and Anxiety.
- The pharmacological activity of *Humulus lupulus* is principally due to resin (lupulin) from the dried, female-flowering parts (strobiles).
- Increasing levels of the neurotransmitter γ -aminobutyric acid (GABA), the chief inhibitory neurotransmitter of the CNS.
- Sedating effects are result of three different categories of constituents acting synergistically: alpha acids(humulones), beta acids(lupulones) and essential oils.

Humulus lupulus

Hops

Cannabaceae

- رازک
- احتیاطات: سرطان های وابسته به هورمون، افسردگی
- تداخلات مهم: بنزودیازپین ها، باربیتورات ها



Avena sativa

Oat Poaceae

Rich source of protein, minerals, lipids, β -glucan, avenanthramides, indole alkaloid, flavonoids, triterpenoid saponins, lipids and sterols.

Contained many antioxidants such as vitamin E, flavonoids, and nonflavonoid phenolic acids

Improved overall mental fitness and supported cognitive performance in stressful situations.



Avena sativa

Oat

Poaceae

- احتیاطات: مشکلات گوارشی
- تداخلات مهم: استاتین ها، آهن





Withania somnifera



It is an [adaptogen](#) that helps maintain [homeostasis](#) of the body during stress.

Withania somnifera

Ashwagandha

Winter Cherry

- احتیاطات: فشار خون، دیابت، زخم های گوارشی، بیماری های خودایمن، مشکلات تیروئیدی
- تداخلات مهم: بنزودیازپین ها، باربیتورات ها، آنتی هسیتامین ها

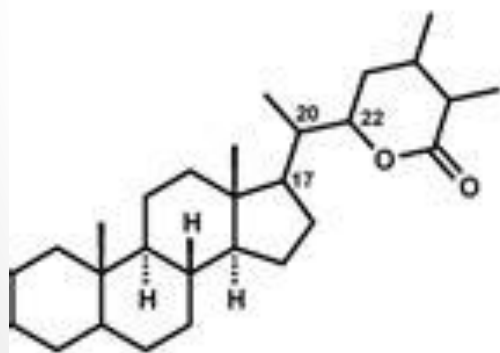


Withania somnifera

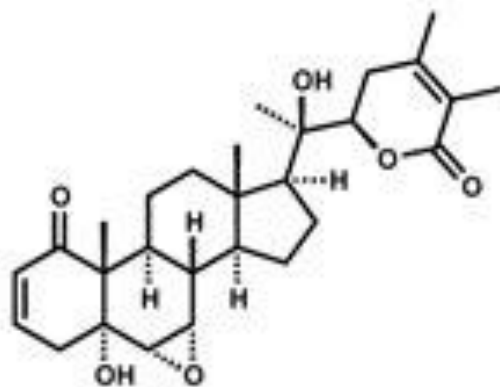
Ashwagandha

Winter Cherry

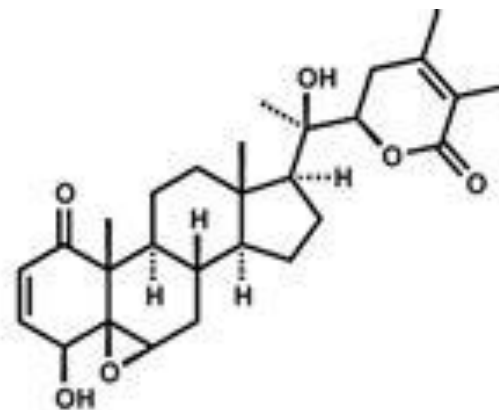
- کالم انرژی
- احتیاطات: فشار خون، دیابت، زخم های گوارشی، بیماری های خودایمن، مشکلات تیرویدی
- تداخلات مهم: بنزودیازپین ها، باربیتورات ها، آنتی هسیتامین ها
- ویتانولیدها



withanolide type A skeleton



withanolide A



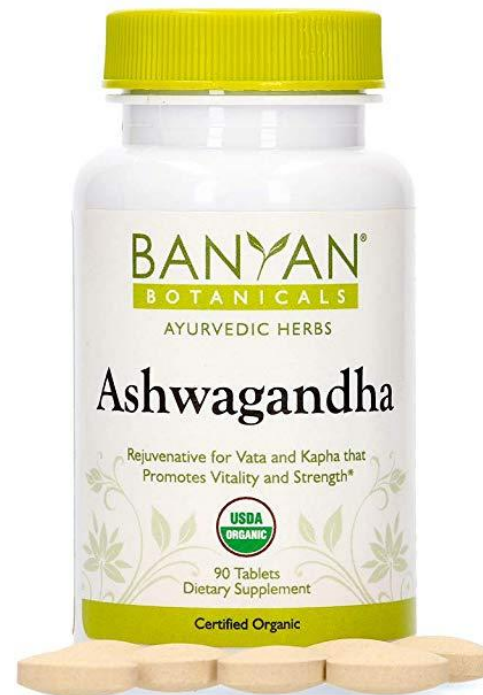
withanolide D

Withania somnifera

Ashwagandha

Winter Cherry

An adaptogen for patients with nervous exhaustion, •
insomnia, and debility due to stress





MAYPOP

Passifloraceae

Anxiety, Insomnia

Aerial Parts

Approved by Germany's Commission E to treat nervousness and insomnia but, its hypnotic effects are not widely supported



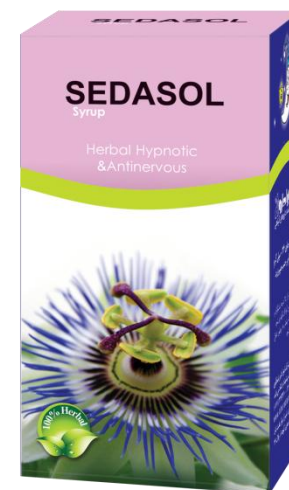
Passiflora incarnata

- Increasing levels of a chemical called gamma aminobutyric acid (GABA) in the brain. GABA lowers the activity of some brain cells, making you feel more relaxed.



Passiflora incarnata

- پاسی پی، پاسیفلورین، ریلکس هرب، سداسل
- احتیاطات: علایم خواب آلودگی شدید
- تداخلات مهم: بنزودیازپین ها، باربیتورات ها، آنتی هسیتامین ها



Piper methisticum

Popular and effective anxiolytic herb

Modulation of GABA receptors and other excitatory neurotransmitters & inhibition of MAO B

Incidence of kava-induced hepatotoxicity is less than 1 per 2500 patients



Valeriana officinalis, Melissa officinalis

- نوراگل، سونگانایت، والریک



Valeriana officinalis, Humulus lupulus

• ردورمین



Passiflora incarnata
Valeriana officinalis
Hypericum perforatum

• اپی یون، دورمین



Passiflora incarnata
Valeriana officinalis
Humulus lupulus

• ول مود



Passiflora incarnata
Valeriana officinalis
Humulus lupulus
Melissa officinalis

• ترانکی وال



Melissa officinalis
Echium amoenum
Crocus sativus

بالمين •



Melissa officinalis
Valeriana officinalis
Lavandula stoechas
Matricaria chamomilla
Borago officinlis

• آلتیپ

- احتیاطات گاوزبان: هیپاتوتوکسیک، در صورت خونریزی قطع مصرف
- تداخلات مهم گاوزبان: فنوتیازین ها، ضدافسردگی های سه حلقه ای، استروئیدها، ضد قارچ ها



Passiflora incarnata
Melissa officinalis
Matricaria recutita
Zingiber officinale
Zizyphus jujuba
Mentha piperita

بی بی سید



Passiflora incarnata
Matricaria recutita
Valeriana officinalis



Passiflora incarnata
Valeriana officinalis
Lavandula angustifolia
Avena sativa
Salvia officinalis

سداسر •



• گل اسلیپ

Passiflora incarnata

Valeriana officinalis

Humulus lupulus

Matricaria recutita

Scutellaria lateriflora

Althaea officinalis

Crataegus oxyacantha

Taraxacum officinale



Passiflora incarnata
Valeriana officinalis
Humulus lupulus
Matricaria recutita
Scutellaria baicalensis

- های رست
- احتیاطات اسکوتلاریا: سمیت کلیوی در صورت مصرف طولانی مدت
- تداخلات مهم اسکوتلاریا: داروهای آرامبخش، ضد اسپاسم، ضد افسردگی، ضد دیابت، لیتیوم





Passiflora incarnate
Lavandula angustifolia
Melissa officinalis

Borago officinalis



Echium amoenum



Memory Enhancement Drugs





Ginkgo biloba

Ginkgo biloba

Maidenhair tree

Ginkgoaceae

- Dioecious
- Leaves
- Ginkgolides & Bilobalides



Ginkgo biloba

- Mechanisms of action:
- Antioxidant
- Neurotransmitter/receptor modulatory
- Antiplatelet activating factor properties.



Ginkgo biloba

- تبوکان، جینکو تیدی، جینکو گل، جینک اکتیو، جینکو بیلوبا، جینکو بیتون اس تی پی، جینکو بیلوبا هربالیو گرین، جینکوویتون، جینکورا



Ginkgo biloba



Early-stage Alzheimer's disease,

Vascular dementia

Peripheral claudication

Tinnitus of vascular origin



Ginkgo biloba

- احتیاطات: افزایش ریسک خونریزی
- تداخلات مهم: ضد انعقادها
- عوارض مهم: سردرد، مشکلات گوارشی، حساسیت پوستی
- مصرف طولانی مدت ریسک ابتلا به سرطان تیروئید و کبد را بالا می برد.
- مصرف خام دانه ها می تواند سمیت ایجاد کند.



Ginkgo biloba

Ginkgo's Proposed Mechanisms of Action

Effect	Additional Details
Anti-inflammatory	Antagonizes platelet activating factor (PAF) Reduced eosinophil infiltration Reduced neutrophil infiltration
Antioxidant	Scavenger of free radicals (especially nitric oxide induced toxicity) Prevention of lipid peroxidation
Cerebral glucose utilization	Indirectly improves ATP production
Inhibition of platelet aggregation	Antagonizes platelet activating factor (PAF)
Neurotransmitter regulation	Improved alpha-2 adrenoreceptor activity Possible inhibition of catechol-O-methyl transferase (COMT)
Vasomotor activity	Antagonizes platelet activating factor (PAF) to cause blood vessels to dilate Protection of vascular endothelium from free radicals and lipid peroxidation Possible protection against oxidation of LDL to oxysterols



Ginkgo biloba

• مموركس



Bosewellia carteri, Zingiber officinale

• ممورال



Vinpocetine

Periwinkle plant

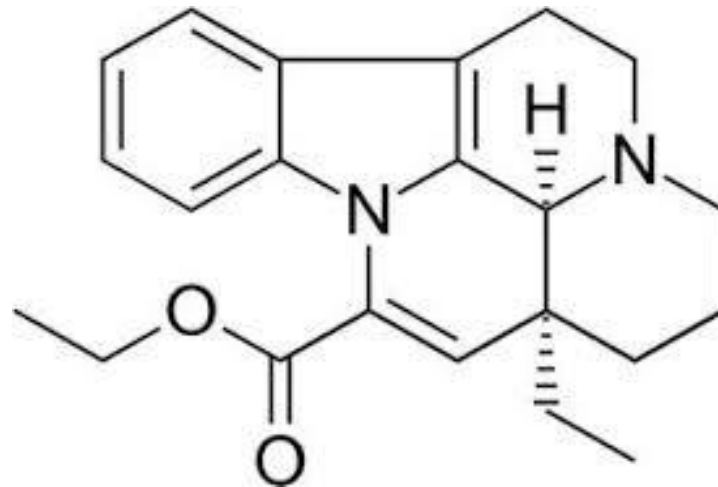
Vinca minor

Synthetic derivative of the *vinca* alkaloid vincamine

- Enhancing memory and preventing Alzheimer's disease
- Cerebrovascular disorders such as stroke
- Is banned in Australia, New Zealand, and Canada due to “potential harmful nootropic characteristics”
- Blockage of sodium channels,
- Reduction of cellular calcium influx
- Antioxidant activity

Vinpocetine

- محصول: قرص آلزینور ۵ و ۱۰ میلی گرم
- ترکیبات محصول: Vinpocetine
- احتیاطات: سبب کاهش سیستم ایمنی، فشار خون و یبوست می شود
- تداخلات مهم: ضد انعقادها



Melissa officinalis

Lemon balm

Lamiaceae

- خواب آور و ضد التهاب، آلزایمر
- احتیاطات: هایپوتیروئیدیسم
- تداخلات مهم: بنزودیازپین ها، باربیتورات ها



• محصول: کپسول نورواید

- *Astragalus membranaceus*
- *Salvia miltiorrhiza*
- *Paeonia lactiflora*
- *Ligusticum chuanxiong*
- *Angelicae sinensis*
- *Carthamus tinctorius*
- *Prunus persica*
- *Polygala tenuifolia*
- *Acorus tatarinowii*

According to the claims of manufacturer



NeuroAiD

Triggers the production of new neurons in our brain (neurogenesis) and favors connections between neurons by stimulating the formation of new dendrites and synapses (neuroplasticity).

Antidepressants



Hypericum perforatum



Hypericum perforatum

Saint John's wort

Hypericaceae

Hyperforin & Hypericin

Various clinical trials have shown that HP has a comparable antidepressant efficacy as some currently used antidepressant drugs in the treatment of mild/moderate depression.



Hypericum perforatum

Saint John's wort

Hypericaceae

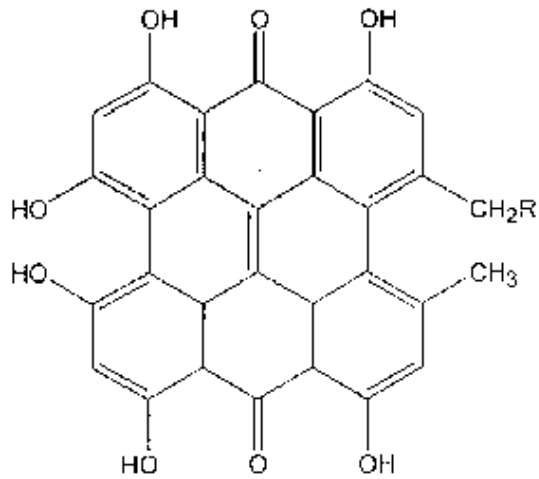
Hyperforin & Hypericin

Inhibition of the uptake of serotonin (5-HT), dopamine (DA) and norepinephrine (NE) from the synaptic cleft of interconnecting neurons.



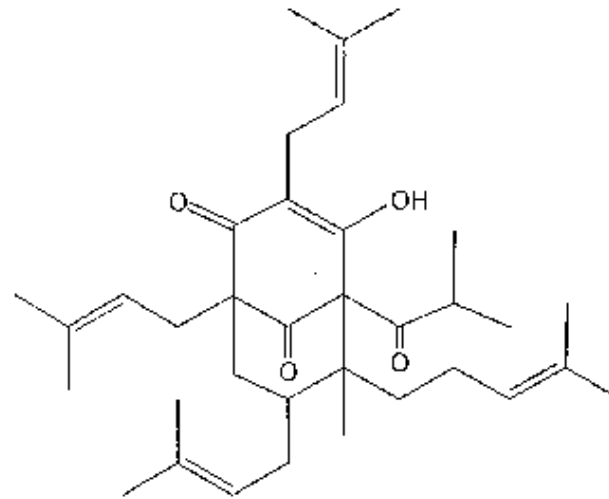
Hypericum perforatum

Hyperforin, **Hypericin**, and **Pseudohypericin** the components of extracts that are presumed to be responsible for its pharmacological effects



	R
Hypericin	H
Pseudohypericin	OH

Sianthrones



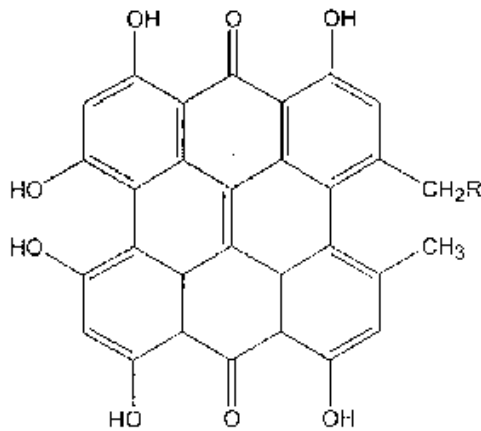
Hyperforin

Prenylated acylphloroglucinols

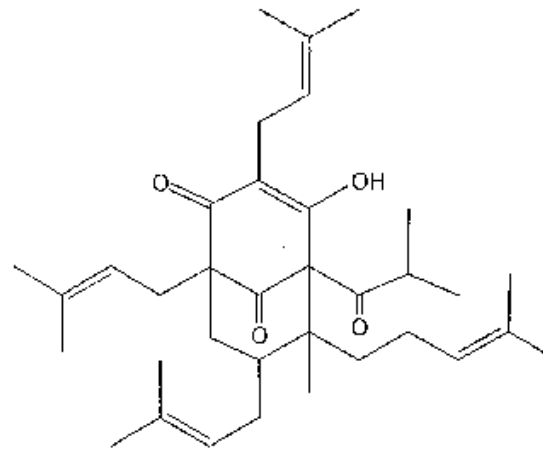
Hypericum perforatum

After oral administration of single doses HP extract hypericin was detectable in the blood after 1.3 h, and peak plasma concentrations were reached after 4.6 h and steady-state levels by 4 days and the plasma half-life of hypericin is reported to be 25 h .

The prolonged duration of which is due to hypericin's affinity for albumin and lipoproteins .



	R
Hypericin	H
Pseudohypericin	OH



Hyperforin

Hypericum perforatum

- دپ استاپ، فیتوریلاکس، کامفورت فرمولا، نروکسین، هایپیران، هایپیکوم، هایپی فور



Hypericum perforatum

HP can induce various cytochrome P450s isozymes and P-glycoprotein, of which many drugs are substrates and which are the main origin of HP–drug interactions •



Hypericum perforatum

- احتیاطات: بیماری های عصبی و فراورده های حاوی تیرامین
- تداخلات مهم : سرکوب کننده های سیستم ایمنی، ضد بارداری های خوراکی، ضد ویروس ها
- عوارض مهم: مشکلات پوستی، حساسیت، مشکلات گوارشی،

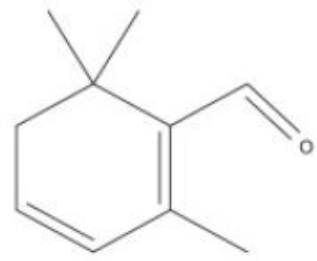




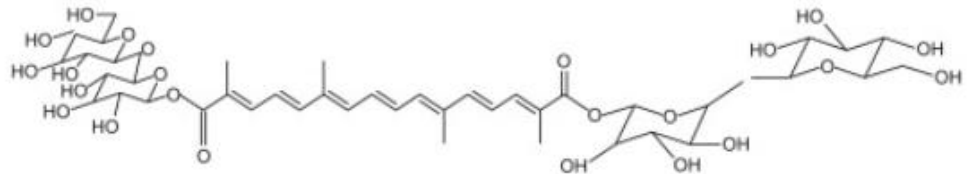
Crocus sativus

- Iridaceae

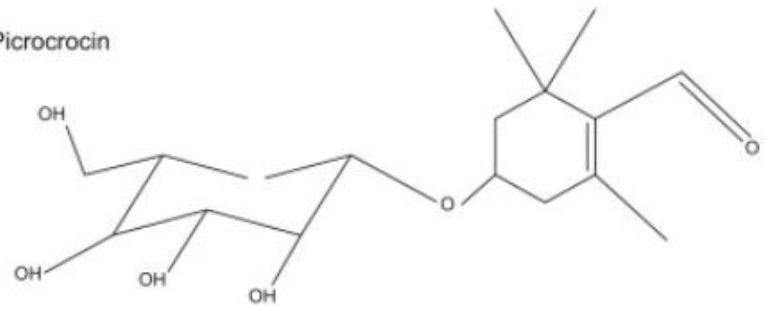
Safranal



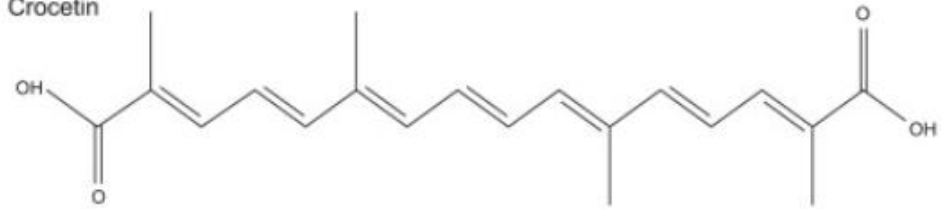
Crocin



Picrocrocin



Crocetin



Crocus sativus

• سافروتین، سافرومود



Pelargonium roseum

- دیپروهرب
- احتیاطات: منع مصرف در بیماران نارسایی کبدی و کلیوی



Passiflora incarnata
Melissa officinalis
Humulus lupulus
Citrus aurantium
Acacia arabica
Gentiana acaulis

• انتالين





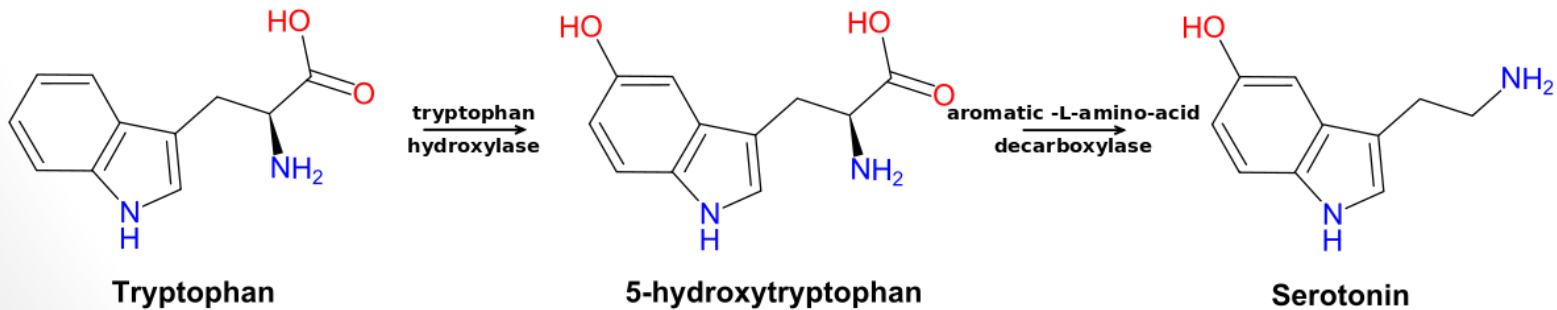
5-HTP

- 5-Hydroxytryptophan or Oxitriptan
- *Griffonia simplicifolia*



5-HTP

- In the body 5-HTP is produced from the amino acid tryptophan through the action of the enzyme tryptophan hydroxylase and rapidly converted to 5-HT by amino acid decarboxylase

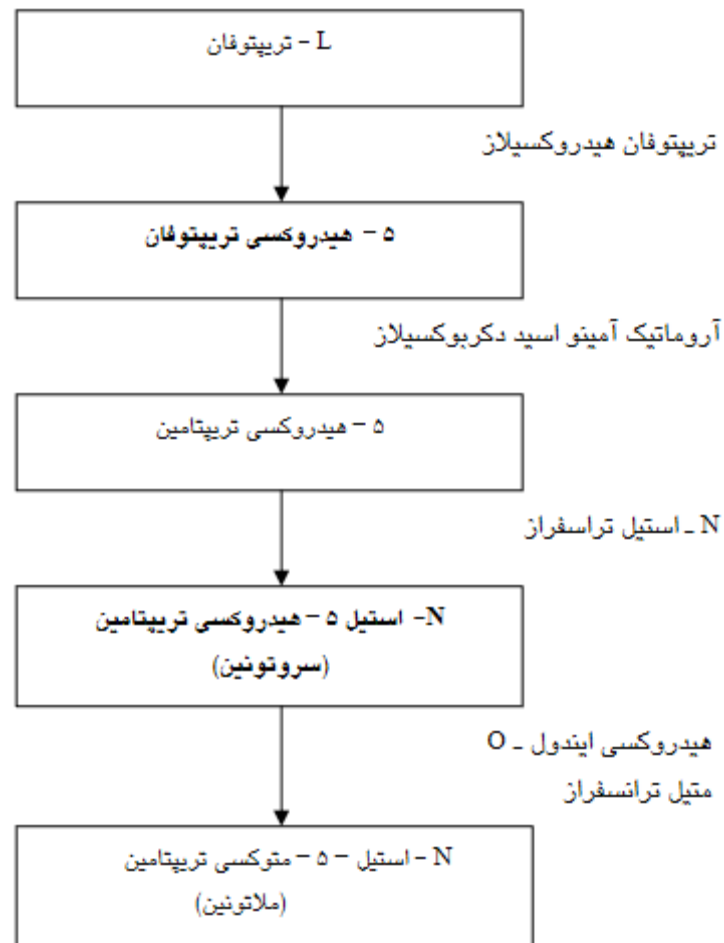
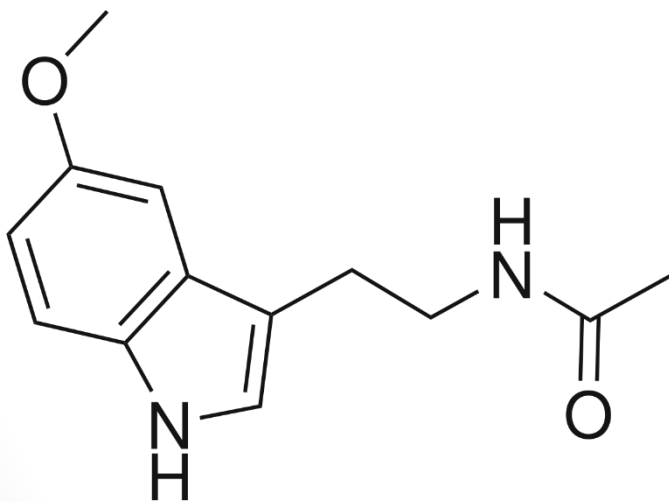


5-HTP

- It is also marketed in many European countries for the indication of major depression under the trade names Cincofarm, Levothym, Levotonine, Oxyfan, Telesol, Tript-OH, and Triptum
- 5-hydroxytryptophan may change serotonin levels in the brain, much like some antidepressants. A small number of studies suggest it may be useful in the treatment of obesity.
- A [2016 study](#) on mice suggests it might be a viable alternative for treatment-resistant depression.

Melatonin

- N-acetyl-5-methoxytryptamine



Melatonin





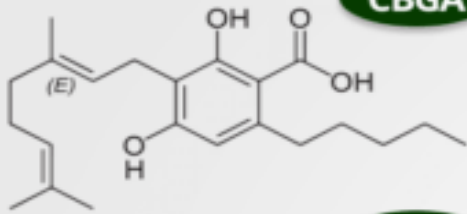
Cannabis sativa



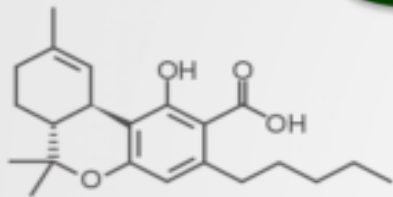
C. sativa
C. Indica
C. rederalis

NATURAL CANNABINOIDS

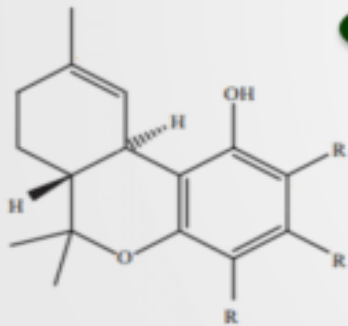
CBGA



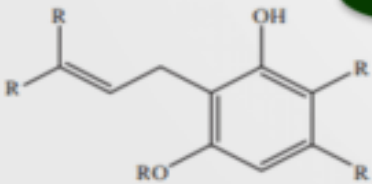
THCa



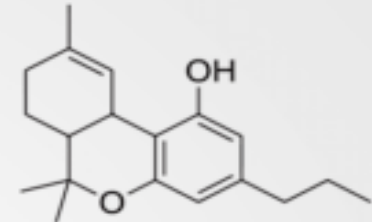
THC



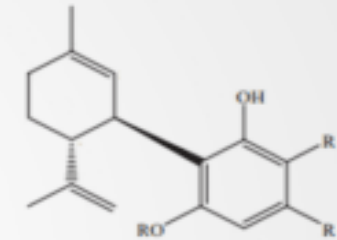
CBG



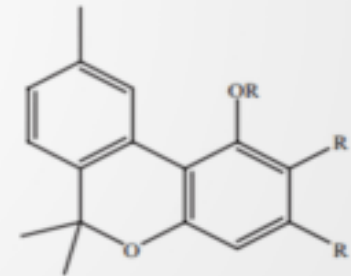
THCV



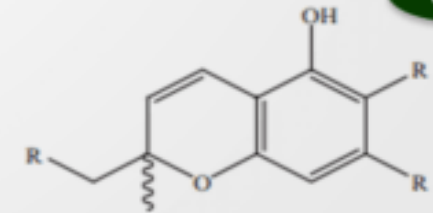
CBD



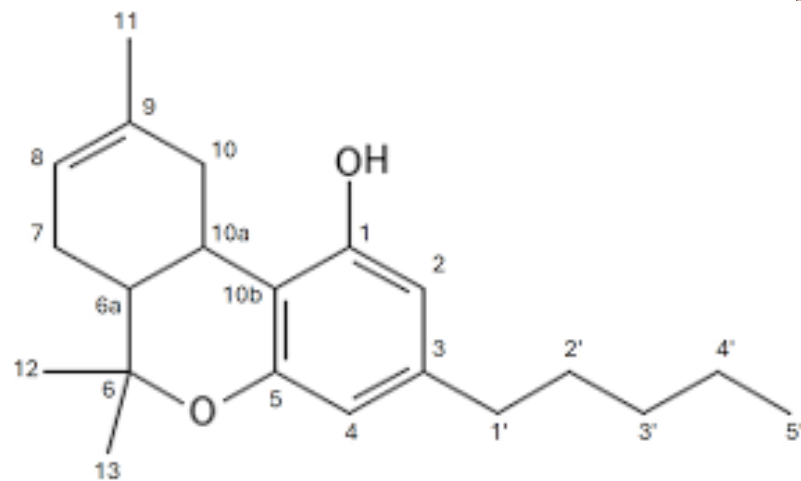
CBN



CBC

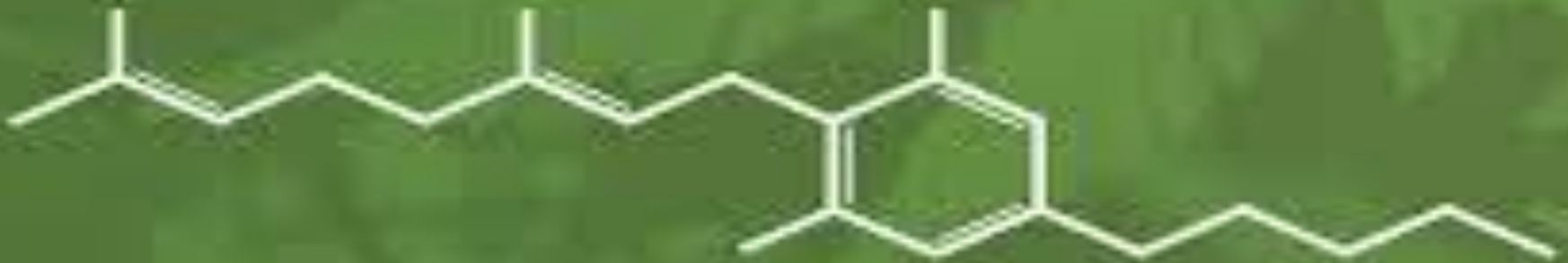


Cannabis sativa





Cannabinoids




Cannabis sativa

- A review article published in *Lancet Psychiatry* in 2019 of 83 studies, including 40 RCTs and 3067 participants, concluded that there is a lack of evidence that cannabinoids improve symptoms of depression, anxiety, attention-deficit/hyperactivity disorder, tics, posttraumatic stress disorder (PTSD), or psychosis.

Cannabis sativa

- The single positive finding was that there was very-low-quality evidence that THC with or without CBD may help with anxiety for those who also have other medical conditions. A 2021 review noted that with only 8 very small studies at the time, there was insufficient evidence for clinicians recommending CBD or THC to manage mood disorders, anxiety, or PTSD.
- Clinically, many psychiatrists recommend CBD for anxiety and warn about the dangers of chronic THC use—yet, at this time, we do not have much research evidence to guide us.



Natural Medicines that Affect the Nervous System

THANKS