

REVIEW ON ANXIETY TREATMENT WITH HERBAL DRUGS AND METHODS USED FOR EXTRACTION

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Abstract-

Common emotional responses like worry, fear, and unease are known as anxiety. Anxiety is a severe mental illness that impairs daily functioning. Physical signs of it include perspiration, anxiety, and an accelerated heartbeat. Stress, traumatic events from the past, or specific medical disorders can all cause anxiety. An area of the brain called the amygdala is crucial for processing and managing fear and anxiety. There are too many anti-anxiety medications on the market that cause sleep or excessive drowsiness in order to treat anxiety disorders or diseases. Drugs used to treat anxiety include benzodiazepines, monoamine oxidase inhibitors, and azapirones. However, phytochemicals have the ability to treat the illnesses without causing any negative side effects. Natural remedies now not only meet the bulk of the population's basic healthcare needs in underdeveloped nations, but they are also gaining more and more attention in industrialized nations as a result of skyrocketing healthcare expenses. In the prevention and treatment of diseases. Chemicals Known to have medicinal benefits are considered to be "active Ingredients" or "active principles" of natural medicines. Drugs used to treat anxiety include benzodiazepines, monoamine oxidase inhibitors, and azapirones.(Examples include tranylcyromine, isocarboxazid, phenelzine, and selegiline.)The names, mechanisms of action, dosage, recommended usage, side effects, and different extraction techniques for the 15 herbal drugs were used in this article.

INTRODUCTION

One of the most widespread and highly associated psychiatric illnesses is anxiety disorders[1]. Since the last ten years, numerous natural medications utilized in patients with Anxiety problems[2]. Due to the growing acceptance of herbal the majority of patients are taking drugs consulting naturopaths, herbalists, and other in addition to doctors, Healers[3]. One of the most prevalent psychiatric diseases, an anxiety disorder is thought to affect 25% of adults at some point in their lifetime[4]. Significant poll results showed That only 14% receive treatment for their mental problems[5]. Anxiety disorders are extremely comorbid, occurring in 93% of patients with bipolar disorder and 58% of patients with major depressive disorder[6]. About 60% of the world's population uses traditional medicines, including in industrialized and developing nations' rural areas.Countries where modern medicine is primarily used[7].

Signs and symptoms of anxiety

spoiling, continued washing, addressing, forcefulness, relief-seeking, and intense sexual thoughts. The most common are asking for, checking/counting, and Frequently regarded motives [8]

Mechanism Of Action Of Herbal Medications

The main method of action involves altering neurotransmitter production and function as well as Modulating neural communication through the binding of particular plant metabolites to Neurotransmitter/neuromodulator receptors[9]. Other processes include controlling or supporting the Healthy operation of the endocrine system, as well as activating or sedating CNS activity[10].

Important Of Herbal Anti anxiety Agents

The co-morbidity of psychiatric diseases and a rise in dose that results in severe side effects are Two common restrictions on the use of anxiety medications[11]. It has prompted scientists to look at Plants that are frequently

used in both conventional and complementary therapies to treat Sleep problems and related conditions[12]. People who have self-described anxiety episodes and Severe depression are more likely than other patients to employ complementary and alternative Therapy than traditional ones. For these issues, the majority of patients who visit traditional Mental health professionals also engage in complementary and alternative therapies. As Insurance coverage increases, these therapies will certainly be used more frequently. By Inquiring about their use, doctors could minimize side effects and make the most of treatments That were later found to be successful[13]. Medicinal plants have been utilized successfully in the Treatment of several diseases in the traditional system of medicine. Around 80% of Indian patients are seen by traditional medical practitioners, according to a World Health Organization (WHO) survey[14-16].

Methods For Extraction Of Herbal Drugs-

In 2000 BC people ate the part of plants to cure the disease, 1850 AD drink the portion of the Plants, and after 1940 AD they swallow the synthetic pills for treatment but in 2000 AD again Peoples start eating the part of the plant to cure the diseases because synthetic pills produces The unwanted effects in the human[17]. Nowadays phytomedicines are essential for the cure Diseases. Researchers' specific chemicals that are responsible for treatment. The isolated compounds Are manufactured into pills or various formulations for dispensing. So that isolation of the Constituents is essential for current research in medicine. In the isolation of compounds from Diverse medicinal plants,extraction is the first step in isolating the phytoconstituents from the Plants[18,19].Maceration, infusion, digestion, decoction, percolation, soxhlet extraction, fermentation, counter-current extraction (CCE), ultrasound extraction, and supercritical fluid extraction (SFE) are some of the techniques used in extraction processes.

Causative Agents Of Anxiety-

- Alcohol and illegal drugs such as cocaine and LSD
- Nonprescription medicines such as some decongestants
- Caffeine
- Prescription medicines such as stimulants, steroids, and medicines to treat asthma, Parkinson's disease, and thyroid problems

Drugs Used In Treatment Of Anxiety-

1) Synthetic-

1)Azapirones-

Eg.Buspirone

Mechanism of Action-Serotonin Agonist[20]

2)Monoamine Oxidase inhibitors(MAOIs)

Eg.Selegilene,Isocarboxid,Phenelzine,Tranylcypromine

Mechanism of Action-Prevent Breakdown of serotonin[21]

3)Benzo-diazepines





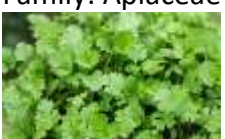

Eg.Lorazepam,Flurazepam,Clonazepam,Diazepam,Alprazolam



Mechanism of Action-GABA Agonist[22].




2) Natural-

Acorus calamus ,Aloysia polystachya ,Angelica sinensis ,Citrus aurantium , Coriandrum sativum , Erythriana velutina , Eschscholzia californica , Gastrodia elata , Ipomoea stans , Mellisa officinalis , Matricaria chamomilla , Nardostachys jatamansi , Nepeta cataria , Turnera aphrodisiaca , Uncaria rhynchophylla , Withania somnifera.

Herbal Medicines Used In The Management Of Anxiety-

SR.NO	NAME OF HERBAL DRUG	Mechanisms Of Action	DOSE	USES	ADVERSE EFFECT
1	Mellisa officinalis (Lemon Balm) 	Exerts its anxiolytic effect and modulates mood through the GABAergic system	500mg/kg to 600mg/kg	Cold sores, anxiety, stress, insomnia, indigestion, dementia, and many other conditions	Increased appetite, nausea, dizziness, sedation, hypersensitivity reaction and wheezing[23-26].
2	Piper Methysticum (kava) 	Modulation of gamma-aminobutyric acid (GABA) receptors and other excitatory neurotransmitters	60mg/kg to 280mg/kg	Treatment of anxiety, insomnia, restlessness, stress, agitation tension and related nervous disorders	Apathy, weight loss, reddened eyes, dry/scaly skin, yellowing hair/skin/nails and liver damage[27-30].
3	Withania Somnifera (Ashwagandha) 	Sedative effects on the CNS, reduces oxidative stress and improves the antioxidant potential of seminal plasma	250mg/kg to 600mg/kg daily	Reduces Stress and Anxiety, Reduces Inflammation and Pain, Enhances Cognitive Function, Boosts Energy Levels	Vomiting, drowsiness, nausea, sleepiness, slow breathing and liver damage[31].
4	Crataegus spp (Hawthorn Berry /Leaf) 	Blood lipid-lowering, anti-oxidative, anti-inflammatory, and vascular endothelial protection	250mg/kg to 500mg /kg daily	Treatment of gastrointestinal ailments, angina, hypertension, asthma, heart problems and consumed as food	Dizziness, nausea, digestive symptoms and vertigo[32-33].
5	Coriandrum sativum (Linn.) Family: Apiaceae 	Effects at the CNS, including hypnotic and anticonvulsant properties, and anxiolytic and sedative effects	50mg/kg to 200mg/kg	Good Source of Vitamin K, Prevents Heart Disease, Reduces Inflammation, Helps Control Diabetes, Treats Skin Conditions, Strengthen Hair, Helps In Digestion	Nasal swelling, hives, or swelling inside the mouth[34].
6	Achillea millefolium Family: Asteraceae 	Anxiolytic effect, reduce smooth muscle spasms, lower blood pressure, cause bronchodilation, and stop bleeding	100mg/kg	Anti-hemorrhagic, healing, and analgesic properties	Skin irritation when used topically, increase saliva and stomach acid to help improve digestion [35].

7	<p>Murraya koenigii Family: Rutaceae</p> 	<p>Oxidative stress plays important role in the development of various neurobehavioral disorders including anxiety & depression</p>	<p>200mg/kg to 400mg/kg</p>	<p>Treating piles, inflammation, itching, fresh cuts, dysentery, bruises, and edema</p>	<p>Bloating, diarrhea, stomach cramps, and constipation[36].</p>
8	<p>Actaea spicata Linn. Family: Ranunculaceae</p> 	<p>Anxiolytic effect ,antibacterial activity</p>	<p>100mg/kg to 200mg/kg,</p>	<p>Uses for temporary relief of symptoms associated with arthritic pain: rheumatic pain, stiff and swollen joints, body aches, weakness, and pain in any joint</p>	<p>There are no side effects of SBL Actaea spicata Dilution on the kidneys[37].</p>
9	<p>Amorphophallus paeoniifolius Family: Araceae</p> 	<p>Modulation of serotonergic neurotransmission in GIT</p>	<p>100mg/kg to 200mg/kg</p>	<p>Correction of several ailments like elephantiasis, tumors, hemorrhages, cough, bronchitis, asthma,</p>	<p>It is associated with acidity (itchy sensation in mouth and throat) upon oral consumption and presence of high oxalates raphides[38].</p>
10	<p>Argyrea Speciosa Family: Convolvulaceae</p> 	<p>Anti-aging, gastroprotective, analgesic & anti-inflammatory, aphrodisiac, antiviral, antidiabetic, anticonvulsion, antioxidant</p>	<p>100mg/kg to 200mg/kg</p>	<p>Nootropic, aphrodisiac, immunomodulatory, hepatoprotective, antioxidant, antiinflammatory, antihyperglycemic, antidiarrheal, antimicrobial, antiviral, nematocidal, antiulcer, anticonvulsant, analgesic and central nervous depressant activities</p>	<p>Avoid consumption with Anti-diabetic medication[39].</p>
11	<p>Citrus paradisi Family: Rutaceae</p> 	<p>Decrease insulin levels, leading to weight loss</p>	<p>50mg/kg to 400mg/kg</p>	<p>Decreases the symptoms of cold, relieves the symptoms of rheumatoid arthritis or asthma, and decreases the risk of heart attack, heart disease, and cancer</p>	<p>Interacts with antiarrhythmic medicaments, including propafenone, amiodarone, disopyramide, carvedilol[40].</p>
12	<p>Cynodon dactylon Family: Poaceae</p> 	<p>Increases the urine volume secretion in rats</p>	<p>200mg/kg to 400mg/kg</p>	<p>Used in Laxative, expectorant, analgesic. It is also used for the treatment of dropsy ,syphilis and diabetes , cancer</p>	<p>Trampling resistant and grows quickly[41].</p>

13	<p>Datura stramonium Family: Solanaceae</p> 	<p>Inhibition of central and peripheral muscarinic neurotransmission</p>	<p>100mg/kg to 200mg/kg</p>	<p>Treatment of stomach and intestinal pain that results from worm infestation, toothache, and fever from inflammation</p>	<p>Anisocoria, pupillary dilatation, and impaired vision[42].</p>
14	<p>Equisetum arvense Linn. Family: Equisetaceae</p> 	<p>Decreasing adenosine triphosphate release</p>	<p>25mg/kg to 100mg/kg</p>	<p>Stop bleeding, heal ulcers and wounds, and treat tuberculosis and kidney problems</p>	<p>Hypoglycemia (low blood sugar)[43].</p>
15	<p>Ocimum sanctum Family: Lamiaceae</p> 	<p>Normalization of blood glucose, blood pressure and lipid levels, and psychological stress ,anxiolytic and anti-depressant</p>	<p>25mg/kg to 100mg/kg</p>	<p>Antimicrobial (including antibacterial, antiviral, antifungal, antiprotozoal, antimalarial, anthelmintic), mosquito repellent, anti-diarrheal, anti-oxidant, anti-cataract, anti-inflammatory, chemopreventive,</p>	<p>Upset stomach[44].</p>

Extraction-

The initial stage in extracting the desired natural products from the base materials is extraction. Solvent extraction and distillation are two extraction techniques. Depending to the procedure, pressing, and sublimation Extraction theory. Most often, solvent extraction is utilized. The following steps are taken when natural product extraction advances: 1)The solute diffuses out of the solid matrix after being dissolved in the solvents, which happens in steps one through four. 2)The extracted solutes are then collected. The extraction will be made easier by any element that increases the above steps' diffusivity and solubility. The qualities of the extraction solvent, raw material particle size, solvent to solid ratio, extraction temperature, and extraction time all have an impact on how well materials are extracted.For solvent extraction, the choice of the solvent is essential. Consideration should be given to selectivity, solubility, cost, and safety in the Choice of solvents. Based on the similarity rule and Like dissolves like, intermiscibility, and solvents with a Polarity values close to the solute's polarity are Both are more likely to perform better. Liquors (EtOH In solvent extraction, and MeOH) are common solvents. To research phytochemicals. Most often, the finer The smaller the particle size, the better the extraction outcome. Achieves. The extraction effectiveness will increase thanks to Because of the increased penetration, the particles are tiny. Diffusion of solvents and solutes. A too-small particle However, size will incur costs due to the overabsorption of The difficulty of subsequent filtering due to the solute in solid[45-49].

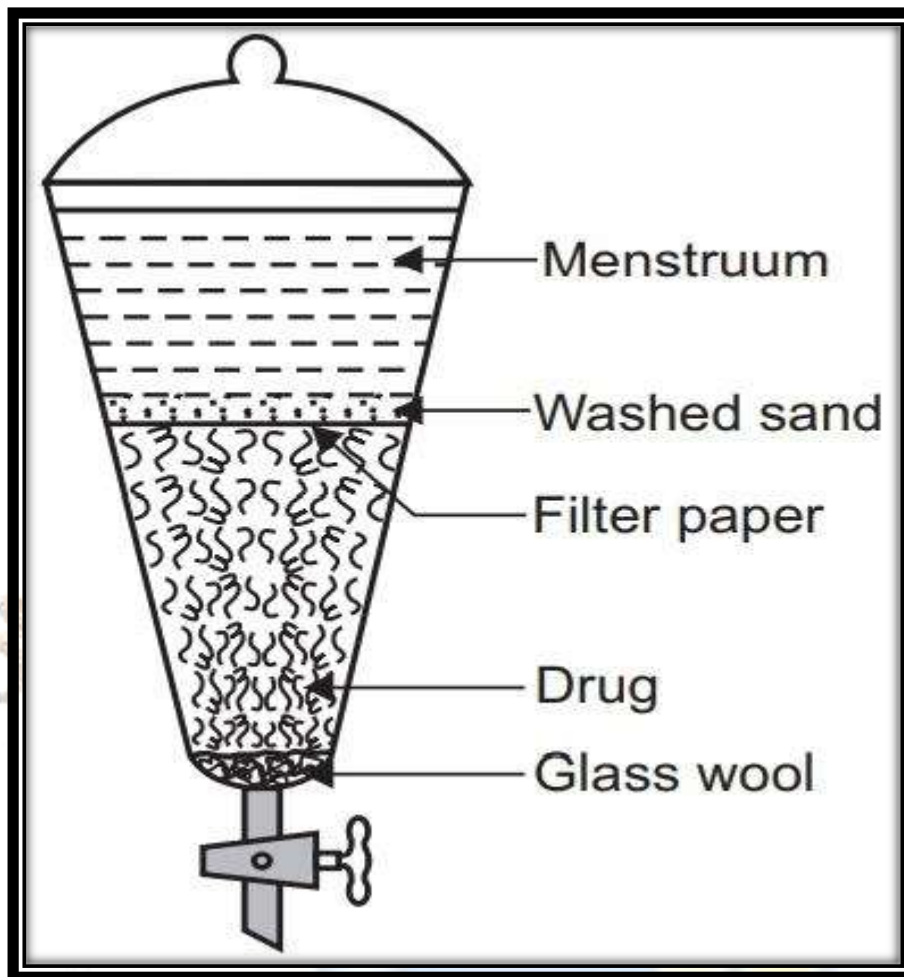
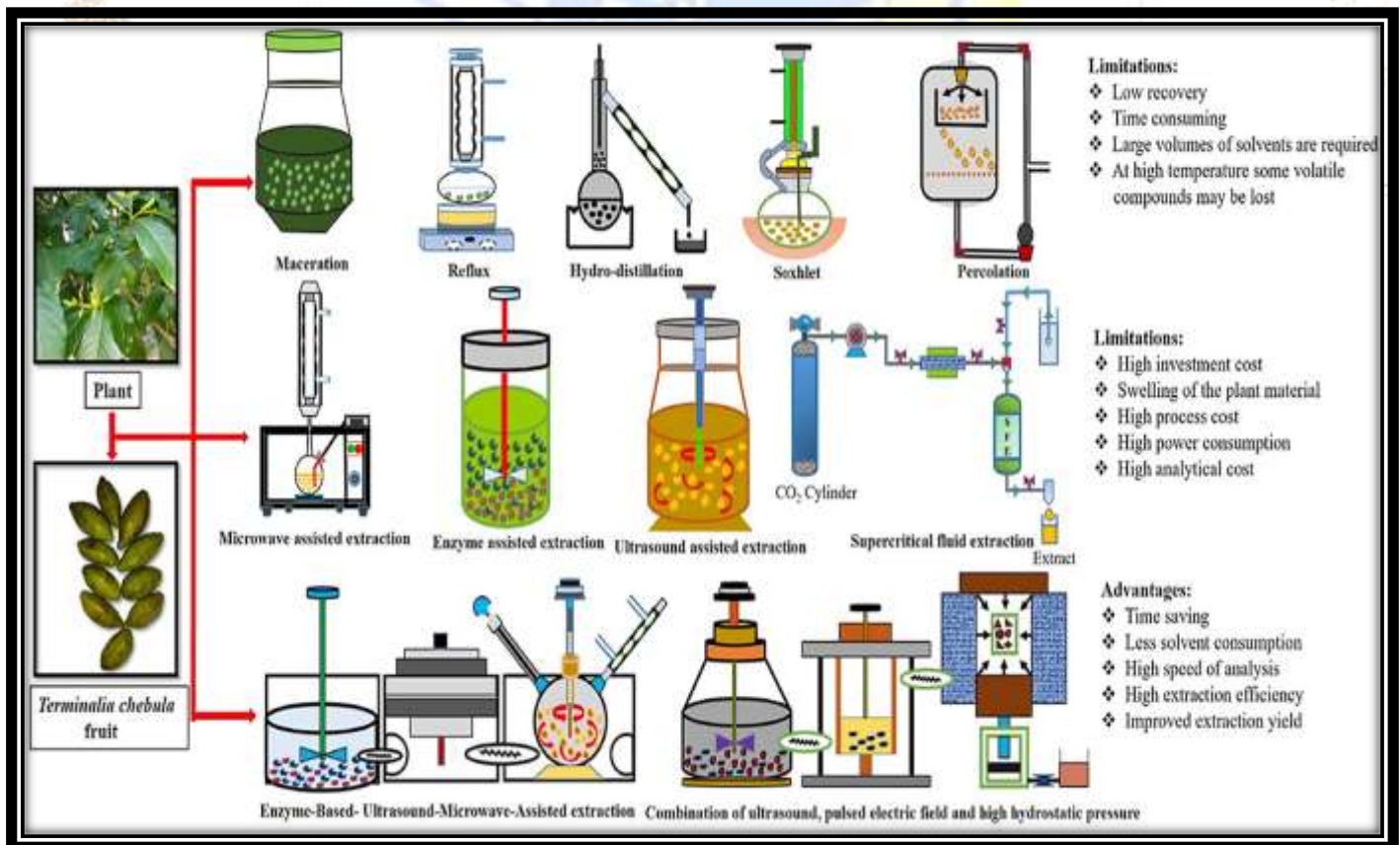


Fig- Extraction process

Methods Used For Extraction Of Herbal Drugs-



1)Maceration-

This extremely straightforward extraction technique has the drawbacks of a lengthy extraction time and poor extraction effectiveness. It might be utilized for extraction. Comprised of thermolabile parts . Uji and colleagues attained high Total phenolic and anthocyanin yields from Chokeberry fruit at peak performance with 50% Particle size, ethanol, and a solid-solvent ratio of 1:20 This indicated that maceration was a thickness of 0.75 A quick and efficient technique for extracting Fruit of the chokeberry contains phenolic chemicals[50]. Employing microwave assistance, maceration, and The use of ultrasonic extraction methods revealed that The most popular method was microwave-assisted extraction (MAE). Efficient, but only at a lower temperature Having virtually identical extraction yields during maceration[51]. Using various extraction methods (maceration, heat-assisted extraction, and solvent extraction), Jovanovi et al. assessed the effectiveness of extracting polyphenols from Serpylli herba Extraction, as well as extraction assisted by ultrasound). Based The impact of ultrasound on the amount of total polyphenols The highest total was produced via aided extraction. With no statistically significant flavonoids output. Maceration and heat were found to d Help with extraction[52]. The leaves of *Cajanus cajan* are utilized in Chinese traditional medicine for hepatitis therapy, Diabetes and chickenpox .The extract from the maceration was found to have the lowest extraction efficiency for orient side, luteolin, and total flavonoids Method[53].

2)Percolation-

Because percolation is a continuous process in which the saturated solvent is constantly being replaced by fresh, it is more effective than maceration. Solvent. According to Zhang et al., the percolation and Using refluxing extraction techniques, remove *Undaria Pinnatifid*. They discovered that the major's contents were Component from the percolation, fucoxanthin Higher than those from the extraction method While there was no discernible refluxing Extract yield variance between the two techniques[54]. 15 Chinese medication using a component called goupil patch A mixture made up of 29 Chinese drugs. Fu et Al. made use of the whole amount of alkaloids found in Acid-base titration served as the index and improved Soaking the medication in ethanol to allow it to percolate For 24 hours with 55% alcohol, followed by percolating with 12 times the amount of 55% alcoho[55]. When utilizing the Rate of ephedrine and sinomenine extraction Gao created another index using hydrochloride. The best percolation technique is to immerse the drug. For 24 hours with 70% ethanol, followed by percolating with Twenty times as much 70% ethanol. The change Sinomenine and ephedrine hydrochloride concentrations Respectively 78.23 and 76.92%[56].

3)Decoction-

Numerous water-soluble contaminants can be found in considerable quantities in the extract from decoction. The extraction of thermolabile or volatile materials cannot be done using a decoction Components. Ginseng's ginsenosides 7–31 Encounter dehydration, decarboxylation, hydrolysis, During decoction, and addition reactions[57]. 18 Zhang and co. Explored how a well-known substance changed chemically. *Danggui Buxue Tang*, a herbal TCM concoction Mixture with *Angelicae* and *Astragali Radix Radix Sinensis*. They discovered two flavonoids Calycosin-7-O-d-glucoside³², glycosides, and *Astragali Radix's* ononin³³ could be hydrolyzed to Respectively, calycosin³⁴ and formononetin³⁵ Whilst decocting. The efficiency of the hydrolysis was pH, temperature, and the number are all greatly influenced with herbs[58]. *Sanhuang Xiexin* and two other TCM ingredients *Fuzi Xiexin Tang* (FXT) and *Tang* (SXT) have Utilized in China to treat conditions like *Rhei Radix et Rhizoma*, *Scutellariae Radix*, and *Coptidis Rhizoma* make up SXT, whereas FXT is created by combining *Aconiti Lateralis Radix Preparata*, a different TCM, in SXT. Zhang et al. used the UPLC-ESI/MS procedure to 17 active components in SXT and FXT should be monitored Macerations and decoctions. The method of decoction Could speed up the breakdown of certain bioactive Compared to the maceration procedure, chemicals. 11 components' amounts [benzoylaconine³⁶, The compounds benzylhyphaconine, benzylmesaconine, Palmatine, *Jatrorrhizine*,

Berberine, Coptisine, [Wogonoside⁴⁶, aloe-emodin⁴³, emodin⁴⁴, baicalin⁴⁵] SXT and FXT decoctions have significantly greater levels of Compared to those in SXT and FXT macerations. The β -Herbal glucuronidase may facilitate the hydrolysis. Of the glycosides (baicalin) glucuronic acid group To transform into aglycones (including wogonoside) [baicalein⁴⁷ Also Wogonin⁴⁸]. The warm weather inIt is possible that the poisonous diester-diterpenoid alkaloids in Aconiti Lateralis Radix Preparata convert into less harmful monoester-diterpenoid alkaloids. The mechanism of efficacy and toxicity reduction Improvement of TCM through formulation[59].

Conclusion-

Over 70% of Indians take herbal medicines for health purposes. Since the ancient time, herbal plants have been recognized as possible sources for treating illnesses. Since the cost of health care systems is only going to increase, we must Create technology to essentially bring and integrate herbal medicine Our healthcare system uses medicine. This can only be accomplished by the creation of herbal products that are standardized. So, to recap Combine key anxiety-reducing herbs for more effectiveness and less side effects. A appropriate solvent is used in the extraction process in industries to separate the necessary components from their mixture. It is difficult for any process to take place without extraction because it has such great applicability across practically all industries, including chemical, pharmaceutical, effluent treatment, polymer, petroleum, petrochemical, food, metal, inorganics, and nuclear. This review intends to provide comprehensive view of a herbal plants used in treatment of anxiety and variety of extraction methods.

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