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NATURAL AND HERBAL STRESS REMEDIES: A REVIEW

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ABSTRACT: The normal steady state of the human body's organ and tissue function is termed as homeostasis. One significant factor that may cause an upset to homeostasis is stress. It is a fundamental part of living that can have both positive and negative effects on an individual's health. Stress is not a medical diagnosis, but severe stress that continues for a long time may lead to a diagnosis of depression or anxiety, or more severe mental health problems. According to the WHO survey out of every three persons in the world one person affecting with the stress. There are various interventions for mind-body healing. Certain psychological mind-body therapies are effective in reducing stress. Nurses can use these interventions in their daily practice to help patients alleviate their stress, as well as enable them to recover successfully from stress-related problems. Prescription anxiety medications dull anxiety and the brain too much, and make it much harder to learn to cope with stress, while herbal and natural remedies keep your mind intact for learning to control stress and anxiety symptoms. Nature has bestowed our country with an enormous wealth of antistress plants. Some medicinal antistress plants are *Coccinia indica*, *Butea frondosa*, *Cuminum cyminum*, etc. The aim of this review is a comprehensive selection of the herbs that may be effective for treating stress, as well as specific anxiety symptoms. It includes the herbs that are effective for stress itself, as well as several herbal remedies that are perfect for issues related to stress.

INTRODUCTION: Stress is a common phenomenon that is experienced by every individual ¹. When stress becomes extreme, it is harmful to the body, and hence to be treated. Stress is involved in the pathogenesis of a variety of diseases that includes psychiatric disorders such as depression and anxiety, immunosuppression, endocrine disorders including diabetes peptic ulcer, hypertension, cognitive dysfunction, and ulcerative colitis ².

Stress has close connections with various dysfunctions of the body. It is a response of the body to the diverse aversive assaults, which threaten internal homeostasis. It is known to alter the physiological homeostasis of the organism and results in the breakdown of integrated adaptational processes in response to extreme environmental stimulus ³. The body reacts to such a situation by eliciting various autonomic, endocrinal and visceral responses in a variety of situations, e.g. release of hormones like cortisol and adrenalin ⁴.

Disruptions of gastric mucosal integrity have been reported during stress. Both peripheral and central mechanisms seem to regulate these changes. These lead to an increased heart rate, B.P., and metabolic rate, all intended to increase the overall

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performance and ability of the body to overcome the challenge. But beyond the threshold, these factors can be damaging⁵. Stress has been postulated to be involved in the pathogenesis of a variety of diseased states, for, e.g., psychiatric disorders like depression and anxiety, immunosuppression, endocrine disorders including diabetes mellitus, male impotence, cognitive dysfunction, peptic ulcer, hypertension, and ulcerative colitis⁶.

In other words, stress is the body's reaction to any stimuli that disturb its equilibrium. When the equilibrium of various hormones has altered the effect of these changes can be detrimental to the immune system. A stressful event can trigger the "fight-or-flight" response, causing hormones such as adrenaline and cortisol to surge through the body. A little bit of stress, known as "acute stress," can be exciting-it keeps us active and alert. But long-term, or "chronic stress," can have detrimental effects on health. You may not be able to control the stressors in your world, but you can alter your reaction to them^{7,8}.

Herbal formulations have been in use for many years not only in Asian countries but also globally humans well being. They claimed to enhance physical endurance, mental functions. The potential utility of safer and cheaper herbal medicines as anti-stress agents have been reported as they can withstand stress without altering the physiological functions of the body⁹.

Appraisal of Stressors: It must be pointed out that stress alone does not necessarily determine how well or poorly the immune system will function. The important factor is the individual's ability to cope with stress. How an individual perceives a stressful event may be more important than the

existence of the stress itself. Individuals with high-stress levels and excellent coping skills may have minimal effects on the functioning of their immune systems.

A low level of stress in individuals who have poor coping skills may have significant alterations in their immune functioning, increasing their susceptibility to disease. The actual amount of stress is not important for determining its effect on the immune system. An individual's coping skills are an important factor for determining the immune system's response to stress **Fig. 1**.¹⁰

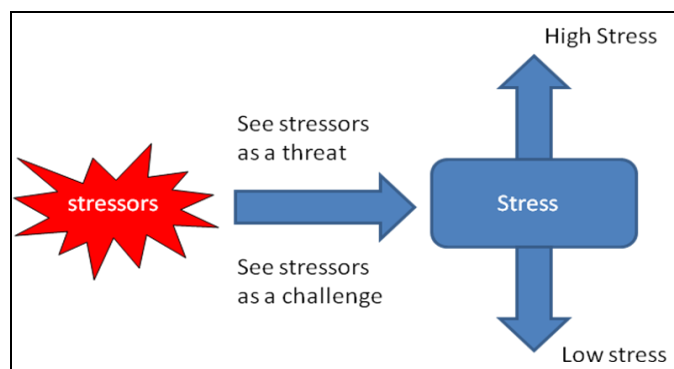


FIG. 1: APPRAISAL OF STRESSORS

The Effect of Stress on the Immune System: The stress hormones released by the adrenals during episodes of fear and anxiety also affect white blood cells, the infection-fighting army within our blood. Initially, the surge of the brain and adrenal hormones that accompanies stress causes an increase in circulating white blood cells. When cortisol remains high, however, white blood cell numbers are reduced. As stress, anxiety, or depression continue unabated over weeks or months, the output of the adrenal hormone cortisol is consistently high and white blood cell numbers remain reduced¹¹.

TABLE 1: SOME IMPORTANT HERBAL DRUGS TO REDUCE STRESS

S. no.	Plants name	Common name	Chemical constituents	Pharmacological uses
1.	<i>Moringa oleifera</i>	Drumstick	Palmitic, stearic acid, saponins, glycoside, gum, protein Vitamins: A, B1, B2, B3, C Minerals: calcium, iron, phosphorus, magnesium, pterygospermin, moringine and moringinine ¹²	Antimicrobial, anti-inflammatory, anticancer, anti-fertility, hepatoprotective, antioxidant, cardiovascular, antiepileptic, antiasthmatic, antidiabetic, diuretic, CNS, analgesic, antiulcer ¹²
2.	<i>Butea frondosa</i>	Palash	Tannic and gallic acids. Palasonin, sitosterol, amyirin, monospermin, lectins and lactone. The alkaloid palasonin. Seeds: Glycerides of palmitic, lignoceric, oleic and linoleic acids.	Antidiabetic, hepatoprotective, anti-inflammatory, anticonvulsant, antiarrhoeal, antihelminthic, antioxidant ¹⁴ aphrodisiac, ¹⁵ antifilarial, ¹⁶ antistress, ¹⁷ antiobesity ¹⁸

3.	<i>Ocimum bacilicum</i>	Tulsi, Basil	Flower: monospermin, butrin and isobutrin ¹³ Leaves: eugenol, eugenal, carvacrol, methylchavicol, limatrol and caryophylline. Steroid ursolic acid and n-triacontanol. Seeds: Fatty acids and sitosterol. Roots: sitosterol and three triterpenes A, B, and C ¹⁹	Antioxidant, antimicrobial, cytotoxic, nematocidal, immunomodulatory, anti-inflammatory, muscle relaxant, analgesic, CNS, antiprotozoal activity ²⁰
4.	<i>Centella asiatica</i>	Indian pennywort	Pentacyclic triterpenoids: asiaticoside, brahmoside, asiatic acid, and brahmic, centellose, centelloside, and madecassoside ²¹	Adaptogen, antibacterial, antiviral, anti-inflammatory, antiulcerogenic, anxiolytic, diuretic activity ²²
5.	<i>Celestrus paniculatus</i>	Black oil plant	Seeds: fatty acids and alkaloids ²³	Emmenagogue, emetic, aphrodisiac, expectorant ²⁴
6.	<i>Anemarrhena asphodeloides</i>	Zhi Mu	Rhizome: Sarsasapogenin, saponins, xanthone glycosides, isoflavonoids, and anthraquinone ²⁵	Anticancer, anti-diabetic, antistress, anti-inflammatory, antiplatelet, antimicrobial, expectorant, diuretic, antiseptic, antianxiety, antifungal ²⁵
7.	<i>Oenothera biennis</i>	Evening primrose	Terpenoids, steroids, flavonoids, carbohydrates, lipids, linoleic acid, oleic acid, stearic acid, palmitic acid and saturated fatty acids ²⁶	Antioxidant, cytotoxic, antibacterial, antiviral, anti-inflammatory, antihyperlipidemic, thrombolytic, anti-diarrhoeal. ²⁷
8.	<i>Verbascum thapsus</i>	Mullein	Flavonoids, phenylethanoid glycosides, terpenes, saponins, polysaccharides, phenolic acids, phytosterols ²⁸	Antibacterial, antitumor, cardiovascular, anti-inflammatory, hepatoprotective, analgesic ²⁸
9.	<i>Cuminum cyminum</i>	Jeera	Fatty acids, triacylglycerols, polysaccharides, lignin, cuminaldehyde, limonene, pinene, linalool, flavonoids, isoflavonoids ²⁹	Antidiabetic, antistress ³⁰ anti-epileptic, anti-nociceptive ³¹ hepatoprotective, ³² antibacterial, anti-inflammatory ³³
10.	<i>Ginkgo biloba</i>	Maidenhair	leaves: flavonoid, glycosides (containing quercetin, kaempferol, isorhamnetin terpenoids (ginkgolides A, B, C, and J, bilobalide) organic acids ³⁴	Antioxidant, anti-inflammatory, ³⁴ cardioprotective, anticancer, antistress activity ³⁵
11.	<i>Mikania cordata</i>	Mile-a-minute	coumarins sesquiterpenes, sesquiterpenes lactones, diterpenes, phytosterols/ terpenoids and flavonoids ³⁶	Antinociceptive, cytotoxic, antimicrobial, antibacterial, anti-inflammatory, analgesic, ³⁶ antiviral and antiparasitic activity ³⁷
12.	<i>Phyllanthus emblica</i>	Amla	Fruit: hydrolysable tannins (emblicanin A and B), alkaloids, phenolic compounds, minerals, protein and amino acids: (glutamic acid, proline, aspartic acid, alanine, cystine and lysine). Vitamin C, Flavonoids: quercetin, kaempferol ³⁸	antipyretic, analgesic, antitussive, adaptogenic, cardioprotective, gastroprotective, antianemic, anti-inflammatory, antihypercholesterolemic, anti-diarrheal, antipyretic, antiatherosclerotic, hepatoprotective, nephroprotective, and neuroprotective properties ³⁸
13.	<i>Alchornea cordifolia</i>	Senegal	Leaves: alkaloids, saponins, unsaturated and carbonyl compounds, terpenoids, Root: steroid glycosides, flavonoids, tannins, saponins, carbohydrates phenolic acids, gallic acid, protocatechuic acid, quercetin, quercetin arabinose and galactose glycosides ³⁹	Antipyretic, anti-inflammatory, analgesic, antifungal, antibacterial, anti-diarrhoeal, abortifacient, antispasmodic, blood purifier, diuretic, emetic ⁴⁰
14.	<i>Coccinia indica</i>	Kundru	Aerial part : Heptacosane, cephalandrol, β -sitosterol, alkaloids cephalandrins A and B, Fruits: β - Amyrin acetate, lupeol, cucurbitacin B, taraxerone, taraxerol, β -carotene, lycopene, cryptoxanthin, xyloglucan, carotenoids, β -sitosterol, Root : resin, alkaloids, starch, fatty acids, carbonic acid, triterpenoid, saponin coccinoside, flavonoid glycoside, lupeol, β -amyryn, β -	Antibacterial, antihelminthic, antioxidant, anti-inflammatory, antimalarial, antioxidant, antipyretic, analgesic, antiulcer, hypoglycemic, antitussive, antifungal, hepatoprotective, Antidyslipidemic, mutagenic, alpha amylase inhibition ⁴¹

15	<i>Tribulus terrestris</i>	Gokharu	sitosterol, taraxerol ⁴¹ Saponins, flavonoids, glycosides, alkaloids, and tannins ⁴²	Diuretic, aphrodisiac, antiurolithic activity, immunomodulatory, antidiabetic, absorption enhancer, hypolipidemic, hepatoprotective, antiinflammatory, antispasmodic, anticancer, antibacterial, larvicidal, anticarcinogenic, antistress ⁴³
16	<i>Glycyrrhiza glabra</i>	Liquorice	Glycyrrhizin, glucose, sucrose, mannite, starch, asparagine, resins, formononetin; glabrone, neoliquiritin and hispaglabridin A & B ⁴⁴	Anti-bacterial, anti-oxidant, anti-malarial, anti-fungal, antiviral, immunostimulatory spasmolytic, anti-ulcer, anti-arthritic, anti-inflammatory, antiallergic, demulcent, emollient, estrogenic, expectorant, laxative, anti-carcinogenic ⁴⁵
17	<i>Bacopa monniera</i>	Brahmi	Bacosides, bacosides I–XII, brahmine, nicotine, and herpestine, ⁴⁶ bacoside A3, bacoside II, bacosaponin C, bacosaponin C ⁴⁷	Anti-ageing, anti-toxin, anti-oxidant, anti-stress ⁴⁸
18	<i>Piper methysticum</i>	Kava-kava	Root: chalcones, flavokavain A, flavokavain B, and flavokavain pipermethystine. ⁴⁹	CNS activity, antioxidant, anxiolytic, analgesic, antipsychotic, antistress, antinociceptive, antianxiety, antidepressant, anticonvulsant ⁵⁰
19	<i>Hypericum perforatum</i>	St. John's Wort	Naphthoquinone hypericin, pseudohypericin, flavonoids, kaempferol, luteolin ⁵¹	Antidepressant, anxiolytic, diuretic, antimalarial, antihelmintic ⁵¹
20.	<i>Curcuma longa</i>	Turmeric	Flavonoid curcumin, volatile oils (tumerone, atlantone, and zingiberone), sugars, proteins, and resins ⁵²	Antioxidant, hepatoprotective, anti-inflammatory, anticarcinogenic, anti-microbial, cardiovascular, gastrointestinal, immunomodulatory ⁵²

Natural Therapies to Reduce Stress: Mind-body medicine has also been shown to reduce stress and enhance well-being. These mind-body techniques help change the way individuals think about the problem, which gives them more control over their responses made to the stress. This enables individuals to manage and even reduce their stress because they can assert control over their reactions and behaviors to the stress⁵³. Also, when individuals realize their ability to control their behaviors and, more importantly, their attitudes, they have more control over their stress overall. It becomes essential for individuals to learn how to control their thoughts, attitudes, and behaviors when encountering stressful situations. Following are some natural therapies to reduce stress.

- Relaxation techniques
- Exercise
- Breathing
- Yoga
- Meditation
- Division of labor
- Assertiveness
- Alcohol and drugs

- Caffeine
- Nutrition
- Time management
- Seek professional help

Current Scenario: Herbal medicines are being used by about 80% of the world population primarily in the developing countries for primary health care. They have stood the test of time for their safety, efficacy, cultural acceptability and lesser side effects. The chemical constituents present in them are a part of the physiological functions of living flora, and hence they are believed to have better compatibility with the human body⁵⁴. Herbal plants are the main source of medicine. Two of the largest users of medicinal plants are China and India. Traditional Chinese Medicine uses over 5000 plant species; India uses about 7000. According to Export-Import Bank, the international market for medicinal plant-related trade is having a growth rate of 7% per annum. China's share in world herbal market is US\$ 6 billion while India's share is only US\$1 billion. India exports crude drugs mainly to developed

countries viz. USA, Germany, France, Switzerland, the UK, and Japan. There is enormous scope for India also to emerge as a major player in the global herbal product based medicine⁵⁵.

CONCLUSION: Plants have been used since prehistoric times for treatment of various ailments. In this review, the few herbal plants have been discussed which are previously explored by the various researchers for their anti-stress activity. It can be concluded that in the heart of nature there are still so many plants, that have potent anti-stress activity, and their utilities in current scenario need to be unveiled so that they can also be used as an herbal medication for the betterment of human being. Ayurveda and modern medicine techniques must be coupled to bring out high quality herbal anti-stress products with rapid onset of action and good bioavailability. Further new research in the field of stress reveals a close relationship between emotional and nervous processes and the immune system.

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REFERENCES:

- Desai SK, Desai SM and Navdeep S: Antistress activity of *Boerhaavia diffusa* root extract and a polyherbal formulation containing *Boerhaavia diffusa* using cold restraint stress model. International Journal of Pharmacy and Pharmaceutical Sciences 2011; 3(1): 130-132.
- Ravindran R, Devi SR and Samson J: Noise-Stress-induced brain neurotransmitter changes and the effect of *Ocimum sanctum* (Linn) treatment in albino rats. Journal of Pharmacological Sciences 2005; 98: 354-360.
- Verma N and Khosa RL: Effect of *Costus speciosus* and *Wedelia chinensis* on brain neurotransmitters and enzyme monoamine oxidase following cold immobilization stress. Journal of Pharmaceutical Sciences and Research 2009; 1(2): 22-25.
- Umukoro S and Ashorobi R: Anti-Stress potential of aqueous seed extract of *Aframomum melegueta*. African Journal of Biomedical Research 2005; 8: 119-121
- Tripathy H, Krishnan ST and Lakshmana M: Effectiveness of *Spirulina* in sound stress-induced biochemical changes in rats. International Bulletin of Drug Research 2011; 1(1): 32-40.
- Sutanto W and Kloet ER: The use of various animal models in the study of stress and stress-related phenomena. Laboratory Animals 1994; 28: 293-306.
- Pawar S and Hugar S: A current status of adaptogens: natural remedy to stress. Asian Pacific Journal of Tropical Disease 2012; S480-S490.
- Srikumar R, Parthasarathy NJ and Rathinasamy SD: Immunomodulatory activity of *Triphala* on neutrophil functions. Biol Pharm Bull 2005; 28(8): 1398-1403
- Sarris J, Panossian A and Schweitzer I: Herbal medicine in depression, anxiety and insomnia. A review of Psychopharmacology and Clinical Evidence 1-38.
- Madeline M and Lorentz RN: Stress and Psychoneuro-immunology Revisited: Using mind-body interventions to reduce stress. Alternative Journal of Nursing 2006; 11: 1-11.
- http://www.oreilly.com/onconurse/factsheets/stress_immune.pdf (accessed on 7 March 2015)
- Mishra G, Singh P and Verma R: Traditional uses phytochemistry and pharmacological properties of *Moringa oleifera* plant: An overview. Scholar Research Library. Der Pharmacia Letter 2011; 3(2): 141-164.
- Bandara BMR, Kumar NS and Wimalasiri KMS: Constituents of stem bark from *Butea monosperma* (Leguminosae). J Natn Sci Coun Sri Lanka 1990; 18(2): 97-103.
- Gupta P, Chauhan NS, Pande M and Pathak A: Phytochemical and pharmacological review on *Butea monosperma* (Palash) International Journal of Agronomy and Plant Production 2012; 3(7): 255-258.
- Ramachandran S, Sridhar Y and Sam SK: Aphrodisiac activity of *Butea frondosa* Koen. Ex Roxb. extract in male rats. Phytomedicine 2004; 11(2-3): 165-168
- Deshmukh M, Sahare KN, Patidar RK, Mahajan B and Singh V: Antifilarial activity of *Butea monosperma* Linn. leaves extracts against *Setaria cervi*.
- Bhatwadekar AD, Chintawar SD and Logade NA: Anti-stress activity of *Butea monosperma* flowers. Indian Journal of Pharmacology 1999; 31: 153-155
- Dixit P, Prakash T, Karki R and Kotresha D: Anti-obese activity of *Butea monosperma* (Lam) bark in experimentally induced obese rats. Indian Journal of Exp Bio, 2012; 50(7): 476-483.
- Venkatesh P, Rao M, Gobinath M and Umadevi G: A review on the anti-stress activity of medicinal drugs from herbal sources. Journal of Pharmaceutical Research and Development 2011; 1(1): 1-11.
- Warrier PK: Indian Medicinal Plants, a compendium of 500 species, Orient Longman Pvt. Ltd., Edition 4th, 2003; 1: 58.
- Singh B and Rastogi RP: A reinvestigation of the triterpenes of *Centella asiatica*. Phytochemistry 1969; 8: 917-921.
- Singh B and Rastogi RP: Chemical examination of *Centella asiatica* Linn. - III. Constitution of brahmic acid. Phytochemistry 1968; 7: 1385-1393.
- Lindley J: Flora Medica. Pbl. Ajay Book Service, New Delhi, India, 1985: 198.
- Singh U, Wadhvani AM and Johri BM: Dictionary of economical plants of India. Pbl. Indian Council of Agricultural Research, New Delhi, India, 1996: 46.
- Yingguang S, Yingfeng D, Yong L and Chang L: Simultaneous determination of nine components in *Anemarrhena asphodeloides* by liquid chromatography-tandem mass spectrometry combined with chemometric techniques. Journal of Separation Science 2012; 35(14): 1796-1807.
- Marc T, Johnson J and Agrawal AA: Co-variation and composition of arthropod species across plant genotypes of evening primrose, *Oenothera biennis*. 2007; 116: 941-956.

27. Singh S, Kuar R and Sharma SR: An updated review on the *Oenothera* genus. Journal of Chinese Integrative Medicine 2012; 10(7).
28. Mayank A, Panchal, Murti K and Lambole V: Pharmacological properties of *Verbascum thapsus*: A review. International Journal of Pharmaceutical Sciences Review and Research 2010; 5(2): 73-78.
29. Chaudhary N, Husain SS and Ali M: New phenolic, triterpenic and steroidal constituents from the fruits of *Cuminum cyminum* L. Journal of Pharmacognosy and Phytochemistry 2014; 3(1): 149-154.
30. Koppula S and Choi DK: *Cuminum cyminum* extract attenuates scopolamine-induced memory loss and stress-induced urinary biochemical changes in rats: a noninvasive biochemical approach. Pharm Biol 2011; 49(7): 702-708.
31. Sayyah M, Peirovi A and Kamalinejad M: Antinociceptive effect of the fruit essential oil of *Cuminum cyminum* L. in Rat, Iranian Biomedical Journal 2002; 6(4): 141-145
32. Kumar A, Kumar R, Kumar N and Nath A: Protective effect of *Cuminum cyminum* and *Coriandrum sativum* on profenofos induced liver toxicity. International Journal of Pharmaceutical & Biological Archives 2011; 2(5): 1405-1409.
33. Bhat SP, Rizvi W and Kumar A: Effect of *Cuminum cyminum* L. seed extracts on pain and inflammation. Journal of Natural Remedies 2014; 14(2): 187-192.
34. Shi C, Liu J, Wu F and Yew DT: Review *Ginkgo biloba* extract in Alzheimer's disease: From action mechanisms to medical practice. International Journal of Molecular Sciences 2010; 11: 107-123.
35. Mahadevan S and Park Y: Multifaceted therapeutic benefits of *Ginkgo biloba* L.: Chemistry, Efficacy, Safety, and Uses 2008; 73(1).
36. Nayeem, Khatun A, Rahman MS and Rahman M: Evaluation of phytochemical and pharmacological properties of *Mikania cordata* (Asteraceae) leaves. Journal of Pharmacognosy and Phytotherapy 2011; 3(X): XX-XX.
37. Luciane C, Rufatto, Gower A and Schwambach J: Genus *Mikania*: Chemical composition and phytotherapeutic activity. Revista Brasileira de Farmacognosia 2012; 22(6).
38. Kamdod MA: *Embllica officinalis* (Amla): A review of potential therapeutic applications. International Journal of Green Pharmacy 2012; 6(4): 257-269.
39. Edema MO and Osarumwense OP: Preliminary studies on the phytochemical and pharmacological screening of *Alchornea cordifolia*. Nigerian Journal of Chemical Research 2007; 12.
40. Lamikanra A, Ogundaini AO and Ogungbamila FO: Antibacterial constituents of *Alchornea cordifolia* leaves. Phytotherapy Research 1990; 4(5): 198-200.
41. Pekamwar SS, Kalyankar TM and Kokate SS: Pharmacological activities of *Coccinia grandis*: Review. Journal of Applied Pharmaceutical Science 2013; 3(05): 114-119
42. Usman H, Abdulrahman F and Ladan A: Phytochemical and antimicrobial evaluation of *Tribulus terrestris* Linn. growing in Nigeria. Res J Biol Sci 2007; 2: 244-7.
43. Chhatre S, Nesari T, Somani G and Kanchan D: Phyto-pharmacological overview of *Tribulus terrestris*. Pharmacogn Rev 2007; 2: 244-247.
44. Houseman loc. cit.; Thorpe, VII, 362; Kapur et al., loc. cit.; Trease, 393; McIlroy, 40; Puri & Seshadri, J. sci. industr. Res., 1954, 13B, 475; Chem Abstr 1950; 44: 4635.
45. Gujral ML, Sareen K, Phukan DP and Amma MKP: Anti-arthritis activity of glycyrrhizin in adrenalectomized rats. Indian J Med Sci 1961; 15: 625.
46. Sivaramakrishnan C, Rao CV, Trimurtulu G and Vanisree M: Triterpenoid glycosides from *Bacopa monnieri*. Phytochemistry 2005; 66: 2719-2728.
47. Garai S, Mahato SB, Ohtani K and Yamasaki K: Dammarane triterpenoid saponins from *Bacopa monnieri*. Can J Chem 2009; 87: 1230-1234.
48. Chakravarty AK, Garai S, Masuda K, Nakane T and Kawahara N: Bacopasides III-V: Three new triterpenoid glycosides from *Bacopa monniera*. Chem Pharm Bull 2003; 51: 215-217.
49. Selvan A, Ravali R, Suthakaran R, Prithvi S and Ravinootala: Effect of *Piper methysticum* root on CNS activity. Journal of Pharmacy Phytotherapeutics 2013; 1: 4.
50. Estrada R, Laurraquiuo AM, Suárez UD and Escalona AG: Neuropharmacological studies of *Piper auritum* Kunth (Piperaceae): antinociceptive and anxiolytic-like effects. 2013; 7(23): 1718-1729.
51. Dhingra D and Sharma A: A review on anti-depressants plants. Natural Products Radiance 2005; 144-152.
52. Akram M, Shahabuddin, Ahmed A and Khan U: *Curcuma longa* and curcumin: a review article. Journal Biology-Plant Biology 2010; 55(2): 65-70.
53. Ashok D and Vaidya B: The status and scope of Indian Medicinal plants acting on central nervous system. Indian Journal of Pharmacology 1997; 29: 340-343.
54. Sharma A, Shanker, Tyagi LK and Singh M: Herbal medicine for market potential in India: An overview, Academic Journal of Plant Sciences 2008; 1(2): 26-36.
55. Wahab S, Hussain A, Ahamd P and Rizvi A: Current status of herbal drugs in the development of newer therapeutics agents. International J of Pharmaceutical and Chemical Sciences 2013; 2(3): 1462-1473.

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