



HERBAL SOLUTIONS FOR ANXIETY DISORDERS IN CHILDREN

ERIKA KRUMBECK, ND, FABNP

MODULE #4

TECHNICAL SUPPORT

USE CHAT OR E-MAIL: SUPPORT@NATUROPATHICPEDIATRICS.COM



CE CERTIFICATES

Reminder that CE Certificates are issued directly from the ANP (watch for an e-mail from Diana@theANP) it will come from education@naturopathic.org. We are issuing certificates about a month after completion, to allow everyone time to complete the survey. If you need your certificate earlier please let us know. Check your spam folder. If you are watching this presentation after the live course date please e-mail support@naturopathicpediatrics.com and request the link to the survey questions. Please send a follow-up e-mail after the survey is complete so we know to forward the results to Diana.

UPCOMING MODULES

SAVE THE DATES!



AUGUST 8TH, 12:00 P.M. PST

Evidence-Based
Nutritional Interventions
for ADHD in Children



OCTOBER 3RD, 12:00 P.M. PST

Botanical Medicines for Common
Respiratory Conditions in Children



SEPTEMBER 6TH, 12:00 P.M. PST

An Integrative Approach
to Asthma Treatment



NOVEMBER 7TH, 12:00 P.M. PST

Botanical Medicines for Common Acute
Pediatric Complexes: ADM, Hand/Foot
& Mouth, Pharyngitis and more...

HERBAL SOLUTIONS FOR ANXIETY DISORDERS IN CHILDREN

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STATISTICS

Anxiety disorders are among the most common mental health issues in children and adolescents.

- Data shows that approximately **9.4% of children aged 3-17 years in the U.S. have been diagnosed with anxiety disorders.**
- This translates to **5.8 million children experiencing significant anxiety-related symptoms.**
- Globally, the prevalence of anxiety disorders among children and adolescents is estimated to be around 6.5%.
- Rates were significantly worse in the pandemic period, with around 20% of youth worldwide experiencing anxiety.

PEDIATRIC GENERALIZED ANXIETY DISORDER

Clinically recognizable signs of Generalized Anxiety Disorder (GAD) in children include:

- Excessive worry
- Restlessness
- Fatigue
- Difficulty concentrating
- Irritability
- Muscle tension
- Sleep disturbances
- Avoidance behavior
- Need for reassurance
- Perfectionism
- Physical symptoms like stomachaches, headaches
- Overly self-critical

According to the DSM-5, the criteria are as follows:

- 1. Excessive Anxiety and Worry** **That is difficult to control**
Excessive and unreasonable worry (exaggerated or excessive) occurring more days than not for at least six months, about a number of events or activities (such as school performance).
- 2. Difficulty Controlling the Worry** The child finds it difficult to control the worry.
- 3. Associated Symptoms** The anxiety and worry are associated with three (or more) of the following symptoms (with at least some symptoms having been present for more days than not for the past six months). Only one item is required in children:
 - Restlessness or feeling keyed up or on edge
 - Being easily fatigued
 - Difficulty concentrating or mind going blank
 - Irritability
 - Muscle tension
 - Sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep)

DIAGNOSTIC CRITERIA FOR GENERALIZED ANXIETY DISORDER

4. Impairment: The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, academic, or other important areas of functioning.

5. Exclusion Criteria: The disturbance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition (e.g., hyperthyroidism), and is not better explained by another mental disorder (e.g., anxiety or worry about having panic attacks in Panic Disorder, negative evaluation in Social Anxiety Disorder, contamination or other obsessions in Obsessive Compulsive Disorder, separation from attachment figures in Separation Anxiety Disorder, reminders of traumatic events in Posttraumatic Stress Disorder, gaining weight in Anorexia Nervosa, physical complaints in Somatic Symptom Disorder, perceived appearance flaws in Body Dysmorphic Disorder, having a serious illness in Illness Anxiety Disorder, or the content of delusional beliefs in Schizophrenia or Delusional Disorder).

DIAGNOSTIC CRITERIA FOR GENERALIZED ANXIETY DISORDER

SEPARATION ANXIETY DISORDER

Separation Anxiety Disorder (SAD) in children is characterized by excessive fear or anxiety concerning separation from those to whom the child is attached. Clinical signs and symptoms include:

- Excessive Distress on Separation
- Persistent Worry
- Reluctance to be alone
- Reluctance to Sleep Away
- Nightmares
- Physical Symptoms
- Excessive Clinginess
- Difficulty Attending School
- Fear of Sleeping Alone
- Anger or Tantrums

According to the DSM-5, the criteria are as follows:

1. Developmentally Inappropriate and Excessive Fear or Anxiety Concerning Separation: The anxiety is beyond what is expected for the child's developmental level.

2. Duration: The fear, anxiety, or avoidance is persistent, lasting at least four weeks in children and adolescents.

3. Significant Distress or Impairment: The disturbance causes clinically significant distress or impairment in social, academic, occupational, or other important areas of functioning.

4. Exclusion of Other Disorders: The disturbance is not better explained by another mental disorder, such as autism spectrum disorder, psychotic disorders, agoraphobia, generalized anxiety disorder, or illness anxiety disorder.

DIAGNOSTIC CRITERIA FOR SEPARATION ANXIETY DISORDER OF CHILDHOOD

OBSESSIVE-COMPULSIVE DISORDER

Signs and symptoms include:

- **Obsessions:** Persistent, intrusive, and unwanted thoughts, urges, or images that cause significant anxiety or distress. Common obsessions include:
 - Fear of contamination or germs
 - Excessive doubt and need for reassurance
 - Aggressive or horrific thoughts about harming oneself or others
 - Unwanted sexual or religious thoughts
- **Compulsions:** Repetitive behaviors or mental acts that a child feels driven to perform in response to an obsession or according to rigid rules. Common compulsions include:
 - Excessive washing or cleaning
 - Checking (e.g., doors, locks, appliances)
 - Repeating actions (e.g., going in and out of a doorway)
 - Counting or tapping
 - Ordering or arranging items in a particular way
 - Mental rituals (e.g., praying, counting)
- **Distress and Impairment:** The obsessions and compulsions cause significant distress, consume considerable time (more than an hour per day), and interfere with the child's normal routine, academic functioning, social activities, and relationships.

According to the DSM-5, the criteria are as follows:

1. Presence of Obsessions, Compulsions, or Both:

• Obsessions are defined by (1) and (2):

- 1) Recurrent and persistent thoughts, urges, or images that are experienced as intrusive and unwanted and that in most individuals cause marked anxiety or distress.
- 2) The individual attempts to ignore or suppress such thoughts, urges, or images, or to neutralize them with some other thought or action (i.e., by performing a compulsion).

• Compulsions are defined by (1) and (2):

- 1) Repetitive behaviors (e.g., hand washing, ordering, checking) or mental acts (e.g., praying, counting, repeating words silently) that the individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly.
- 2) The behaviors or mental acts are aimed at preventing or reducing anxiety or distress, or preventing some dreaded event or situation; however, these behaviors or mental acts are not connected in a realistic way with what they are designed to neutralize or prevent, or are clearly excessive.



DIAGNOSTIC CRITERIA FOR OBSESSIVE-COMPULSIVE DISORDER (OCD)

2. Time-Consuming: The obsessions or compulsions are time-consuming (e.g., take more than 1 hour per day) or cause clinically significant distress or impairment in social, academic, or other important areas of functioning.

3. Not Attributable to Substance Use or Medical Condition: The obsessive-compulsive symptoms are not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.

4. Not Better Explained by Another Mental Disorder: The disturbance is not better explained by the symptoms of another mental disorder (Generalized anxiety disorder, body dysmorphic disorder, tic/tourette disorder, stereotypic movement disorder, eating disorders, substance disorders, schizophrenia, ASD, etc., etc).



DIAGNOSTIC CRITERIA FOR OBSESSIVE-COMPULSIVE DISORDER (OCD)



PANIC DISORDER

Recurrent Unexpected Panic Attacks: Abrupt surges of intense fear or discomfort that reach a peak within minutes, during which time four (or more) of the following symptoms occur:

- Palpitations, pounding heart, or accelerated heart rate
- Sweating
- Trembling or shaking
- Sensations of shortness of breath or smothering
- Feelings of choking
- Chest pain or discomfort
- Nausea or abdominal distress
- Feeling dizzy, unsteady, light-headed, or faint
- Chills or heat sensations
- Paresthesias (numbness or tingling sensations)
- Derealization (feelings of unreality) or depersonalization (being detached from oneself)
- Fear of losing control or "going crazy"
- Fear of dying

OTHER TYPES OF ANXIETIES IN CHILDREN

[A FULL, SEARCHABLE LIST WITH ICD-10 CODES WILL BE ON NAT PEDI PRO]

- Agoraphobia - fear or anxiety of using public transportation, being in open spaces, enclosed spaces, standing in line or in a crowd, being outside the home alone.
- Social Phobia (Social Anxiety Disorder) - intense fears or anxieties about social situations, out of proportion to the actual threat posed by the social interaction.
- Specific (isolated) Phobia - numerous (animals, natural environment, injections, blood, injuries, situation, etc).
- Stress & Adjustment Disorder - arises in response to an identifiable stressor life change (e.g., parental divorce, moving to a new school, death of a loved one).



WHAT IS DEVELOPMENTALLY NORMAL?

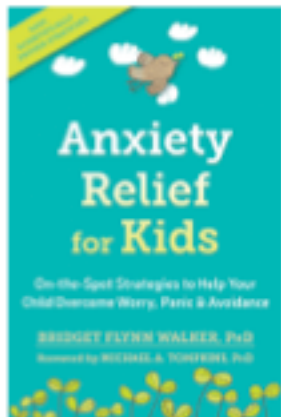
- Reminder that separation anxiety typically starts around age 9 months, **peaking between 12-18 months**, and usually (but not always) begins to lessen by age 2-3.
- Clinically I see a lot of developmentally normal "anxieties" in school-aged children, around ages 6-10. Common concerns: fires, death of parent or grandparent, loss, note of disasters, etc. This corresponds with children understanding these concepts more fully (e.g., when Grandma dies she isn't coming back).

MY FAVORITE SCREENING TOOLS:

- **Screen for Child Anxiety Related Disorders (SCARED)**
 - A 41-item questionnaire, which screens for Generalized Anxiety Disorder, Separation Anxiety Disorder, Social Anxiety Disorder, Panic Disorder and School Phobia.
 - This is the tool I use most often. (Age range 8-18 years)
- **Preschool Anxiety Scale-Revised (PAS-R)**
 - Parent-report measure to assess anxiety symptoms in preschool-aged children (age range 3-7 years).
- **Generalized Anxiety Disorder 7 (GAD-7)**
 - Is an easy, 7-item self-report questionnaire often used for adults, also suitable for adolescents (13+).



SCREENING TOOLS



FAVORITE BOOK:

ANXIETY RELIEF FOR KIDS: ON-THE-SPOT STRATEGIES TO HELP YOUR CHILD OVERCOME WORRY, PANIC & AVOIDANCE

This is a great book to recommend to parents. It provides evidence-based Cognitive Behavioral Therapy (CBT) skills to parents in an easy-to-understand format.

Note that oftentimes parents actually worsen the child's anxiety by having the child avoid anxious triggers. This book helps parents understand how to guide kids through stressful events without having to resort to avoidance.



LET'S TALK ABOUT HERBS!

QUICK INTRO TO UNDERSTANDING HERBAL CONSTITUENTS

- Herbal constituents are also known as phytochemicals. (Sometimes also listed as medicinal constituents.) These are naturally occurring compounds found in plants that may have various effects on the human body.
- Many of these constituents have protective effects in the plant, e.g., anti-inflammatory effects to protect against solar radiation, or antimicrobial effects to protect against fungal or bacterial overgrowth. Some may protect against predation.
- Common types: alkaloids, flavonoids, terpenoids, glycosides, saponins, phenols, polysaccharides, steroids, essential oils, coumarins, lignins, anthraquinones.

HERBAL CONSTITUENTS

Why is it important to understand the different types of medicinal constituents?

- **Solubility:** water-soluble constituents are best extracted with low-alcohol tinctures, teas or glycosides, whereas fat-soluble constituents may require high alcohol content, distillation or oils for extraction.
- **Safety:** alkaloids, for example, have potent pharmacological effects. Fat-soluble constituents (e.g., terpenoids, essential oils) can cross the blood-brain barrier, which poses a significant safety risk to children.
- **Taste:** polysaccharides are often sweet, tannins taste astringent on the tongue, saponins taste soap-like, alkaloids are often bitter, etc.
- **Blending/formulation:** combining certain herbs may cause a formula to precipitate, or certain herbal combinations may enhance each other's effects (which could be good, or bad depending).
- **Targeted therapeutic use:** understanding constituents allows for a more targeted use of the herb.

ALKALOIDS

EXAMPLES: MORPHINE, CAFFEINE, NICOTINE, QUININE

Nitrogen-containing compounds that often have potent pharmacological effects.

- **Actions:** Can act as stimulants (caffeine), pain relievers (morphine), anti-malarial agents (quinine), and have other therapeutic effects.
- **Solubility:** Generally fat-soluble.
- **Metabolism:** Metabolized in the liver by cytochrome P450 enzymes and then conjugated for excretion.

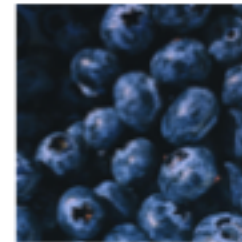


FLAVONOIDS

EXAMPLES: QUERCETIN, CATECHINS, ANTHOCYANINS

Poliphenolic compounds known for their antioxidant properties.

- **Actions:** Antioxidant, anti-inflammatory, antiviral, cardio-protective effects.
- **Solubility:** Generally water-soluble.
- **Metabolism:** Metabolized in the liver by cytochrome P450 enzymes and then conjugated for excretion. Excreted through bile, urine.



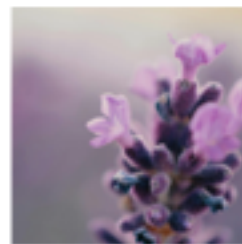


TANNINS

EXAMPLES: ELLAGITANINS, CATECHINS

Polyphenolic compounds that can bind to proteins and other organic compounds.

- **Actions:** Astringent properties, can help in wound healing, reduce inflammation, and have antimicrobial effects.
- **Solubility:** Water-soluble.
- **Metabolism:** Hydrolyzed by gut microbiota into smaller phenolic acids and then further metabolized in the liver.



TERPENOIDS (TERPENES)

EXAMPLES: MENTHOL, LIMONENE, LINALOOL, CAMPHOR

A large and diverse class of organic compounds derived from five-carbon isoprene units.

- **Actions:** Can have anti-inflammatory, analgesic, anti-microbial, and anti-cancer properties.
- **Solubility:** Fat-soluble.
- **Metabolism:** Metabolized by liver enzymes (cytochrome P450) into various metabolites; some undergo enterohepatic circulation.



GLYCOSIDES

EXAMPLES: DIGITALIS (CARDIAC GLYCOSIDES), SAPONINS

Compounds in which a sugar is bound to a non-carbohydrate moiety.

- **Actions:** Cardiac glycosides can affect heart function, saponins have immune-boosting and cholesterol-lowering effects.
- **Solubility:** Both fat-soluble and water-soluble glycosides exist, depending on the nature of both the glycone and aglycone parts.
- **Metabolism:** Metabolized by hydrolysis in the digestive tract, releasing glycone from aglycone component. Aglycone component is absorbed through intestinal wall. Further metabolism of aglycones occurs in liver by cytochrome P450 enzymes, then Phase II conjugation.



SAPONINS

EXAMPLES: GINSENOSESIDES, DIOSGENIN

Saponins are glycosides with soap-like properties.

- **Actions:** Anti-inflammatory, immune-boosting, cholesterol-lowering, and can enhance the absorption of other compounds.
- **Solubility:** Both fat-soluble and water-soluble (form soap-like compounds in water).
- **Metabolism:** See glycosides.



PHENOLIC COMPOUNDS

EXAMPLES: RESVERATROL, CURCUMIN, SALICYLIC ACID

Compounds that contain a hydroxyl (-OH) bonded directly to an aromatic hydrocarbon group (benzene ring).

- **Actions:** Antioxidant, anti-inflammatory, anti-cancer, and antimicrobial effects.
- **Solubility:** Generally water-soluble. (Note: curcumin is not because of its multiple aromatic rings.)
- **Metabolism:** Undergoes conjugation reactions (glucuronidation, sulfation) in the liver and are then excreted.



POLYSACCHARIDES

EXAMPLES: BETA-GLUCANS, INULIN

Long carbohydrate molecules of repeated monomer units joined together by glycosidic bonds.

- **Actions:** Immunomodulating, prebiotic effects, can enhance gut health.
- **Solubility:** Water-soluble.
- **Metabolism:** Broken down by digestive enzymes and gut microbiota into simpler sugars and short-chain fatty acids.



ESSENTIAL OILS

EXAMPLES: EUCALYPTOL, LIMONENE, MENTHOL

Volatile compounds extracted from plants, containing aromatic compounds.

- **Actions:** Antimicrobial, anti-inflammatory, and analgesic properties, often used in aromatherapy.
- **Solubility:** Fat-soluble.
- **Metabolism:** Metabolized primarily in the liver through oxidation, reduction, and hydrolysis, and then excreted in the urine.



COUMARINS

EXAMPLES: AESCULETIN, UMBELLIFERONE

Aromatic compounds with a benzopyrone structure.

- **Actions:** Anticoagulant, anti-inflammatory, and antimicrobial properties.
- **Solubility:** Fat-soluble.
- **Metabolism:** Metabolized in the liver by cytochrome P450 enzymes into hydroxylated metabolites.

OTHER TYPES OF CONSTITUENTS

[NOT RELEVANT TO TODAY'S LECTURE]

- Lignans: phenolic compounds with estrogenic properties (e.g., flax)
- Anthraquinones: aromatic organic compounds derived from anthracene. Has laxative properties (e.g., Senna, rhubarb, cascara). Important when we discuss GI botanical medicine.
- More... (and many sub-classes of constituents too)

HERBAL CONSTITUENTS

Again, why is this important?

To win internet fights!

{Essential oils are only ONE constituent. In many cases they are NOT the active constituent that produces the desired beneficial effect.}



CHAMOMILE

Matricaria recutita

Plant family: *asteraceae* (daisy family)

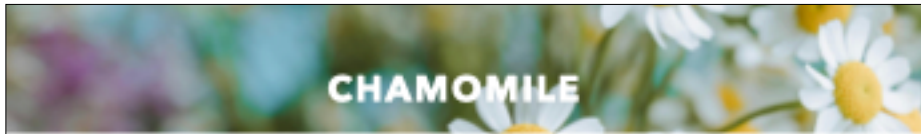
Parts used: flower head (white and yellow parts)

Is often called the "classic children's herb."

The primary active constituents responsible for chamomile's anxiolytic effects are flavonoids, particularly apigenin, which binds to benzodiazepine receptors in the brain, exerting a calming effect.

Other flavonoids such as luteolin and quercetin, as well as essential oils like α -bisabolol and chamazulene, contribute to its overall anti-anxiety properties. These compounds work synergistically to reduce anxiety by modulating neurotransmitters and promoting relaxation without the sedative side effects commonly associated with pharmaceutical anxiolytics.

CHAMOMILE



CHAMOMILE

Constituents:

- **Essential Oils:** **α-Bisabolol, chamazulene** Anti-inflammatory, antimicrobial, and promotes wound healing.
- **Flavonoids:** **Apigenin, quercetin, luteolin** Anti-inflammatory, antioxidant, and anti-cancer properties, also known for its anxiolytic effects, neuroprotective qualities.
- **Coumarins:** Umbelliferone, herniarin: Antioxidant, anti-inflammatory, and antimicrobial properties.
- **Polyphenols:** Chlorogenic Acid, caffeic acid: Antioxidant, anti-inflammatory, and supports metabolic health.
- **Sesquiterpenes:** Matricin: Precursor to chamazulene, with anti-inflammatory and antimicrobial properties.

2. BIOACTIVE CONSTITUENTS OF CHAMOMILE

Go to: ▶

Different classes of bioactive constituents are present in chamomile, which have been isolated and used as medicinal preparations and cosmetics [3]. The plant contains 0.24%-1.9% volatile oil, composed of a variety of separate oils. When exposed to steam distillation, the oil ranges in color from brilliant blue to deep green when fresh but turns to dark yellow after storage. Despite fading, the oil does not lose its potency. Approximately 120 secondary metabolites have been identified in chamomile, including 28 terpenoids and 36 flavonoids [10, 11]. The principal components of the essential oil extracted from the German chamomile flowers are the terpenoids α-bisabolol and its oxide analogues including chamazulene and acetylene derivatives. Chamazulene and bisabolol are very unstable and are best preserved in an alcoholic tincture. The essential oil of Roman chamomile contains less chamazulene and is mainly constituted from esters of angelic acid and tiglic acid. It also contains farnesene and α-pinene. Roman chamomile contains up to 0.6% of sesquiterpene lactones of the germacranolide type, mainly nobilide and 3-epinoblin. Both α-bisabolol, bisabolol oxides A and B and chamazulene or azulene, farnesene and spiro-ether quiterpene lactones, glycosides, hydroxycoumarins, flavonoids (apigenin, luteolin, pataletin, and quercetin), coumarins (herniarin and umbelliferone), terpenoids, and mucilage are considered to be the major bio-active ingredients [12, 13]. Other major constituents of the flowers include several phenolic compounds, primarily the flavonoids apigenin, quercetin, pataletin as glucosides and various acetylated derivatives. Among flavonoids, apigenin is the most promising compound. It is present in very small quantities as free apigenin, but predominantly exists in the form of various glycosides [14-18].

3. HEALTHCARE PREPARATIONS OF CHAMOMILE

Go to: ▶

Chamomile is known to be used in various forms of its preparations. Dry powder of chamomile flower is recommended and used by many people for traditionally established health problems.



CHAMOMILE

Preparations:

- Standardized extracts of chamomile should contain 1.2% apigenin.
- Tea: let steep, covered 10-15 minutes
- Tincture: research shows that **ideal is 50% EtOH**. 45-70% is also acceptable.

Actions:

- Bites, carminative, antispasmodic, anti-inflammatory, antimicrobial, sedative



CHAMOMILE

Safety:

- "Dog chamomile" is highly allergenic.
- **Allergy/Hypersensitivity:** Allergic Reactions: Individuals allergic to plants in the Asteraceae/Compositae family, such as ragweed, marigolds, daisies, and chrysanthemums, may also be allergic to chamomile. Allergic reactions can range from mild skin irritation to more severe reactions like anaphylaxis.
- **Skin Sensitivity:** Topical application of chamomile may cause contact dermatitis in sensitive individuals.
- **Pregnancy: Milk & Bone Category A, Most likely safe.** Chamomile has wide history of use to alleviate pregnancy-related symptoms like nausea and insomnia. HOWEVER, there is some theoretical concern that high doses of chamomile could stimulate uterine contractions, potentially leading to miscarriage or preterm labor.
- **Lactation: Milk & Bone Category C (Concernable)**
- **Children: Safe in appropriate doses.**
- **High doses of essential oil is toxic.**

CHAMOMILE

Age/weight	Dose	Form
Adult (approx 150 lbs)	Acute: 3-6 ml tincture or glycerite every 2-3 hours up to 5 times daily as needed for acute anxiety or pain. Chronic: 3-5 ml three times daily for chronic use (up to 2 months.)	Tincture: 1:1 - 1:2 in 45-75% alcohol or Glycerite 1:2 - 1:6 in glycerite. Tea 1 tablespoon per cup hot water; steep covered 15 min.
75-100 pounds	Acute: 2-6 ml tincture or glycerite. Chronic: 2-4 ml.	
55-75 pounds	Acute: 0.75-2.5 ml glycerite. Chronic: 0.75 - 2.5 ml	
25-35 pounds	Acute: 0.4-1.25ml glycerite. Chronic: 0.3 - 1.25 ml	

My dosing:

I almost always dose this in tea-form, standardized extract or as a tincture mixed with other herbs in a combination formula.

For tea: 1 cup of tea (made with 1 tablespoon of herb), up to 4 times/day for adult weight. 1/2 cup strong tea, or 1 cup tea made with typical store-bought tea bag for kids weighing 50-75 lbs. Younger children can have 1/4 cup of tea, or teaspoons to tablespoons. It is pretty hard to overdose chamomile, I am quite comfortable with safety.

CHAMOMILE

Favorite use of this herb:

- *Anxiety (of course):*
 - While there is no pediatric-specific research, there is some research for adults.
- Combined anxiety plus stomachaches:
 - In my clinical experience, the best use of this herb is for children with combined anxiety and digestive disturbances.
 - **α-bisabolol and apigenin**, help relax the smooth muscles of the gastrointestinal tract.
- Other constituents are anti-inflammatory, antimicrobial, and quite soothing to the GI tract.
- Especially useful where stomachaches are caused by bacterial or viral infections.
- Mild bitter properties can help stimulate appetite, promote secretion of saliva, gastric juices and bile.

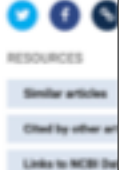
CHAMOMILE

Favorite use of this herb:

- **Colic** (See next slide)
 - (Teaspoons of tea in infant age group)
 - VERY effective, especially mixed with other carminative herbs.
- Rehydration for fever reduction:
 - Clinical pearl: teaspoonsful of chamomile tea can help rehydrate children, especially febrile children. Children who have gastrointestinal illnesses may also benefit, especially with very small sips of chamomile tea. The mild antimicrobial properties may help with post-infectious diarrhea.
- Atopic dermatitis:
 - Research shows that chamomile applied topically is effective at reducing atopic dermatitis.
- Traditional use: skin ulcers, periodontal disease, gingivitis, tonsillitis, hemorrhoids (topical use), vaginitis (topical use).

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Chamomile: A herbal medicine of the past with bright future

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Abstract

[Go to:](#)

Chamomile is one of the most ancient medicinal herbs known to mankind. It is a member of Asteraceae/Compositae family and represented by two common varieties viz. German Chamomile (*Chamomilla recutita*) and Roman Chamomile (*Chamaemelum nobile*). The dried flowers of chamomile contain many terpenoids and flavonoids contributing to its medicinal properties. Chamomile preparations are commonly used for many human ailments such as hay fever, inflammation, muscle spasms, menstrual disorders, insomnia, ulcers, wounds, gastrointestinal disorders, rheumatic pain, and hemorrhoids. Essential oils of chamomile are used extensively in cosmetics and aromatherapy. Many different preparations of chamomile have been developed, the

5.5 Colic/Diarrhea conditions

An apple pectin-chamomile extract may help shorten the course of diarrhea in children as well as relieve symptoms associated with the condition [47]. Two clinical trials have evaluated the efficacy of chamomile for the treatment of colic in children. Chamomile tea was combined with other herbs (German chamomile, vervain, licorice, fennel, balm mint) for administration. In a prospective, randomized, double-blind, placebo-controlled study, 68 healthy term infants who had colic (2 to 8 weeks old) received either herbal tea or placebo (glucose, flavoring). Each infant was offered treatment with every bout of colic, up to 150 mL/dose, no more than three times a day. After 7 days of treatment, parents reported that the tea eliminated the colic in 57% of the infants, whereas placebo was helpful in only 26% ($P<0.01$). No adverse effects with regard to the number of nighttime awakenings were noted in either group [48]. Another study examined the effects of a chamomile extract and apple pectin preparation in 79 children (age 0.5–5.5 y) with acute, non-complicated diarrhea who received either the chamomile/pectin preparation ($n = 39$) or a placebo ($n = 40$) for 3 days. Diarrhea ended sooner in children treated with chamomile and pectin (85%), than in the placebo group (58%) [49]. These results provide evidence that chamomile can be used safely to treat infant colic disorders.

5.6 Eczema

Topical applications of chamomile have been shown to be moderately effective in the treatment of atopic eczema [50]. It was found to be about 60% as effective as 0.25% hydrocortisone cream [51]. Roman chamomile of the *Manzana* type (Kamillosan (R)) may ease discomfort associated with

of treatment, parents reported that the tea eliminated the colic in 57% of the infants, whereas placebo was helpful in only 26% ($P<0.01$). No adverse effects with regard to the number of nighttime awakenings were noted in either group [48]. Another study examined the effects of a chamomile extract and apple pectin preparation in 79 children (age 0.5–5.5 y) with acute, non-complicated diarrhea who received either the chamomile/pectin preparation ($n = 39$) or a placebo ($n = 40$) for 3 days. Diarrhea ended sooner in children treated with chamomile and pectin (85%), than in the placebo group (58%) [49]. These results provide evidence that chamomile can be used safely to treat infant colic disorders.

5.6 Eczema

Topical applications of chamomile have been shown to be moderately effective in the treatment of atopic eczema [50]. It was found to be about 60% as effective as 0.25% hydrocortisone cream [51]. Roman chamomile of the *Manzana* type (Kamillosan (R)) may ease discomfort associated with eczema when applied as a cream containing chamomile extract. The *Manzana* type of chamomile is rich in active ingredients and does not exhibit chamomile-related allergenic potential. In a partially double-blind, randomized study carried out as a half-side comparison, Kamillosan(R) cream was compared with 0.5% hydrocortisone cream and a placebo consisting only of vehicle cream in patients suffering from medium-degree atopic eczema [52]. After 2 weeks of treatment, Kamillosan(R) cream showed a slight superiority over 0.5% hydrocortisone and a marginal difference as compared to placebo. Further research is needed to evaluate the usefulness of topical chamomile in managing eczema.

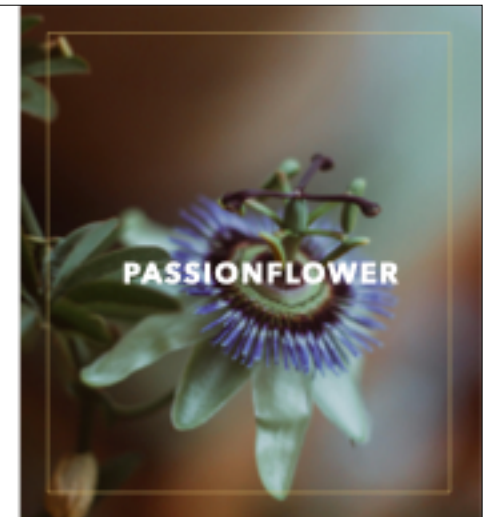


Passiflora incarnata

Plant family: Passifloraceae

Parts used: flower, leaf, stem.

Research into the mechanisms of action of passionflower indicates that its anxiolytic effects are likely due to the presence of flavonoids, such as apigenin and chrysin, which have been shown to bind to benzodiazepine receptors in the brain. This binding produces a calming effect similar to that of conventional anti-anxiety medications but without the associated side effects. Passionflower may enhance the effects of gamma-aminobutyric acid (GABA), the neurotransmitter that helps regulate mood and reduce anxiety.



Passiflora incarnata

Why is it named "passiflora"?

The Passion Flower is a symbol of the fifth Sorrowful Mystery, the Crucifixion of Christ.

The spiraled tendrils = the lash of Christ's scourging.

The central flower column = the pillar

The 72 radial filaments = the Crown of Thorns

The top 3 stigma = the 3 Nails

The lower 5 anthers = the 5 wounds

The red stain = Christ's blood drops

The Fragrance = the Spices prepared by the Holy Women



PASSIONFLOWER

• **Flavonoids**

- **Apigenin:** A flavonoid known to bind to benzodiazepine receptors in the brain, producing calming and sedative effects similar to those of pharmaceutical anxiolytics but without the associated side effects.
- **Chrysin:** Another flavonoid that has been shown to enhance GABAergic activity, contributing to its anxiolytic and sedative properties.

- **Vitexin and Isovitexin:** These flavonoids also exhibit anxiolytic effects and contribute to the overall calming properties of passionflower.

• **Alkaloids**

- **Harmann and Harmaline:** These alkaloids are believed to have **mild monoamine oxidase (MAO) inhibitory effects**, which can enhance mood and reduce anxiety by increasing the levels of neurotransmitters such as serotonin and dopamine.

PASSIONFLOWER

Preparation:

- 40-60% EtOH, 1:2-1:3, or glycerine, 1:2-1:5. Flavonoids and alkaloids are the key constituents, which are extracted best in medium alcohol content.

Actions:

- Mild nervous, mild analgesic, mild anxiolytic, mild hypnotic.
- Also: benzodiazepine receptor agonist, aphrodisiac, spasmolytic, anti-hypertensive, anti-HIV/1ori.

Safety:

- Should not be combined with MAO inhibitor medications. I recommend caution in patients with MAO-UVTNR SNPs or other "slow MAOA" or "slow COMT" SNPs to avoid agitation. This is theoretical, and is probably very dose-dependent.
- Pregnancy: Category B1
- Lactation: Compatible
- Children: likely safe in appropriate doses.
- Sedative in very high doses.

PASSIONFLOWER



Melissa officinalis

Plant family: Lamiaceae (mint)

Parts used: Leaf, stem, (flower)

Lemon balm (*Melissa officinalis*), a perennial herb in the mint family, has been traditionally used for its calming effects and is now gaining recognition in modern herbal medicine for its potential to alleviate anxiety and related disorders. The plant's leaves contain compounds such as rosmarinic acid, which are believed to have a calming effect on the central nervous system. Studies have shown that lemon balm can reduce symptoms of anxiety, promote better sleep, and improve mood. A robust body of research supports the use of lemon balm for a number of infectious diseases.

• Volatile compounds

- **Citral:** This compound has a strong lemon scent and is known for its antimicrobial, antiseptic, and anti-inflammatory properties. It helps in reducing inflammation and fighting infections.
- **Pinene:** A compound with antimicrobial and anti-inflammatory properties, menth works synergistically with citral to enhance lemon balm's therapeutic effects.
- **Citronellal:** This component has calming and sedative effects, making it useful in reducing anxiety and promoting relaxation.
- **Geraniol:** Known for its antimicrobial and anti-inflammatory effects, geraniol also has a calming effect and contributes to the overall soothing properties of lemon balm.

• Polyphenolic Acids

- **Rosmarinic Acid:** A potent antioxidant with anti-inflammatory and antimicrobial properties. Rosmarinic acid is particularly

effective in reducing symptoms of anxiety and improving mood.

- **Caffeoyl Acid:** This polyphenolic acid has antioxidant, anti-inflammatory, and antimicrobial effects, contributing to the overall health benefits of lemon balm.

• Flavonoids

- **Quercetin:** A powerful antioxidant and anti-inflammatory agent, quercetin helps protect cells from oxidative damage and reduce inflammation.
- **Luteolin:** Known for its antioxidant and anti-inflammatory properties, luteolin supports overall health and helps reduce inflammation.
- **Flavonoid:** Has antioxidant, anti-inflammatory, cancer protective, cardioprotective and antimicrobial actions.

Int. J. Mol. Sci., 2022 Apr; 23(7): 3591.
Published online 2022 Mar 25. doi: [10.3390/ijms23073591](https://doi.org/10.3390/ijms23073591)

PMCID: PMC8998931
PMD: 35408950

Melissa officinalis: Composition, Pharmacological Effects and Derived Release Systems—A Review

Gabriela Petricor,^{1,2,3} Ludmila Motelica,^{1,2,3} Luminita Narcisa Craciun,⁴ Ovidiu Cristian Oorea,^{2,3,4} Denisa Fical,^{2,3,4} and Anton Fical^{1,2,3,4,*}

Antonio Di Stefano, Academic Editor

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Abstract [Go to:](#)

Melissa officinalis is a medicinal plant rich in biologically active compounds which is used worldwide for its therapeutic effects. Chemical studies on its composition have shown that

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Safety:

- **Pregnancy: Category B2.** A retrospective observational study published in 2015 cited Melissa officinalis as one of the most commonly used medicinal herbs during pregnancy without correlated adverse outcomes. Further research has revealed lemon balm to be effective and safe in reducing severity of pain after birth.
- **Lactation: Likely compatible.** While there is evidence suggesting galactagogue activity in lemon balm, no data currently exists on the excretion of lemon balm components into breastmilk, or its safety and efficacy for nursing mothers and infants. However, given its extensive historical use, I would suggest that lemon balm is safe in lactation. Lemon balm has been safely and effectively administered alongside other herbs for various infant treatments.
- **Infants and children:** safe in appropriate doses.
- Could theoretically suppress thyroid function in high doses.
- **Toxicity:** high doses of essential oil could be toxic. Sedative in high doses.



LEMON BALM

Age/weight	Dose	Times per day	Form
Adult (approx 150 lbs)	5-7 ml tincture or glycerite	3 times daily for chronic conditions, up to 5 times per day for acute conditions.	Tea: 3-5 grams in 8 oz (250 ml) hot water, steep covered for 15 minutes, let cool to desired temperature. Tincture: 1:2 or 1:3 herb:solvent ratio in 50-60% alcohol. Glycerite 1:2-1:5 in glycerine.
75-100 pounds	2-4 ml tincture or glycerite	Recommend no more than 4 times daily for children.	
35-75 pounds	1.5-3.5 ml glycerite		
20-35 pounds	1-2 ml glycerite		
15-20 pounds	0.5-1 ml glycerite		
Under 15 pounds	See your physician		

My dosing:

I dose with glycerite, tincture or tea. Glycerite is the most convenient way of dosing children. **Dose: 0.05 mL per lb of body weight per dose, up to 5 times daily. (Dose = 0.05 x _____ weight in lb)**
(0.11 mL per kg of body weight per dose)



Favorite use of this herb:

- SO MANY! (See next slides.)
- Anxiety
- Mixed anxiety and depression
- Insomnia
- ADHD or hyperactivity
- Anything infectious!
- PAIN!

Anxiety & Stress

Original Title: Psychosom Med. 2004 Jul-Aug;52(4):307-15. doi: 10.1080/02701320410001712622.71.

Attenuation of laboratory-induced stress in humans after acute administration of Melissa officinalis (Lemon Balm)

David O Kennedy ¹, Nancy Latta, Andrew S Schvey

Affiliations in report

PMID: 16270190 DOI: 10.1080/02701320410001712622.71

Free article

Abstract

Objective: Melissa officinalis (lemon balm) is contemporaneously used as a mild sedative and/or calming agent. Although recent research has demonstrated modulation of mood in healthy, well-rested individuals, no studies to date have directly investigated the effects of this herbal medication on laboratory-induced psychological stress.

Methods: In this double-blind, placebo-controlled, randomized, balanced crossover experiment, 30 healthy volunteers received two separate single-doses of a standardized Melissa officinalis (300 mg, 600 mg) and a placebo, in separate days separated by a 7-day washout period. Modulation of mood was assessed during baseline and 1-hour post-dose completion of a 20-minute version of the Defined Intensity Stressor Simulation (DISS) battery. Cognitive performance on the four assessment tasks of the battery was also assessed.

Results: The results showed that the 600-mg dose of Melissa ameliorated the negative mood effects of the DISS, with significantly increased self-ratings of calmness and reduced self-ratings of nervousness. In addition, a significant increase in the speed of mathematical processing, with no reduction in accuracy, was observed after ingestion of the 300-mg dose.

Conclusions: These results suggest that the potential for M. officinalis to mitigate the effects of stress deserves further investigation.

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Mixed Anxiety & Depression

April 2021 Aug 21

The effects of lemon balm (*Melissa officinalis* L.) on depression and anxiety in clinical trials: A systematic review and meta-analysis

Javid Ghazizadeh^{1,2,3,4}, Saeed Sadigh-Esteghad⁵, Wolfgang Marx⁶, Ali Fakhari⁶, Sanaz Hamediyazden⁶, Mohammadi Torbat⁷, Somayeh Taheri-Tarighi⁸, Mostafa Anji-Khosravi^{2,8}, Mojgan Mirghafourvand⁸

Affiliations: + expand

PMID: 34449930 DOI: 10.1002/psl.7252

Abstract

A systematic review and a meta-analytic approach were considered to investigate the effects of lemon balm as a medicinal herb on anxiety and depression in clinical trials and its side effects. All randomized clinical trials published up to October 30, 2020 that examined lemon balm in patients with symptoms of depression or anxiety, with acute or chronic manifestations, were searched in 12 online databases. Statistical analysis was performed using RevMan software. Continuous data were analyzed using standardized mean differences. Statistical heterogeneity was assessed using Chi^2 , I^2 , and p value tests. Based on meta-analysis results, lemon balm significantly improved mean anxiety and depression scores compared with the placebo (SMD: -0.96; 95% CI: -1.63 to -0.33; $p < .001$).

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Hyperactivity, concentration & impulsiveness

Published Online: 1 July 2016
doi: 10.1111/jcpp.12664

Hyperactivity, concentration difficulties and impulsiveness improve during seven weeks' treatment with valerian root and lemon balm extracts in primary school children

Aligen Döndüç¹, Ferya Başoğlu², Christian Watzlaw³, Uta Fuchs⁴, Martin Sauer⁵

Affiliations: + expand
PMID: 26829172 DOI: 10.1111/jcpp.12664

Free article

Abstract

Background: Valerian root and lemon balm extracts have previously shown efficacy and excellent tolerability in children (7 years) suffering from restlessness and insomnia. We now examined whether treatment with a fixed combination of both may also improve concentration, hyperactivity and impulsiveness.

Methods: 100 primary school children suffering from hyperactivity and concentration difficulties but not meeting ADHD criteria were treated in an observational study by 27 office-based pediatricians with a recommended daily dose of 500 mg valerian root extract (V57), 100 and 200 mg lemon balm extract (L57), 1000 (Sambrolic), and evaluated by audiotapes and parents using standardized questionnaires at baseline, weeks 2 and 7.

Results: The number of children having strong/very strong symptoms of poor ability to focus decreased from 75% to 16%, hyperactivity from 65% to 15%, and impulsiveness from 68% to 20%. Parent-rated social behavior, sleep and symptom burden showed highly significant improvements. Only in two children mild transient adverse drug reactions were observed.

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Infections:

- Numerous, numerous studies show efficacy for multiple different types of infections, especially viral infections. This includes:
 - Hand Foot & Mouth Disease (lemon balm tea popsicles are GREAT for this)
 - COVID-19
 - Influenza
 - HSV
 - Salmonella
 - E. Coli
 - Listeria
 - Staphylococcus aureus

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Nature's soothing secret: clinical use of lemon balm (*Melissa officinalis*) in pediatric medicine

January 3, 2024

Address: 10-16, Babes 10-6, Children 10-6, Pediatrics, Salzburg 504



Pain:

- There are no studies here, but this is from my clinical experience. I find lemon balm to be very effective for mild pain - e.g., colic, teething pain, ear infections, stomachaches and more.



Avena sativa
 Plant family: Poaceae (grass)
 Parts used: oat straw (stem & leaf) for herbal medicine, seeds (grain) for food.

Oats eaten in whole food form are an excellent galactagogue (substance that enhances lactation). Oats consumed in whole food form are also high in soluble fiber to improve high cholesterol levels.

Avena tincture, tea or glycerite used in herbal medicine is often used for mild insomnia, agitation, depression, high blood pressure, and mild pain. It has been used by some herbalists for gastrointestinal cramping and menstrual cramps. Some use this herb for drug withdrawal symptoms or to decrease nicotine cravings. Avenanthramides are the group of polyphenolic compounds unique to oats responsible for their antioxidant, anti-inflammatory, anti-itch properties.



OAT

- **Avenanthramides:** These are a group of polyphenolic compounds unique to oats. They have antioxidant, anti-inflammatory, and anti-itch properties. Avenanthramides may help in reducing the physiological impacts of stress and anxiety.
- **Beta-glucan:** This is a type of soluble fiber found in oats. Beta-glucan has been shown to have beneficial effects on heart health, but it may also help modulate the body's response to stress by maintaining stable blood sugar levels.
- **Saponins:** These are natural glycosides that have immune-boosting and cholesterol-lowering properties. Saponins in oats may also play a role in reducing anxiety by impacting neurochemical pathways.
- **Flavonoids:** Oats contain several flavonoids, which are compounds with antioxidant properties. Flavonoids can help protect against oxidative stress, which is often linked to anxiety and other mental health disorders.
- **Vitamins and Minerals:** Oats are a good source of several vitamins and minerals, including B vitamins, magnesium, and zinc. B vitamins (especially B1, B2, B6, and B7) are essential for brain health and can help reduce symptoms of anxiety and depression. Magnesium and zinc also play crucial roles in nervous system function and stress response.
- **Tryptophan:** This is an essential amino acid present in oats. Tryptophan is a precursor to serotonin, a neurotransmitter that plays a significant role in mood regulation and can help alleviate anxiety.

Multiple Antioxidative and Bioactive Molecules of Oats (*Avena sativa* L.) in Human Health

Il-Sue Kim,[†] Cher-Won Hwang,^{2,*} Woono-Suk Yang,^{3,*} and Cheor-Ho Kim^{4,5,*}

Raffaella Boggia, Academic Editor, Giosuè Costa, Academic Editor, and Federica Turini, Academic Editor

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Abstract

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Oats (*Avena sativa* L.) are rich in protein, fiber, calcium, vitamins (B, C, E, and K), amino acids, and antioxidants (beta-carotene, polyphenols, chlorophyll, and flavonoids). β -glucan and avenanthramides improve the immune system, eliminate harmful substances from the body, reduce blood cholesterol, and help with dietary weight loss by enhancing the lipid profile and breaking down fat in the body. β -glucan regulates insulin secretion, preventing diabetes. Progladins also lower cholesterol levels, suppress the accumulation of triglycerides, reduce

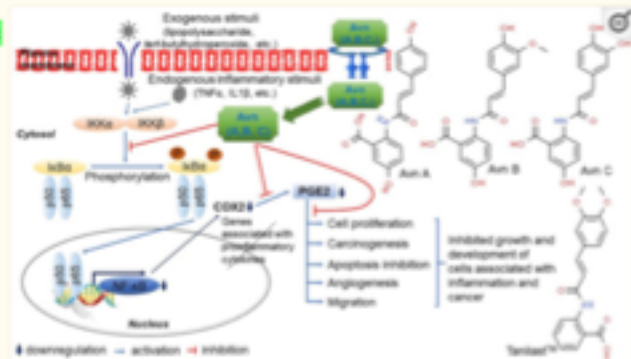
5. Other Bioactive Ingredients and Functionalities

[Go to:](#)

Physiologically active ingredients of oats include vitamin E, carotenoids, anthocyanins, lignans, phytic acid, phenolics, and phytosterol, and *Avn*, which is a phenol present only in oats [81,82]. These components are secondary metabolites produced as defense mechanisms during plant growth and act as antioxidants that control cell damage from oxidative stress by removing reactive oxygen species in the human body [82,83,84,85]. Furthermore, the addition of oat components during the processing of food products helps to suppress fatty acid plaque development because of its antioxidant action and improves storage properties [23,86,87].

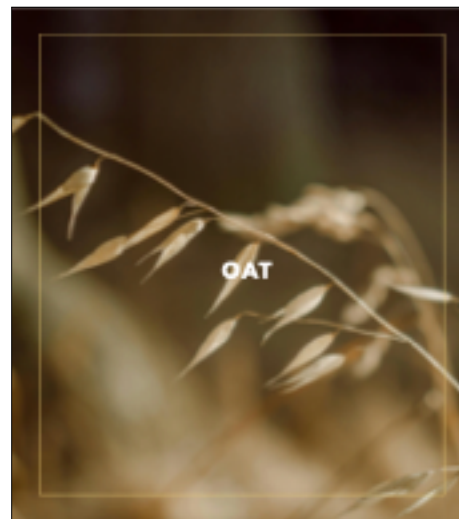
Vitamin E consists of four tocopherol isomers (α -, β -, γ -, and δ -tocopherol) and four tocotrienol isoforms (α -, β -, γ -, and δ -tocotrienol) [Figure 5] [88]. Among these, α -tocotrienol has 40–60 times greater antioxidant capacity than β -tocotrienol, a key antioxidant [82]. It lowers blood cholesterol, has anti-inflammatory effects, and inhibits tumor cell proliferation in humans [90]. The main polyphenolic compound found in oats includes protocatechuic, syringic, vanillic, *p*-hydroxybenzoic, gallic, *p*-coumaric, *o*-coumaric, and caffeic acids [Figure 6] [91,92,93]. Among them, *Avn* biosynthesized from phenylalanine as an alkaloid [Figure 7] [94,95] is a polyphenol with various physiological properties, including antioxidant, anti-inflammatory, anti-cancer, anti-thrombotic, anti-proliferative, and anti-itch activities [9,95,96,97,98,99,100,101,102,103]. *Avn* has 30 times higher antioxidant activity than other phenolic compounds [98,99,102]. There are various types of *Avn* found in oats. Depending on the residue of *N*-cinnamoyl anthranilic acid, *Avn A* combined with *p*-coumaric acid, *Avn B* combined with ferulic acid, and *Avn C* combined with caffeic acid are

Avenanthramides:



Discussion

A predicted mechanism of avenanthramides (*Avns*)-mediated anti-inflammatory in skeletal muscle C2C12 cells. *Avns*, the polyphenolic molecules identified solely in oats, exhibit anti-inflammatory activity mainly by inducing nuclear factor-kappaB (NF- κ B) inactivation in C2C12 cells. *Avns* downregulated the expression of



Preparation:

- Steel cut oats, whole grain oats are consumed for cardiovascular prevention, for typtrophen, beta glucan, and vitamins and minerals including magnesium and zinc.
- Topical applications of oat-based creams or baths which can have anti-pruritic effects.
- For anxiety: avena sativa extract in liquid or capsule form, made from aerial parts and seeds, which are rich in avenanthramides. Oat straw tea is made from the green, unripe parts of the plant (oat straw).

Actions:

- nervine, hypnotic, anxiolytic, spasmolytic, anodyne, antispasmodic, demulcent, hypoglycemic, nutritive, digestive, immunomodulatory, antipruritic

Safety:

- Allergies to oats
- Celiac disease - some have sensitivity to oats or concern of cross-contamination
- Consuming whole oats: often not tolerated in patients with SIBO or dysbiosis (can cause bloating, gas), may interfere with absorption of medications.
- Otherwise EXTREMELY safe, even in children, pregnancy and lactation.



OAT

Age/weight	Dose	Times per day
Adult (approx 150 lbs)	5-10 ml tincture or glycerite (milky unripe seed) or eaten as whole foods.	[Tincture or glycerite] 3 times daily or as needed up to every 2 hours. Recommend no more than 4 times daily for children.
75-100 pounds	3-5 ml tincture or glycerite	Whole foods: 1 serving 3-4 times per day. [E.g., oat muffin or cookies.]
35-75 pounds	2-3 ml glycerite	
20-35 pounds	1-2 ml glycerite	
15-20 pounds	0.5-1 ml glycerite	
Under 15 pounds	Teaspoons of oat straw tea	

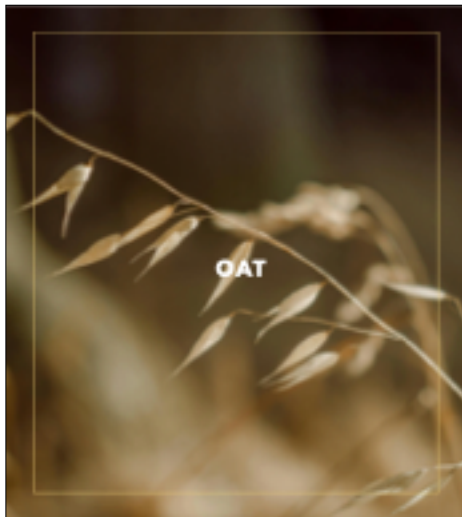
My dosing:

1 dose with glycerite or tea. Glycerite is the most convenient way of dosing children. Dose: 0.05 - 0.07 ml per lbs of body weight per dose, up to 5 times daily. (Dose = 0.05 x _____ weight in lbs) (0.11 - 0.154 mL per kg of body weight per dose).

You would have to try exceptionally hard to overdose this herb. It is very mild.

Favorite use of this herb:

- Anxiety: There are minimal solo studies for use of this herb, but the constituents have been studied and shown anxiolytic effects. Avena is NOT the strongest anxiolytic, it tends to be very, very gentle, so keep that in mind. However, it is a go-to herb in sensitive populations, especially in nursing or pregnant Moms, children. It is extremely safe, and this is a good herb to choose if safety is a concern.
- Lactation: great addition to nursing Moms.
- Cognition: One study suggests that green oat extract improves cognitive function in adults. (See next slide.)



Open Access Article

Acute and Chronic Effects of Green Oat (*Avena sativa*) Extract on Cognitive Function and Mood during a Laboratory Stressor in Healthy Adults: A Randomised, Double-Blind, Placebo-Controlled Study in Healthy Humans

by David G. Kennedy^{1,2,3}, Bernd Barchenider^{1,3}, Barbara C. Lang^{1,3,4}, Joe Puchner^{1,3}, Joanna Forder^{1,3}, Julia Khan^{1,3,5}, Philipp A. Jackson^{1,3,5} and Emma L. Wightman^{1,3}

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(This article belongs to the Special Issue The Effects of Phytochemicals on Health Benefits)

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Abstract

Green oat (*Avena sativa*) extracts contain several groups of potentially psychoactive phytochemicals. Previous research has demonstrated improvements in cognitive function following a single dose of these extracts, but not following chronic supplementation. Additionally, while green oat extracts contain phytochemicals that may improve mood or protect against stress, for instance, specific scientific literature exploring, to date, this possibility has not been examined. The current study investigated the effects of a single dose and four weeks of administration of a novel, *Avena sativa* leaflet extract (mg/kg) on cognitive function and mood, and changes in psychological state during a laboratory stressor. The study adopted a dose-ranging, double-blind, randomised, parallel-group design in which 120 healthy males and females (20 to 40 years) received either 400 mg, 800 mg, 1200 mg green oat extract or placebo for 28 days. Measurements of cognitive function, mood and changes in psychological state during a laboratory stressor (flammarol, 100mg/kg) showed acute



LAVENDER

Lavandula angustifolia

Plant family: Lamiaceae (mint)

Parts used: flower (most common), leaf, stem

Lavandula angustifolia, commonly known as lavender, is a widely used herb in traditional and modern herbal medicine for its calming and anxiolytic properties. The primary active constituents responsible for these effects include linalool, linalyl acetate, camphor, and terpinen-4-ol. These compounds interact with the central nervous system, particularly through modulation of the GABAergic system and serotonergic pathways, which helps in reducing anxiety and promoting relaxation. Lavender is commonly used in aromatherapy, where its essential oil is inhaled or applied topically, as well as in oral preparations like Silexan, an effective treatment for generalized anxiety disorder (GAD).



LAVENDER



LAVENDER

- **Linalool:** Linalool is a naturally occurring terpene alcohol found in lavender essential oil. It has been shown to have sedative and anxiolytic properties. Research indicates that linalool can reduce anxiety by modulating the activity of the GABAergic system, which is the primary inhibitory neurotransmitter system in the brain.
- **Linalyl Acetate:** This ester is another major component of lavender essential oil. Linalyl acetate has been found to exhibit calming and relaxing effects, similar to linalool. It contributes to the overall anxiolytic action of lavender by influencing the central nervous system.

- **Camphor:** Although present in smaller amounts, camphor has mild sedative effects and can help in alleviating anxiety and stress.
- **Terpinen-4-ol:** This compound has been noted for its antimicrobial properties, but it also plays a role in the anxiolytic effects of lavender by contributing to its overall calming profile.
- **Lavandulol:** This monoterpene alcohol, found in smaller quantities in lavender, is believed to contribute to its calming effects by interacting with neurotransmitter systems involved in anxiety.



LAVENDER

Preparation

- Essential oil
- Oral supplements like encapsulated lavender essential oil (e.g., Silexan, Lavella)
- Tea: 1-2 teaspoons dried flower steeped in boiling water 10-15 minutes. Usually mixed in other formulas, as lavender tea alone is not palatable.
- Tincture: 1:2 - 1:5 in 60-90% alcohol.

Actions:

- Moderate-potency sedative, anxiolytic, antidepressant, carminative, spasmolytic, nociceptive, mild analgesic, antioxidant. Possibly antiparasitic against *Giardia* and *Trichomonas* (also local anesthetic, antiscorbutic, anticonvulsant, antiparasitic against *Giardia* and *Trichomonas*, diuretic due to increase tubular sodium excretion, inflammation modulating, mast cell degranulation inhibitor).

Safety:

- **DO NOT MISTAKE WITH LAVENDIN** (*Lavandula x intermedia*). They are closely related, but there are significant differences in efficacy and safety!
- Lavender oil has estrogenic and antiandrogenic activity, and case reports of gynecomastia have been reported in adolescent males.
- Aromatherapy with lavender essential oil is considered safe in pregnancy. Oral?
- Lactation: avoid topical use of essential oil on breast. Studies show limited DOES pass into breastmilk. Safe??
- Contraindicated in patients with liver or kidney failure.

LAVENDER



Toxicity:

- Neurotoxicity may occur with overdose of volatile oil, including dyspnea, arrhythmia, neuropathies, fatigue, confusion, blurred vision, paresthesia, seizures and death due to respiratory failure.
- **ALWAYS** use caution with internal use of essential oil in children.

LAVENDER



LAVENDER

Dose / form:

- **Essential oil:**
 - **Adult weight:** 2-5 drops in a diffuser
 - **Children/infants:** 1-2 drops in a diffuser
 - Tell parents: "If it smells strong for you, it is WAY too strong for them."
- **Oral:** Lavender oil capsule (Silexan formulation): 80 mg per day, 1 capsule. This may be appropriate for adolescents, but is likely too strong for children.
- **Tea:** 1-2 teaspoons of dried flower steeped 10-15 minutes.
 - Adults and adolescents: 1 cup 1-3x/day
 - Age 5-12: ½ cup 1-3 times per day
 - Ages 2-5: ¼ cup 1-3 times per day
 - Infants/young toddlers: 1-2 tablespoons

LAVENDER



Favorite use of this herb:

- **Anxiety:** Anxiety in adolescents and adults, or older elementary aged children who can swallow capsules. The evidence for the use of lavender is very strong, though there aren't many studies in children. (See next slides)
- Aromatherapy for a number of issues, especially agitation, pain and anxiety in children.
- Topical application for restless leg syndrome
- Depression
- Sleep concerns, especially in postpartum women
- Minor wounds, candida infections.

Anxiety

Meta-Analysis > Eur Arch Psychiatry Clin Neurosci. 2023 Oct;273(7):1615-1628.
doi: 10.1007/s00406-022-01547-w. Epub 2023 Jan 30.

Efficacy of Silexan in patients with anxiety disorders: a meta-analysis of randomized, placebo-controlled trials

Markus Dold ¹, Lucie Bartova ¹, Hans-Peter Voltz ², Erich Seifritz ³, Hans-Jürgen Möller ⁴, Sandra Schäfer ⁵, Siegfried Kasper ⁶

Affiliations + expand

PMID: 36717399 PMCID: PMC10485640 DOI: 10.1007/s00406-022-01547-w

Abstract

Introduction: We report on a meta-analysis of Silexan, a proprietary active substance produced from *Lavandula angustifolia*, in subthreshold anxiety, mixed anxiety and depressive disorder (MADD), and generalized anxiety disorder (GAD).

Methods: The present analyses are based on all currently completed 5 double-blind, randomized, placebo-controlled trials investigating Silexan in adult out-patients who received Silexan 1 × 80 mg/day or placebo for ten weeks according to random assignment (n = 1213). Efficacy was assessed based on the Hamilton Anxiety Rating Scale (HAM-A), several anxiety self-rating scales,

Stress, anxiety, pain

Effectiveness of lavender inhalation aromatherapy on pain level and vital signs in children with burns: a randomized controlled trial

Etra Ardahan Akgöl ¹, Atye Karakul ², Atye Afan ³, Pinar Doğan ⁴, Minever Hoggör ⁵, Akgün Oral ⁶

Affiliations + expand

PMID: 34229085 DOI: 10.1016/j.ctim.2021.102758

Free article

Abstract

Background: Burns are a source of pain, which cannot be fully treated with medications.

Objectives: This study aims to test the effectiveness of lavender oil inhalation aromatherapy applied before dressing change on vital signs and pain levels of children with burns.

Design: This randomized controlled study was held between May 2018 and May 2019. A total of 108 children who met the inclusion criteria were studied in three groups: Lavender-15 Group inhaled lavender oil for 15 min before dressing (n:36), Lavender-60 Group inhaled lavender oil for 60 min before dressing (n:36), and Control Group inhaled jojoba (placebo) oil for 15 min before dressing (n:36). Baseline pain levels and vital signs of the children were measured before inhalation. Pain levels and vital signs of the children were re-measured at the 1st and 30th minutes

Stress, anxiety and pain

doi: 10.1016/j.ctim.2020.101182. Epub 2020 Apr 28.

The effects of lavender aromatherapy on stress and pain perception in children during dental treatment: A randomized clinical trial

Fazlrah Shaden ¹, Neda Soltys ²

Affiliations + expand

PMID: 33891272 DOI: 10.1016/j.ctim.2020.101182

Abstract

Background and purposes: Reducing dental anxiety is a major aspect of childmanagement in dental visits. This crossover randomized clinical trial was designed to determine the effect of lavender aromatherapy on anxiety level during dental treatment and pain perception during dental injection in children.

Materials and methods: Twenty-four children aged 7-9 years received restorative treatment with lavender aromatherapy in the intervention session and without aroma in the control session. Salivary cortisol and pulse rate were measured to evaluate child's anxiety level and the Face Rating Scale (FRS) was used for assessing the pain perception during injection in both visits.

Results: The treatment effect on salivary cortisol, pulse rate, and FRS score was -8.01 ± 6.92 nmol/L, -11.17 ± 1.28 (in minutes), and -2.00 ± 0.41 respectively, which was statistically significant ($P < 0.001$).

Conclusions: Lavender aromatherapy can decrease dental anxiety and experienced pain in dental setting.

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Stress, anxiety and pain

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doi: 10.1016/j.ctim.2020.101211.

The effects of foot massage on hemodialysis patients' sleep quality and restless leg syndrome: a comparison of lavender and sweet orange essential oil topical application

Khodayar Oshvandi ¹, Fariba Mirzajani Lotomi ², Ali Reza Soltanian ³, Marziya Shamsizadeh ⁴

Affiliations + expand

PMID: 33838094 DOI: 10.1016/j.ctim.2020.101211

Abstract

Objectives: Hemodialysis (HD) patients suffer more sleep problems (poor sleep quality and restless leg syndrome [RLS]). Complementary therapy, especially massage with aromatherapy is one of the non-pharmacological treatment options with less adverse effects than routine methods. The purpose of this study was to determine the effects of foot massage with lavender and orange essential oil on HD patients' sleep quality and RLS.

Methods: This is a double blind-randomized controlled trial on 105 HD patients was conducted at a large educational hospital in Iran, Hamadan province between January and September 2017. Patients divided into three groups with random allocation (35 participants per groups in lavender, orange, and control group). Foot massage during HD with lavender and orange essential oil was administered to the patients three times a week for three weeks, and every massage lasted half an hour. The control group received routine care. Before the intervention, the end of the first, second, and third weeks Pittsburgh Sleep Quality Index (PSQI) and RLS questionnaire were completed for all three groups. Data were statistically analyzed with independent Samples t-test, chi-square test and

Stress, anxiety and pain

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Depression

Review | Gen Hosp Psychiatry, 2023 Sep–Oct;84:215–225.
doi: 10.1016/j.genhosppych.2023.08.003. Epub 2023 Aug 15.

Effects of aromatherapy on depression: A meta-analysis of randomized controlled trials

Kyeonga Cho ¹, Myoungsook Kim ²

Affiliations + expand

PMID: 37619300 DOI: 10.1016/j.genhosppych.2023.08.003

Abstract

Objective: Non-pharmacological interventions, such as aromatherapy, have been utilized for treating depression. This systematic review and meta-analysis aimed to investigate the effects of aromatherapy on depressive symptoms.

Method: The databases of PubMed, MEDLINE, CINAHL, EMBASE, Web of Science, and the Cochrane Library were searched from May 5, 2023, to May 20, 2023. Only randomized controlled trials that implemented aromatherapy in adults aged ≥18 years were included. The standardized mean difference (SMD) was calculated, and subgroup analysis, meta-ANOVA, and meta-regression were performed for the moderator variables.

Results: Thirty-two clinical trials (27 studies) were included in the final analysis. Aromatherapy demonstrated a moderate effect size for reducing depressive symptoms (SMD = -0.56, 95% CI: -0.69 to -0.43). Inhalation was the most effective method of delivery and blended essential oils

Molecules, 2023 Sep 24;27(9):6300. doi: 10.3390/molecules27196300.

Anti-Candida

Antifungal Activity of *Lavandula angustifolia* Essential Oil against *Candida albicans*: Time-Kill Study on Pediatric Sputum Isolates

Stefan Mijatovic ¹, Jelena Anko Stanekovic ², Ivana Colovic Calovski ³, Eleonora Dubljanin ⁴, Dejan Pletikovic ⁵, Dubravka Bjelogrić ⁶, Aleksandar Djacic ⁷

Affiliations + expand

PMID: 36234827 PMID: PMC9571381 DOI: 10.3390/molecules27196300

Abstract

The aim of our study was to determine the susceptibility of 16 *Candida albicans* sputum isolates on fluconazole and caspofungin, as well as the antifungal potential of *Lavandula angustifolia* essential oil (LAEO). The commercial LAEO was analyzed using gas chromatography-mass spectrometry. The antifungal activity was evaluated using EUCAST protocol. A killing assay was performed to evaluate kinetics of 2% LAEO within 30 min treatment. LAEO with major constituents' *linalyl* (33.4%) and *linalyl* acetate (30.8%) effectively inhibited growth of *C. albicans* in concentration range 0.5–2%. Fluconazole activity was noted in 67% of the isolates with MICs in range 0.06–1 µg/mL. Surprisingly, 40% of isolates were non-wild-type (non-WT), while MICs for WT ranged between 0.125–0.25 µg/mL. There were no significant differences in the LAEO MICs among fluconazole-resistant and fluconazole-susceptible sputum strains ($p = 0.37$) and neither among caspofungin non-WT and WT isolates ($p = 0.78$). The 2% LAEO rapidly achieved 50% growth reduction in all tested strains between 0.2 and 0.5 min. Within 30 min, the same LAEO concentration exhibited a 99.9% reduction in 27% isolates. This study demonstrated that 2% solution of LAEO showed a significant antifungal activity which is equally effective against fluconazole and caspofungin susceptible and less-susceptible strains.

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Hypericum perforatum


Plant family: Hypericaceae

Parts used: flowering tops and leaves

St. John's Wort (*Hypericum perforatum*) is best known for its use in treating mild to moderate depression. The plant's primary active constituents are hypericin and hyperforin, which are believed to influence the neurotransmitters serotonin, dopamine, and norepinephrine, contributing to its antidepressant effects.


Beyond its antidepressant properties, St. John's Wort is also used for wound healing and alleviating symptoms of premenstrual syndrome (PMS). The herb's anti-inflammatory and antimicrobial components, such as flavonoids and tannins, aid in skin regeneration and infection prevention.





ST. JOHN'S WORT

- **Hypericin and Pseudohypericin:** These are naphthodianthrones that contribute to the antidepressant and antitumor properties of St. John's Wort. Hypericin is believed to play a significant role in the herb's ability to modulate neurotransmitters such as serotonin.
- **Hyperforin:** Hyperforin is another major active constituent known for its antidepressant effects. It influences the uptake of neurotransmitters like serotonin, dopamine, and norepinephrine, thereby contributing to mood regulation.
- **Flavonoids:** St. John's Wort contains various flavonoids, including quercetin, rutin, and hyperoside. These compounds possess antioxidant, anti-inflammatory, and neuroprotective properties, contributing to the overall health benefits of the plant.
- **Tannins:** These polyphenolic compounds have astringent properties and contribute to the antimicrobial effects of St. John's Wort. They also play a role in wound healing and reducing inflammation.
- **Essential Oils:** The essential oil of *Hypericum perforatum* contains various compounds such as sesquiterpenes, which contribute to its anti-inflammatory and antimicrobial activities.
- **Xanthones:** These compounds exhibit antioxidant and antimicrobial properties, further enhancing the medicinal profile of St. John's Wort.
- **Procyandins:** These are a type of condensed tannin that also have antioxidant properties, helping to protect cells from oxidative stress and damage.




ST. JOHN'S WORT

Preparation:

- Tincture: 1:2 - 1:5 in 40-60% ethanol, macerated in direct sunlight. 2-4 g dried herb per cup boiling water; infuse 10-15 min.
- Standardized extract: 0.3% hypericin or 3% hyperforin.
- Oil: fresh flowers infused in carrier oil (olive oil, etc.), macerated in direct sunlight for 2-3 weeks.

Actions:

- Nervine, antidepressant (mild-moderate), anxiolytic, antimicrobial (antibiotic and anti-HIV), analgesic, antineoplastic.



ST. JOHN'S WORT

Safety:

- St. John's Wort is known to interact with a wide range of medications, often reducing their efficacy by inducing the activity of cytochrome P450 enzymes and P-glycoprotein. This can lead to significant reductions in the blood levels of these medications. Most important interactions: antidepressants, anticoagulants, immunosuppressants, HIV medications, and numerous others.
- Pregnancy: Category B1. Lactation: Compatible with caution.
- Side effects: GI symptoms (nausea, diarrhea), dizziness, dry mouth, fatigue, photosensitivity (including photosensitivity rash), restlessness, agitation, increase anxiety, headaches.
- Potential serotonin syndrome when combined with antidepressants.



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LETTERS TO THE EDITOR

SSRIs and St. John's Wort: Possible Toxicity?

View | Comments

JACQUES B. GONZALEZ, MD, MPH
 American Physician | 106032220000000

In the editor, I would like to report a case of a complication that occurred when an herb was taken along with the standard medication it was supposed to replace.

The patient is a 50-year-old woman with asthma and chronic depression. She does not drink alcohol and was not using any medications. On the day before her symptoms started, she had a regularly scheduled office visit. She had no complaints, and her physical and mental examinations were normal. She reported that 10 days prior she had started taking sertraline (Zoloft) 50 mg per day, which she had been taking for eight months, and had started St. John's wort in powdered form, in a dosage of 600 mg per day. She experienced no adverse effects from switching preparations. The night after starting the sertraline, she began feeling tired but not sad or depressed. Thinking it would help her return to sleep, she took 20 mg of paroxetine. At about 10:00 pm her sister visited and found her to be unresponsive but responsive, groggy, slow-moving, and almost unable to get out of bed.

When I saw her at 12:30, she was groggy and refractory but able to respond appropriately. She complained of nausea, weakness and fatigue but denied feeling sad or depressed. Her vital signs and physical examination were normal except for slow respiratory rate and hyper-reflexia. Her vital laboratory studies were normal. Her chemistry panel and complete blood count were unremarkable. She was sent home, and reported the next day that she had sleep all night. She was more spontaneously verbal and physically active. Her vital signs, physical, neurologic, and mental examinations were normal. When I saw her the following day she was cheerful, alert and back to her baseline status.

St. John's wort (*Hypericum perforatum*) is an herbal remedy long used in most countries. It has been widely used in Europe and is becoming more widespread in the United States, especially after a recent review of scientifically designed studies of its efficacy¹ and its incorporation in the book *Hypericum and Depression*.² St. John's wort is a monoamine oxidase inhibitor (MAOI) and its inhibition of both the serotonin and norepinephrine reuptake pumps may lead to toxicity when combined with other MAOIs or serotonergic agents.


Most Recent Issue
 JUL 2008



ST. JOHN'S WORT

Dose / form:

- **Tincture**
 - Adult/adolescent dose: Acute dose: 4-5 mL tincture (1:2 - 1:5, 40-60% alcohol) every 2-3 hours. Chronic use: 2-5 mL tid.
 - Pediatric: 0.03 mL/lb of body weight, 0.066 mL/kg of body weight, up to three times daily.
- **Standardized extract (0.3% hypericin or 3% hyperforin):** start at 300 mg once daily, increase to 300 mg up to 3 times daily. This dose is appropriate for adolescents and adults. I have no experience with standardized extract capsules for children under age 12.
- **Preferred use for children under 12:** tincture mixed with other serene herbs, e.g., chamomile, lemon balm, glycyrrhiza, scutellaria, etc.



ST. JOHN'S WORT

Favorite use of this herb:

- Combined anxiety and depression, particularly in teenagers, and particularly in teenagers with PMS.
- Anything antiviral! Research into HIV, Hepatitis C, HSV, Influenza virus, Cytomegalovirus.
- "Nervous agitation" in children
- Pain syndromes
- Seasonal affective disorder
- St. John's mixes well with other tinctures, and is a great addition to many formulas.

Phytother Res. 2001 Jun;16(6):367-76. doi: 10.1002/ptn.826

Experience with St John's Wort (*Hypericum perforatum*) in children under 12 years with symptoms of depression and psychovegetative disturbances

W D Höbner¹, T Kivile

PMID: 11406865 DOI: 10.1002/ptn.826

Abstract

The value of an extract of *Hypericum perforatum* (St. John's wort) for children with mild to moderate depressive symptoms was investigated for the first time in a multi-centre post-marketing surveillance study. One hundred and one children under 12 years were treated for a minimum of 4 weeks with an extension to 8 weeks with parental consent and medical practitioner recommendation. The dosage used ranged from 300 to 1800 mg per day. Compliance, tolerability and efficacy were assessed every 2 weeks by physicians and parents. Based on the data available for analysis, the number of physicians rating effectiveness as 'good' or 'excellent' was 72% after 2 weeks, 87% after 4 weeks and 100% after 8 weeks. The ratings by parents were very similar. There was, however, an increasing amount of missing data at each assessment point with the final evaluation including only 76% of the initial sample. Tolerability was good and no adverse events were reported. The results of this study suggest that *Hypericum* is a potentially safe and effective treatment for children with symptoms of depression.

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The efficacy and safety of St. John's wort extract in depressive therapy compared to SSRIs in adults: A meta-analysis of randomized clinical trials

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Herbal night in treatment of anxiety agitation in children

Summary

Emotional and behavioral problems in children and adolescents are on the rise. To reduce stress in these young children, it is important to explore natural remedies. To address this, a randomized controlled trial (RCT) was conducted to evaluate the efficacy of a natural remedy, chamomile, in the treatment of anxiety and behavioral problems in children. The study included 100 children aged 6 to 12 years. The results showed that the chamomile group had significantly lower levels of anxiety and behavioral problems compared to the control group. The study also found that the chamomile group had significantly higher levels of sleep quality and overall well-being. The study was limited by its small sample size and the lack of a placebo control. The study was funded by the National Institutes of Health.

Keywords: Anxiety, Agitation, Children, Herbal, Night

Introduction

Especially young people need a strong natural self-healing to cope with all the stressors of life. However, during the last 10 years, the number of children and adolescents showing psychological symptoms is increasingly high. There might be no epidemic (1), but the following numbers are alarming: up to 10% of young people experience a mental health problem, such as anxiety, depression or eating (2). In America, nearly every fifth or at least around every a week suffer from sleep disorders (3, 4). In Europe, 14.4% (5) and 14.7% (6) respectively. In the United States, 14.7% (7) of children aged 6 to 12 years of age suffer from high levels of behavioral problems, anxiety problems, lack of concentration, and/or hyperactivity (8). These numbers are similar to other countries. In Germany, every sixth child in a classroom shows psychological disorders (9).

There is a scientific consensus that these children (and their families) have to be supported and treated with adequate therapies (10, 11). At least for these children with anxiety and depression, agitated and depressed states are at increased risk for serious emotional problems in adolescence and adulthood (12). The first stage of intervention for anxiety, depression, and depression disorder requires a multimodal therapy as well as family-focused, multidimensional, integrative, and personalized (13, 14). Especially treatment with traditional therapies, such as antidepressants, should be avoided (15).

The efficacy of Hypericum perforatum (St John's wort) for the treatment of premenstrual syndrome: a randomized, double-blind, placebo-controlled trial

Abstract

Background: Premenstrual syndrome (PMS) is a common condition. Some of the most widely prescribed medications are selective serotonin reuptake inhibitors (SSRIs). However, the effectiveness of SSRIs in the treatment of PMS is controversial. Hypericum perforatum (HP), a natural remedy, is widely used for the treatment of PMS. The aim of this study was to evaluate the efficacy of HP in the treatment of PMS compared to a placebo.

Methods: This randomized, double-blind, placebo-controlled, crossover study was conducted between November 2003 and June 2005.

Results: The efficacy of HP in the treatment of PMS was significantly higher than that of the placebo.

Conclusion: The results of this study suggest that HP is an effective natural remedy for the treatment of PMS.

Hypericum perforatum (St John's wort) beyond depression: A therapeutic perspective for pain conditions

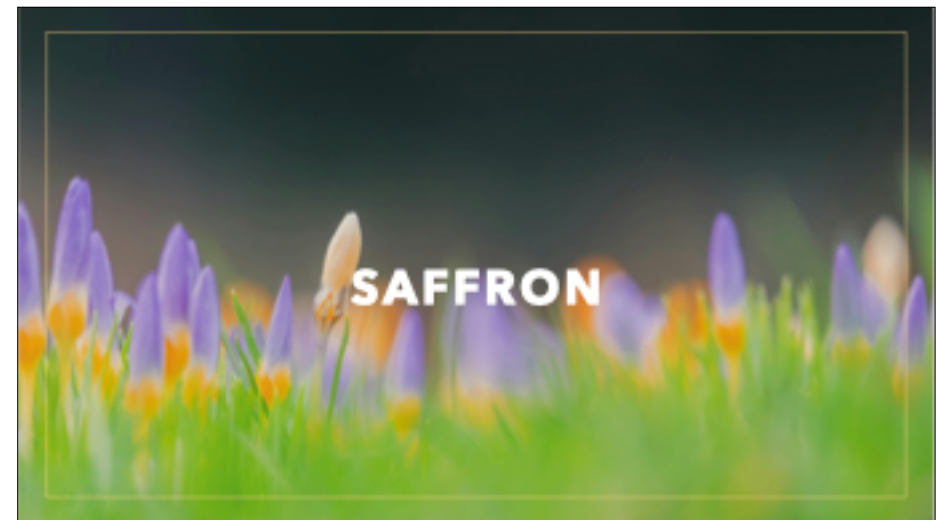
Abstract

Background: Hypericum perforatum (HP), commonly known as St. John's wort, has a rich history of use in the treatment of various conditions. In recent years, it has gained attention for its potential in the treatment of pain conditions. The aim of this study was to evaluate the efficacy of HP in the treatment of pain conditions compared to a placebo.

Methods: This randomized, double-blind, placebo-controlled, crossover study was conducted between November 2003 and June 2005.

Results: The efficacy of HP in the treatment of pain conditions was significantly higher than that of the placebo.

Conclusion: The results of this study suggest that HP is an effective natural remedy for the treatment of pain conditions.



Crocus sativus

Plant family: Iridaceae (Iris)

Parts used: dried stigma

Saffron has been traditionally used for the treatment of mood disorders and as an antioxidant. The active constituents of saffron, including crocin, picrocrocin, and safranal, are believed to contribute to its antidepressant effects by modulating neurotransmitter levels, such as serotonin and dopamine, in the brain. Clinical studies have shown that saffron can be as effective as standard antidepressants in treating mild to moderate depression, with fewer side effects.

In addition to its mood-enhancing properties, saffron is also used for its anti-inflammatory and anticancer potential. Crocin, a major component, exhibits strong antioxidant activity, protecting cells from oxidative stress and reducing inflammation.



SAFFRON

- **Crocin / crocetin:** Crocetin is a diresoroid dicarboxylic acid and is the aglycone (nonglycosylated) form of crocin. It is fat soluble and contributes to saffron's red color and has antioxidant properties. It has been studied for its potential effects in improving mood, reducing inflammation, and protecting against certain types of cancer. It has antioxidant, neuroprotective, anti-inflammatory, antidepressant and anticancer properties. Crocin is a glycosylated form of crocetin and is water-soluble. Both have antioxidant, neuroprotective and anti-inflammatory properties, but their effectiveness and mechanisms can vary due to their solubility and absorption differences.

- **Safranal:** This volatile oil contributes to saffron's distinctive aroma. Safranal has shown potential as an antioxidant, antidepressant, and anxiolytic agent. It also has antioxidant properties.

- **Picrocrocin:** This compound gives saffron its characteristic bitter taste. Picrocrocin is a precursor to safranal and has shown some potential in mood regulation and cognitive function. It is also anti-inflammatory.

- **Kaempferol:** This flavonol has been studied for its potential anti-cancer, anti-inflammatory, and antioxidant effects.



Preparation:

- **Harvesting:** Saffron is harvested by hand-picking the red stigmas from the flowers of *Crocus sativus*. This process is labor-intensive as each flower contains only three stigmas.
- Saffron can be used in powdered form, or the whole, dried stigmas can be used directly.
- Teas, infusions and tinctures are possible, or the herb can be used in cooking. Most of my experience is with using saffron in standardised extract form (encapsulated).

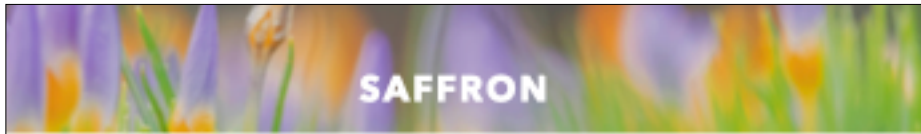
Actions:

- Antidepressant, anxiolytic, neuroprotective, antioxidant, anti-inflammatory, anticancer, cardioprotective, antidiabetic, analgesic, anti-asthmatic, improved vision.

Safety:


- Generally recognized as safe in pregnancy lactation when used in moderate doses. There is very little evidence on safety, however.
- May interact with SSRIs, potentially increasing risk of serotonin syndrome.
- Allergic reactions are possible.
- Reported to have anticoagulant properties, so there may be a theoretical increased risk of bleeding when used with other blood thinning medications like warfarin, aspirin, antiplatelet drugs.
- Side effects at high doses may include diarrhea, vomiting, diarrhea, jaundice, anorexia.
- High doses of greater than 5 grams can cause poisoning. Doses of 12-20 grams would cause death. (This would be an expensive way to die.)





SAFFRON

- **Dose:**
 - 30 - 50 mg standardized extract (adult dose), once to twice daily. This dose is appropriate for adults, adolescents and older elementary-aged children (age 7+)
- I have no information on dosage for younger children. Presume one could dose based on weight, but this is theoretical.
 - (7-14 mg is what one proprietary formula is recommending.)



SAFFRON

Favorite use of this herb:

- Mixed anxiety and depression, particularly in adolescents. (No research in children.)
- Postpartum depression
- Weight management, particularly in adolescents, particularly in patients with combined anxiety/depression and overeating or with strong carbohydrate cravings.
- ADHD?

1 Year New 2024 Jan 23(4):e2716. doi: 10.1093/ajph/2024.2716. Online ahead of print.

Effect of Saffron Versus Selective Serotonin Reuptake Inhibitors (SSRIs) in Treatment of Depression and Anxiety: A Meta-analysis of Randomized Controlled Trials

Amir Shafiq^{1,2}, Ayman Lababidi¹, Hisham Doghrai¹, Ali Al-Hamad¹, Hisham Hossain Ahmad¹, Hisham Hossain Ahmad¹, Hisham Hossain Ahmad¹

Abstract
 Saffron, a natural remedy with potential antidepressant and anxiolytic properties, has gained attention as a potential therapeutic option.
Objective: This systematic review and meta-analysis aimed to evaluate the comparative effectiveness of saffron versus selective serotonin reuptake inhibitors (SSRIs) in treating depression and anxiety.
Methods: Electronic databases, including PubMed, Cochrane, Scopus, Web of Science, and the Electronic Journals, were searched from inception to April 31, 2023.
Data extraction: Randomized controlled trials (RCTs) comparing saffron intervention with SSRIs in adults with depression or anxiety were included.
Results: Saffron effects were analyzed using standardized mean differences (SMDs) and risk ratio (RR) with their 95% CI calculated confidence and lower estimates, respectively. Meta-analysis of 6 studies comparing depression outcomes revealed a nonsignificant difference between saffron and SSRIs in reducing depressive symptoms (SMD = -0.02 [95% CI: -0.08 to 0.05]). Four studies reporting anxiety outcomes showed a nonsignificant difference between saffron and SSRIs in reducing anxiety symptoms (SMD = 0.04 [95% CI: -0.02 to 0.10]). With regard to safety, participants receiving saffron had fewer adverse events than the SSRIs group (OR: 0.086, 95% CI: 0.02, 0.29).
Conclusions: Saffron could be a potential SRI alternative to reduce depression and anxiety symptoms with fewer adverse events. Further research with larger sample sizes and in diverse populations is warranted to validate these findings and explore potential mechanisms of treatment response.
Systematic review registration: PROSPERO registration no. CRD42023046208.
Keywords: Crocus sativus, anxiety, depression, saffron.

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1 Year New 2024 Jan 23(4):e2716. doi: 10.1093/ajph/2024.2716. Online ahead of print.

A double-blind, randomized, placebo-controlled trial of saffron stigma (Crocus sativus L.) in mothers suffering from mild-to-moderate postpartum depression

Javad Taheri^{1,2}, Parvaneh Bahmani¹, Saeed Abbas Taheri¹, Hossein Houshmandi¹, Saeed Ahmad Taheri¹, Amir Shafiq¹, Amir Shafiq¹, Amir Shafiq¹

Abstract
 Introduction: Saffron stigma extract affects the attitudes of breastfeeding mothers, who prefer to consume herbal medicine rather than chemical drugs, encouraged us to assess the effects of saffron (Crocus sativus L.) on mothers suffering from mild-to-moderate postpartum depression disorder.
Methods: A double-blind, randomized, and placebo-controlled trial was conducted on 80 new mothers who had a maximum score of 10 on the Beck Depression Inventory-Revised (BDI-R). They were randomly assigned to the saffron (15 mg/kg) or placebo group. The primary outcome was a change in the BDI-R scores 8 weeks after treatment compared to the baseline. The response and remission rates were considered to be secondary outcome measures.
Results: Saffron had a more significant impact on the BDI-R scores than the placebo. The mean BDI-R scores decreased from 20.3 ± 5.7 to 8.4 ± 3.7 for the saffron group (n = 40) and from 18.8 ± 5.1 to 11.1 ± 5.4 for the placebo group (n = 40). In the first assessment, 80% of the saffron group were in remission compared to 40% of the placebo group (n = 16). The complete response rate was 8% for the placebo group and 80% for the saffron group.
Conclusions: When administered to treat minor PPD in breastfeeding mothers, saffron had a more significant impact on the BDI-R than the placebo.
Keywords: Beck depression inventory-revised (BDI-R), breastfeeding mothers, Postpartum depression, Saffron stigma.

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The Effect of Saffron Kazanis (Crocus sativus L.) Supplementation on Weight Management, Glycemic Markers and Lipid Profile in Adolescents with Obesity: A Double-Blinded Randomized Placebo-Controlled Trial

Abstract

Obesity rates of adolescent obesity have led the World Health Organization to consider the disease a pandemic that needs focus. In search of new anti-obesity agents, Crocus sativus, preferably known as saffron, is a nutraceutical agent, proposed by traditional medicine. This study aimed to investigate the possible effect of saffron administration on weight management of obese adolescents. Seventy-four obese adolescents participated in a double-blind placebo-controlled trial of three arms, randomly assigned to receive either Saffron (Saff) (n = 25, 50 mg/kg/day), Metformin (n = 25, 500 mg/day) or a placebo (n = 24, for 12 weeks. Anthropometric, glycemic markers and lipid profile were investigated at baseline and post-intervention. Saffron supplementation significantly reduced the weight (mean, 50.0 kg) in obese adolescents (p < 0.05) compared to the placebo. Saffron supplementation led to a decrease in glycaemic levels, but provided a significant reduction in fasting triglyceride levels and also a significant increase in fasting HDL levels. Saffron Kazanis constitutes a promising nutraceutical option for adolescents with obesity, and contributes to total weight management.

Keywords: Adolescent obesity, glycemic levels, obesity, obesity, probiotics, saffron, youth.

Conflict of Interest statement:
Author(s) have not declared any potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Effectivity of Saffron Extract (Saffr'Active) on Treatment for Children and Adolescents with Attention Deficit/Hyperactivity Disorder (ADHD): A Clinical Effectivity Study

Abstract

Attention Deficit/Hyperactivity Disorder is the most prevalent neurodevelopmental disorder worldwide. Current treatment includes psychostimulants, but parents tend to be reluctant to administer them due to side effects, and alternatives are needed. Saffron extract is a natural product that has been proven safe and effective for treating a variety of mental disorders. This study compares the effectivity of saffron and the usual treatment with methylphenidate, using objective and parent-rated scales. We performed a non-randomized clinical trial with two groups: methylphenidate (n = 25) and saffron (n = 25), in children and adolescents aged 7 to 17. Results show that the effectivity of saffron is comparable to that of methylphenidate. Saffron is more effective for treating hyperactivity, symptoms, while methylphenidate is more effective for inattention symptoms.

Keywords: ADHD, CPT, saffron.

Conflict of Interest statement:
In the last 36 months, Maria Reyes-Fernandez has received lecture fees from Olibis, the principal investigator (PI) of an RCT research contract sponsored by, awarded on 12 August 2020, by Olibis (Spain) and co-PI of a RCT research grant (PI: Reyes-Fernandez) by Olibis, recipient of 12 in RCT. Reyes-Fernandez is a shareholder in Olibis (Spain), recipient of two research grants (MERCADORA, MARS/PIED) Study (2019-2020), Co-Founder and CEO of Olibis (Spain), which is a start-up devoted to the following major aims: (1) developing complementary treatments for mental disorders (i.e., integrative, dietary supplements) and (2) scientific activities. Reyes-Fernandez currently works as head supervisor that handles saffron in the company. He is also an employee and member of the advisory board of the local health authority. He is in the company to be clinically evaluate and train children and adolescents living in community children centers. Maria Reyes-Fernandez is the recipient of an RCT research contract sponsored by...



LEMON BALM

USE IT FOR EVERYTHING!

- This is the first herb that I encourage families to have "on hand"
- I use it regularly for fever, teething pain, pain with ear infections.
- Case:
 - 32 y/o woman using lemon balm post dental surgery (1)
 - Purchased 8 oz bottles at a time, she preferred use of lemon balm over Tylenol or Ibuprofen, even for issues like dental pain.
- Other cases: I have hundreds of stories, so many!

ST. JOHN'S WORT

MIXES WITH EVERYTHING. GREAT FOR COVID

- My #1 herb in the 2nd wave of COVID (October 2022). I regularly used it in combination herbal formulas, adding it to formulas with lemon balm, thyme, licorice, osha, mullein and a mix of other respiratory or antiviral herbs. It is incredible. Again, so many stories I can't pick out just one.
- Case:
 - #1: 34 y/o female with mixed anxiety, depression and PMS.
 - #2: 38 y/o female, competitive dancer with mixed anxiety, depression and PMS.
- Very effective in both cases, used as mono therapy. In other cases I will use a combination Vitex, St. John's Wort (PMS-specific) formula.

PASSIONFLOWER

SLEEP, SLEEP, SLEEP

- I also have hundreds of cases of using passionflower for sleep, as early as infancy. Do NOT use daily to prevent habituation.
- Case:
 - 38 y/o female with past history of alcohol & substance abuse. Passionflower glycerite is the only thing that helps her, she is extremely sensitive. (Obviously she is not a pediatric patient, but this shows another great use for Passionflower, in addition to non-complicated patients.)

HOW TO CHOOSE?

ALL OF THESE HERBS ARE INCREDIBLE

- It's almost impossible to choose cases, I have used each of these herbs dozens to hundreds of times.
- All of these herbs have proven safety records, and most are extremely safe even in sensitive populations (lactation, pregnancy, infants, children).

DOSING:

- Reminder:
 - The dosing chart will be searchable in Nat Peds PRO.

Bodyweight	Dose	Times per day
Adult (approx 150 lb)	5-10 ml tincture or glycerite (orly unripe seed) or eaten as whole foods.	(Tincture or glycerite) 2 times daily or as needed up to every 2 hours. Recommend no more than 4 times daily for children.
75-100 pounds	3-5 ml tincture or glycerite	Whole foods: 1 serving
33-75 pounds	2-3 ml glycerite	3-4 times per day. (E.g., eat mullein or osha.)
20-35 pounds	1-2 ml glycerite	
15-20 pounds	0.5-1 ml glycerite	
Under 15 pounds	Not recommended	



COMMUNITY!

- You can also click this button in the membership to connect with me and ask additional questions.



Q&A

ANY QUESTIONS?

UPCOMING MODULES

SAVE THE DATES!



AUGUST 8TH, 12:00 P.M. PST
Evidence-Based
Nutritional Interventions
for ADHD in Children



OCTOBER 3RD, 12:00 P.M. PST
Botanical Medicine for Common
Respiratory Conditions in Children



SEPTEMBER 8TH, 12:00 P.M. PST
An Integrative Approach
to Asthma Treatment



NOVEMBER 7TH, 12:00 P.M. PST
Botanical Medicine for Common Acute
Pediatric Complaints: ADM, Hand Foot
& Mouth, Pharyngitis and more...

THANK YOU!