

Search: PubMed Limits Advanced search Help

[Display Settings:](#) Abstract

[Send to:](#)



Can J Physiol Pharmacol. 2007 Sep;85(9):933-42.

Effects of traditionally used anxiolytic botanicals on enzymes of the gamma-aminobutyric acid (GABA) system.

Awad R, Levac D, Cybulska P, Merali Z, Trudeau VL, Arnason JT.

Ottawa-Carleton Institute of Biology, University of Ottawa, Ottawa, ON K1N6N5, Canada.

Abstract

In Canada, the use of botanical natural health products (NHPs) for anxiety disorders is on the rise, and a critical evaluation of their safety and efficacy is required. The purpose of this study was to determine whether commercially available botanicals directly affect the primary brain enzymes responsible for gamma-aminobutyric acid (GABA) metabolism. Anxiolytic plants may interact with either glutamic acid decarboxylase (GAD) or GABA transaminase (GABA-T) and ultimately influence brain GABA levels and neurotransmission. Two in vitro rat brain homogenate assays were developed to determine the inhibitory concentrations (IC50) of aqueous and ethanolic plant extracts. Approximately 70% of all extracts that were tested showed little or no inhibitory effect (IC50 values greater than 1 mg/mL) and are therefore unlikely to affect GABA metabolism as tested. The aqueous extract of *Melissa officinalis* (lemon balm) exhibited the greatest inhibition of GABA-T activity (IC50 = 0.35 mg/mL). Extracts from *Centella asiatica* (gotu kola) and *Valeriana officinalis* (valerian) stimulated GAD activity by over 40% at a dose of 1 mg/mL. On the other hand, both *Matricaria recutita* (German chamomile) and *Humulus lupulus* (hops) showed significant inhibition of GAD activity (0.11-0.65 mg/mL). Several of these species may therefore warrant further pharmacological investigation. The relation between enzyme activity and possible in vivo mode of action is discussed.

PMID: 18066140 [PubMed - indexed for MEDLINE]

[+](#) Publication Types, MeSH Terms, Substances

[+](#) LinkOut - more resources

Related citations

[Effect of thyrotropin releasing hormone (TRH) on GABA (gamma aminob [No To Shinkei. 1985]

Bioassay-guided fractionation of lemon balm (*Melissa officinalis* L.) usir [Phytother Res. 2009]

A role of nitric oxide as an inhibitor of gamma-aminobutyric acid transa [Brain Res Bull. 2000]

[Review](#) Formulations of dietary supplements and herbal extracts for rela [Med Sci Monit. 2009]

[Review](#) Basic aspects of GABA-transmission in alcoholism, [Eur Neuropsychopharmacol. 1997]

[See reviews...](#)

[See all...](#)

All links from this record

Related Citations

Compound (MeSH Keyword)

Substance (MeSH Keyword)

Recent activity

[Turn Off](#) [Clear](#)

Effects of traditionally used anxiolytic botanicals on enzymes of the gamma PubMed

[See more...](#)



You are here: NCBI > Literature > PubMed

[Write to the Help Desk](#)

GETTING STARTED

- [NCBI Help Manual](#)
- [NCBI Handbook](#)
- [Training & Tutorials](#)

RESOURCES

- [Literature](#)
- [DNA & RNA](#)
- [Proteins](#)
- [Sequence Analysis](#)
- [Genes & Expression](#)
- [Genomes & Maps](#)
- [Domains & Structures](#)
- [Genetics & Medicine](#)
- [Taxonomy](#)
- [Data & Software](#)
- [Training & Tutorials](#)
- [Homology](#)
- [Small Molecules](#)
- [Variation](#)

POPULAR

- [PubMed](#)
- [Nucleotide](#)
- [BLAST](#)
- [PubMed Central](#)
- [Gene](#)
- [Bookshelf](#)
- [Protein](#)
- [OMIM](#)
- [Genome](#)
- [SNP](#)
- [Structure](#)

FEATURED

- [GenBank](#)
- [Reference Sequences](#)
- [Map Viewer](#)
- [Genome Projects](#)
- [Human Genome](#)
- [Mouse Genome](#)
- [Influenza Virus](#)
- [Primer-BLAST](#)
- [Sequence Read Archive](#)

NCBI INFORMATION

- [About NCBI](#)
- [Research at NCBI](#)
- [NCBI Newsletter](#)
- [NCBI FTP Site](#)