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# STUDY OF AYURVEDIC PSYCHOTROPIC DRUGS AND THEIR EFFECT

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***Abstract:*** *The ancient system of Ayurveda (science of life) offers a holistic approach to health that integrates the mind, body and soul. Ayurvedic theory of health is based on tridosha (primary life forces or biological humours). The five elements (panchabhuta) combine in pairs to constitute the three doshas-vata (ether and air), pitta (water and fire) and kapha (water and earth). The combination of these doshas inherited at birth indicates an individual's unique constitution. The dynamic balance of tridos has creates health. Ayurveda defines mental health as a state of mental, intellectual and spiritual well-being. Psychotropic drugs have been found to provide effective relief to people who are suffering from substance abuse issues. This may be because many people who have an addiction to a substance also have a co-occurring condition such as depression or anxiety. Additionally, some psychotropic medications provide relief to painful detoxification or withdrawals. Many of the ayurvedic medicinal plants drug, single are compound preparation are using for mental well being, so called Psychotropic drugs i.e. Datura, Atropa belladonna, Brahmi (centelaasiatica), Amalaki (Embelicaofficinale), Vacha (Acoruscalemus), Ashwagandha (Witheniasomnifera), Shankhapuspi (Convolvulus pluricalis), Jyotismati (Celastruspaniculatus), Jatamansi (Nardostachysjatamansi), Tagar (Valerianawallichii), Yastimadhu (Glycyrrhizaglabara) etc for mental health.*

***Keywords:*** *Psychotropic drugs Effect, Brahmi, Mandukaparni, Bhanga, Mana-Manovikaras,*

**Introduction:** Psychotropic drugs have been found to provide effective relief to people who are suffering from substance abuse issues. This may be because many people who have an addiction to a substance also have a co-occurring condition such as depression or anxiety [1]. Additionally, some psychotropic medications provide relief to painful detoxification or withdrawals. Benzodiazepines are a commonly prescribed medication for substance abuse treatment as the sedative and anti-anxiety properties are some of the symptoms that require attention during rehabilitation. Psychotropic medications are drugs that are typically prescribed to treat mental health conditions. These include depression, anxiety, obsessive compulsive disorder, schizophrenia, bipolar disorder and attention deficit disorder [2]. The term, psychotropic refers to a drug whose primary or significant effects are on the central nervous system.

The use of psychotropic plants as source of medicines and human sustenance has been in vogue since antiquity [3]. India has a rich heritage of plants as medicines; Indian systems of medicines utilize 80 percent of the material derived from the plants.

The global demand for herbal medicine is not only large but is growing as per the increasing of the population. Factors contributing to the growth in demand for traditional medicine include the increasing of allopathic medicine in developing countries.

1. Psychoactive drugs affect the central nervous system in various ways by influencing the release of neurotransmitters (chemical messengers within the nervous system, such as acetylcholine, serotonin, dopamine, nor epinephrine), or mimicking their actions [4].
2. Psychoactive drugs are classified as stimulants, hallucinogens, or depressants based on their effects [5].

**Stimulants**

a. Excite and enhance mental alertness and physical activity
b. Reduce fatigue
c. Suppress hunger
d. Cocaine, caffeine, ephedrine are well-known, plant-derived stimulants

**Hallucinogens**

a. Produce changes (distortions) in perception, thought, and mood that depart from ordinary reality.
b. Often induces a dreamlike state
c. Peyote, marijuana (Cannabis), and LSD are examples of hallucinogens

**Depressants**

a. dull mental awareness
b. Reduce physical performance
c. Induce sleep or trance-like state
d. Opium and its derivatives, morphine and heroin are classic examples of depressants

Narcotic is a drug that induces central nervous system depression, resulting in numbness, lethargy, and sleep. This would include opiates, alcoholic beverages, and kava [6]. In familiar use, narcotic is inferred to include psychoactive compounds that are dangerously addictive. By this definition, nicotine and the stimulant cocaine would also be included as a narcotic. There are six main groups of psychoactive medications.

- Antidepressants, which treat disparate disorders such as clinical depression, dysthymia, anxiety, eating disorders and borderline personality disorder [7].
- Stimulants, which treat disorders such as attention deficit hyperactivity disorder and narcolepsy, and to suppress the appetite [8].
- Antipsychotics, which treat psychotic disorders such as schizophrenia and psychotic symptoms occurring in the context of other disorders such as mood disorders.
- Mood stabilizers, which treat bipolar disorder and schizoaffective disorder.
- Anxiolytics, which treat anxiety disorders.
- Depressants, which are used as hypnotics, sedatives, and anesthetics.
- Psychedelics, which have a broad array of powerful acute effects and are taken under professional supervision during extended psychotherapy sessions.

A psychoactive drug, psycho pharmaceutical, or psychotropic is a chemical substance that crosses the blood–brain barrier and acts primarily upon the central nervous system where it affects brain function, resulting in alterations in perception, mood, consciousness, cognition, and behavior, These substances may be used recreationally, to purposefully alter one's consciousness or as entheogens, for ritual, spiritual, and/or shamanic purposes, as a tool for studying or augmenting the mind. Many psychoactive drugs have therapeutic utility, e.g., as anesthetics, analgesics, or for the treatment of psychiatric disorders [9].

Psychoactive substances often bring about subjective changes in consciousness and mood that the user may find pleasant (e.g. euphoria) or advantageous (e.g. increased alertness) and are thus reinforcing. Thus, many psychoactive substances are abused, that is, used excessively, despite health risks or negative consequences. With sustained use of some substances, psychological and physical dependence (*"addiction"*) may develop, making the cycle of abuse even more difficult to interrupt. Drug rehabilitation aims to break this cycle of dependency, through a combination of psychotherapy, support groups, maintenance and even other psychoactive substances. However, the reverse is also true in some cases, that certain experiences on drugs may be so unfriendly and uncomforting that the user may never want to try the substance again. This is especially true of the deliriants (e.g. *Jimson weed*) and powerful dissociative (e.g. *Salvia divinorum*). Most purely psychedelic drugs are considered to be non-addictive (LSD, psilocybin, mescaline etc.); "psychedelic amphetamines" or empathogen-entactogens (such as MDA, MDMA etc.) may produce an additional stimulant and/or euphoriant effect, and thus have an addiction potential. In part because of this potential for abuse and dependency, the ethics of drug use are debated. Many governments worldwide place restrictions on drug production and sales in an attempt to decrease drug abuse. Ethical concerns have also been raised about over-use of these drugs clinically, and about their marketing by manufacturers. Psychoactive compounds are found primarily in angiosperms and fungi. Angiosperm families especially known for having plants with psychoactive properties include:

- Solanaceae (nightshade),
- Rubiaceae (coffee),
- Papaveraceae (poppy),
- Erythroxylaceae (coca),

- Convolvulaceae (morning glory).

**Names of Psychotropic Drugs Plants**

1. Atropa belladonna (belladonna), Solanaceae, hallucinogen
2. Cannabis sativa (marijuana), Cannabaceae, hallucinogen
3. Datura spp. (jimsonweed), Solanaceae, hallucinogen
4. Erythroxylon coca (coca), Erythroxylaceae, stimulant
5. Lophophorawilliamsii (peyote), Cactaceae, hallucinogen
6. Mandragoraofficinarum (mandrake), Solanaceae, hallucinogen
7. Nicotiana spp. (tobacco), Solanaceae, stimulant/ depressant
8. Papaversomniferum (Opium poppy), Papaveraceae, depressant
9. Piper methysticum (kava), Piperaceae, depressant
10. Banisteriopsis sp. (ayahuasca), Malphiginaceae, hallucinogen

**Commonly Used Ayurvedic Psychotropic Herbs Including Medhya Drugs:** The medhya category drugs are used to balance the loss of concentration, memory, and insomniac disturbances. Medhya drugs are the remedies which possess medhya effect. Medhya effect means beneficial for medha. This literally means, the intellect, the site of pranjana. pranjana consist of Dhi or buddhi, Dhriti and Smriti. Thus medhya effect essentially refers to intellectual up left and promotion of the intellectual component of mental health. The nerving tonics like ashwagandha and bala are used to strengthen the nervous system. Ayurveda states that the emotional disorders as well as mental state of patient must be balanced and should be in equilibrium. The reason behind the psychotropic disorders in Ayurveda is pragyaparadh (the unhealthy adaptation of physical and mental type leading into the mental imbalance). This is termed as manovahsrotasvydhi (the disease of mental condition). 1. *Aindri (Bacopamonnieri),* 2. *Shankhapushpi (convolvulus pluricualis),* 3. *Mandukparni (centellaasiatica),* 4. *Guduchi (Tinosporacordifolia),* 5. *Madhuyasti (Glycyrrhizaglabra),* 6. *Ashwagndha (Withaniasominifera),* 7. *Bala (Sidacordifoia),* 8. *Jatamansi (Nordostachysjatamansi),* 9. *Jyotismati (Celastruspanniculata),* 10. *Amalaki (Phyllanthusemblica),* 11. *Shatavari (Asparagus racemosus),* 12. *Sarpagandha (Rauvolfiaserpentina),* 13. *Vacha (Acoruscalamus),* 14. *Mustak (Cyperusrotundus),* 15. *Tagar (Tabernaemontanadivaricata),* 16. *Agar (Gelidiumamansii),* 17. *Ela(Elettaria cardamom),* 18. *Akarkara (Spilethesacmelle),* 19. *Vidanga (Embeliaribes),* 20. *Rason (Allium sativum),* 21. *Pippali (Piper longum),* 22. *Palandu,(Allium cepa),* 23. *Gojiwha (onosmabracteatum),* 24. *Chitrak (Plumbagozeylanica),* 25. *Haritki, (Terminaliachebula,* 26. *Devadaru,(Cedrusdeodara),* 27. *Lavang (Syzigiumaromaticum),* 28. *Kesar (Crocus sativus),* 29. *Kushmand,(Binincasahispida),* 30. *Alabu,* 31. *Khus (Vetiveriazizanoides),* 32. *Kevada (Pandanusodorifer),* 33. *kapikacchu (Mucunaprurita) and* 34. *parasikyavani (Hyoscyamusniger)*

The Ayurvedic line of treatment for the manovahsrotasvyadhi is the use of herbs and medicines, nasya, mantra, and achar- vichar. In vadickala rishi maharshi are know many types of psychotropic drugs and medicines, some medicines are useful in vata-nadisansthan and some are balya effect, also some good quality drugs in rasa and gandha are also useful in manoahladkari, mental relaxant effect. Many types of rasas-mineral drugs useful in psychotropic disorders, the other with psychotropic effect are also mentioned in Ayurvedic classics some of mentioned-35. *Shilajit (Asphaltum),* 36. *Prawal (Trichosanthesdioica),* 37. *Mukta (Acalyphalanceolata),* 38. *Muktashukti,* 39. *Swarnamakshik,* 40. *Louh,* 41. *Swarn,*42. *Rajat,* 43. *Kasturi* and 44. *Amber.*

Psychotropic medications are designed to reduce and alleviate the crippling affects of psychiatric conditions which can include an inability to concentration, sleeplessness, paranoia, hallucinations, manic states or depression. These drugs can significantly improve the mood, health, well-being and quality of life for individuals who suffer from these conditions as well as their friends and families.

**Types of Disease:** As per Charaka Samhita; *Sharirika & Mansika*

**Mansika**

(a) Kevala (Pure/Only) Manasika e. g.Kama,Krodha etc

(b) Anubandhaja e. g.Unmada, Apasmara

(c) Ubhyatamaka

**Manovikaras:** On the basis of the classical descriptions, manovikaras can be defined as a group of clinical conditions affecting the individuals with Alpasatwa (weak psyche) and characterized by behavioral changes in them due

to: (as per above)

A. Discordance of manodoshas or both manodoshas and shareeradosha

B. Vitiation of manovahasrotamasi (channels carrying psychological impulses);

C. Impairment of function of manah viz., Indrayabhigraha (perception and motor control), manonigraha (mental control).

**Ayurveda also Says that Negative Feelings are Emotional Toxins:** If they are not driven out of body in a stipulated time, they give rise to chronic mental disorders like anxiety neurosis, depression, etc. If this is further ignored, it turns into permanent mental disorders like *unmada* (unreasonable andirrational state of mind, for example, hysteria) & *apasmara* (epilepsy).

**Mental Disorders in Ayurveda**

1. Unmada–Insanity[10]
2. Apasmara-Epilepsy [11]
3. Avasada- Depression
4. Citto Udvega-Anxiety neurosis
5. ManasaMandata-Mental Retardation
6. Atatvaabhinevisha-Obsessive Disorders.[12]
7. Madatyaya -Intoxication etc. [13]

**General Principles of Management** [14]

1. Daivavyaprashraya (Chanting of Mantras, Homas, Spiritual healing, Religious rites etc.)
2. Yuktivyaprashraya (Medicines {Shodhana & Shamana}-Psychotropic Drugs & Diet)
3. Satwaavajaya (Psychotherapy)

**Treatment by Psychotropic Drugs Ayurvedic Preparation**

**Plants Based Drugs**

- Single herb medicine
- Multi herbal medicine
- Herbo- mineral medicine
- Patent or proprietary medicine

**Classical treatment**

1. Use of Medicine prepared by heavy metal like mercury, gold, silver etc.
2. Use of oil, Ghrit, and Asava- Arishta preparations.

Psychoactive substances are used by humans for a number of different purposes to achieve a specific end. These uses vary widely between cultures. Some substances may have controlled or illegal uses while others may have shamanic purposes, and still others are used medicinally. Other examples would be social drinking or sleep aids. Here some psychotropic and medhya drugs are mention here-

**Brahmi (Bacopamonniera):** *Bacopamonniera* [15] it has been classified as under 'Medhyarasayana', i.e., medicinal plants rejuvenating intellect and memory [16]. The name Brahmi is derived from the word 'Brahma', the mythical 'creator' in the Hindu pantheon. Because the brain is the centre for creative activity, any compound that improves the brain health is called Brahmi, *Bacopamonniera*, from a family Scrophulariaceae is a small creeping herb with numerous branches, small oblong leaves, and light purple or small and white flowers, with four or five petals. The leaves are succulent, relatively thick, and oblanceolate and are arranged oppositely on the stem.

Compounds responsible for the pharmacological effects include alkaloids, saponins, and sterols. Detailed investigations first reported the isolation of the alkaloid ''brahmine''[17]. Later, other alkaloids like nicotine and herpestine have also been reported [18]. Subsequently, the isolation of D-mannitol, and a saponin, hersaponin and potassium salts were reported [19]. The major chemical entity shown to be responsible for neuropharmacological effects and the nootropic action or antiamnestic effect of Brahmi, is bacoside A, assigned as 3-(a-L-arabinopyranosyl)-O-b-D-glucopyranoside-10, 20-dihydroxy-16-ketdammar-24-ene [20].

Sedative and tranquillizing properties by effect of glycosides named her saponins [21]. Cognitive deficits induced by intra cerebroventricularly administered colchicines and injection of ibotenic acid into the nucleus basalismagno cellular is [22]. For Anxiety demonstrated that Brahmi has containing 25-percent Bacoside. Bacosidereduce anxiety without induce amnesia, the side effects associated with lorazepam, but instead had a memory-enhancing effect [23-24]. Antidepressant potential of Brahmi has been evaluated in an earlier study wherein it showed a significant antidepressant activity in the most commonly used behavior paradigms in animal models of depression, namely, forced swim test and learned helplessness test [25]. Brahmihas been indicated as aremedy for Epilepsy in Ayurvedic medicine [26].

**Mandukparni (Centellaasiatica):** It has been used as a medicine in the Ayurvedic tradition of India for thousands of years and listed in the historic Sushruta Samhita, Charak Samhita [27] and other Ayurvedic ancient text. In China, known as Gotukola, it is one of the reported "miracle elixirs of life" known over 2000 years ago.

Mandukaparni is a perennial herbaceous creeper, having small fan-shaped green leaves

with white or light purple-to-pink or white flowers and bears small oval fruit belongs to the family Apiaceae and is found throughout India in moist places up to an altitude of 1800 m in tropical and subtropical countries in swampy areas.

Mandukaparni having saponins (also called triterpenoids), include asiaticosides in which a trisaccharide moiety is linked to the aglyconeasiatic acid, madecassoside and madasiatic acid [28]. In this Brahmoside and brahminoside, which are postulated to be responsible for CNS and uterorelaxant actions, but are yet to be confirmed by clinical studies? Crude extract that contains glycosides isothankuniside and thankuniside showed antifertility action in mice.

Mandukaparni having CNS effects described in Indian literature such as stimulatory-nerve tonic, rejuvenator, sedative, tranquilizer and intelligence promoting property [29]. It increases the cerebral levels of γ-amino butyric acid (GABA), which explains its traditional use as anxiolyticand anti-convulsant. It is known that GABA and its agonists inhibit the central cholinergic action by affecting the turnover rate of acetylcholine in the rat brain. The isolated steroids from the plant have been used to treat epilepsy [30].

**Shankhapushpi (Convolvulus Pleuricaulis):** Shankhapushpi (Convolvulus pleuricaulis Chois) is a perennial, prostate or sub erect spreading hairy herb, found throughout India. Recommended therapeutic form is fine paste of whole plant. Highly regarded as Medhya (intellect promoter) [31]. Important chemical principles are microphyllic acid, shankhapushpin, kaempferol-kaempferol-3-glucoside, 3, 4 dihydroxycinnamic acid, sitosterols. Neuroprotectve and intellect promoting activity implicated to free radical scavenging and antioxidant property. BR-16A (Mentat), a poly herbal combination containing Shankhapushpi significantly reversed the social isolation stress-induced prolongation of onset and decrease in pentobarbitone-induced sleep, increased total motor activity and stress-induced antinociception in experimental model.

Ayushman-8 (containing Shankhpushpi, Brahmi and Vacha) reported to be effective on Manasa-mandata (mental retardation). Shankhapushpi compound containing Shankhapushpi, Sarpagandha, and Gokshura in equal quantities studied to be effective in Chittodvega (anxiety disorders). Sanjay Parsania reported Shankhapushpi to be effective in relieving signs and symptoms of Chittodvega (anxiety disorders). Herbalists believe that Shankhpushpi calms the nerves by regulating the body's production of the stress hormones, adrenaline and cortisol. Few investigations reports that Shankhpushpi has potent depressive action in mice. Convolvulus pleuricaulis whole plant extract, shows the highest inhibitory activity against Helicobacter muridarum

**Bhanga (Cannabis Sativa):** Bhang has been used in India since Vedic times, and is an integral part of North Indian culture. Sadhus and Sufis use bhang to boost meditation and to achieve transcendental states. Using mortar and pestle, the buds and leaves of cannabis are ground into a paste. The bhang base is now ready to be made into a heavy drink, an alternative to alcohol also used as a stupefying agent.

It is grown in the Indian sub-continent, Iran, Siberia, Pakistan and Nepal, it is also the name of weed that can be seen on any piece of waste ground. It is an herbaceous annual plant; the rough, angular, branched stems reach a height of 3-10 feet and bear opposite, or alternate toward the top, palmate leaves with 5-7 narrow, lanceolate, coarsely serrate, pointed leaflets. The flowers are small and green, the male growing on one plant in axillaries' panicles, the female on another plant in spike-like clusters from August to October. The fruit is a small, ash-colored achene.

Bhanga is used as Psychotropic drugs, a pain reliever for sufferers of arthritis, gout, neuralgia, rheumatism, delirium tremens, insanity, infants' convulsions and insomnia [32]. It has produce exhilaration, but also hallucinations and is known in the East as the 'leaf of delusion', 'increaser of pleasure,' 'cementer of friendship.'

**Opium Poppy (Papaversomniferum):** Opium has been eaten, drunk, smoked for centuries, the poppy, from which opium is derived, is not known from the wild; it has been domesticated for its seeds, which are used for oil and food, and for its dried sap, which produces opium, A common method of preparing opium was to dissolve it in alcohol, and this tincture (infusion, extraction, solution), later known as laudanum, became a popular medication for centuries. (Medications at that time were not so much administered to heal as they were to simply alleviate pain).

It is a very powerful hypnotic and narcotic, with powerful analgesic properties. It is the most abundant component of opium, ranging

from 4-21% by weight. Morphine is still unsurpassed in its ability to deaden pain. It is considered the most powerful naturally-occurring analgesic). It is a general CNS (central nervous system) depressant and, in overdose, can lead to death by completely suppressing the respiratory center in the brain. The study of opium led to the discovery of the first alkaloid, morphine. And the study of morphine has led to the discovery of the brain's own painkillers, the endorphins, perhaps the most important advance in neurochemistry of the past half century.

**Datura (Daturametel):** Datura refers to any one of nine species of shrubby herbaceous plants from the Solanaceae family, which produces large, white or purple trumpet-shaped flowers. There are many ways to administer the Datura plant the most common being tea made from any part of the plants, ingestion of seeds, and smoking blends made from leaves or flowers. Datura can produce hallucinations, which the user is unable to identify as fantasy. A user will not be able to distinguish between reality and fantasy and therefore may become confused, agitated or scared. Most users report a feeling of discomfort, and do not enjoy the trip. The peak may result in memory loss, and complete loss of motor/communication functions. All varieties of Daturametel contain psychotropic tropane alkaloids. D. metel contains the highest scopolamine content of the Datura genus. The entire plant also contains various with anolides [33]. Datura is the dangers Because of the unknown quantity of tropane alkaloids in each Datura plant, a quantity for overdose is going to be hard to predict. To reduce chance of overdose start very small and work your way up to larger doses. Remember if using another plant the dosage will be different from last time. Daturametel is very dangerous and can lead to insanity or even death, so great care must be taken with its consumption. There is evidence that Daturametel seeds have been used in ancient Indian medicine, modern Indian folk medicine, and Ayurvedic medical practices. The most common medicinal uses for Datura in these systems are for skin conditions, anxiety disorders, and respiratory ailments, along with a litany of other conditions.

**Common Useful Herbo-mineral Yoga (Preparations):** Brahmee vati, Vata Kulantaka Rasa, Smriti Sagar Rasa, Yogendrarasa, Manasamitravatakam etc.

**Conclusion:** There are increasing the number of patients express a preference for the use of remedies they perceive to be natural and Physicians recommend herbal remedies in the selected cases. It is becoming increasingly important for physician to be familiar with the herbal remedies commonly used in the patient problems they serve.

Although evidence of the efficacy of the herbal preparation in treating psychiatric conditions is growing translating the results of efficacy studies into effective treatment for patients is hampered by the chemical complexity of the products

Since the mental illness are diverse and individual patients are bio-chemically unique, a larger number of drugs will increase the likelihood of finding a beneficial medication, Hence in future times psychiatric patients will probably have medications with improved effectiveness and with less side effects.

There are lack of drug standardization of commonly available Ayurvedic preparation and the paucity of well-controlled studies. This reveals that number of herbal drugs is available for the treatment of various mental disorders but there should be need to explore efficacy of many of them. For this a rigorous study of various traditionally but not scientifically proved herbs must be carried out at the pre-clinical and clinical levels.

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