



BHANG TOXICITY

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Article Received on 09/08/2019

Article Revised on 30/08/2019

Article Accepted on 20/09/2019

ABSTRACT

Ayurveda is the science of life that is widely practiced in India. Science uses medicines which is prepared from medicinal plants, animals and mineral origin. All the three sources of drugs can be divided under poisonous and non-poisonous category. Bhang is a drug with great medicinal potency has been highlighted for its Deepana (digestive stimulate), Pachana (digestive), Ruchya (Taste promoter), Madakari (intoxicant), Grahi (withholds secretions), Medhya (memory booster) activities, were used as a processing media in many formulations. Hindu devotees offered Cannabis to Shiva during religious ceremonies. The medicinal use of Cannabis has very long history. However, the socio-political pressure led to decline the medicinal use of Cannabis. But despite its illegality, people have continued to obtain Bhang in black market for self-medication. Together with coffee and tobacco, Cannabis is the most commonly used psychoactive drug worldwide, and it is the single most popular illegal drug. This review analyses the diversity, botanical description, consumption and pharmacological studies along with medicinal uses of Cannabis among the human being throughout the world.

KEYWORDS: Bhang, Bhavana, Indian hemp, Cannabis sativa Linn, Herbo-mineral drugs, Potency, Levigation, Trituration, Upavisa etc.

INTRODUCTION

The term Cannabis refers to the flowering and fruiting tops of Cannabis sativa of family Cannabinaceae, which is a tall weed growing up to 15 feet in height. It is a dioecious plant, i.e., the sexes are separate. Both male and female plants contain the active principle which however is more abundant in the latter. Highest drug concentration is in the flowering tops (bracts) followed by leaves, stem, seeds and root. The leaves of the plant are palmate, stipulate, present alternatively, have long petiole, smooth dark green with serrate, singly present,

lanceolate. 3 to 11 in number, acuminate leaflets. These are long up to 10 cm and wide up to 1.5 cm. leaflets have acute stipules at the base with tapering ends. The fruit of the bhanga is small and completely full of seeds. It is of brownish-grey colour.

Classification

(A) According to Ayurved

- (1) Brhatrayee- Sthaavara- Vansaptija (vegetative).
- (2) Rasatangini & Nighantukaar- Upvisha.

(B) According to Modern Medicine- Deliriant Poison.





Vernacular Name

- English Name- Indian Hemp
- Hindi Name- Bhang, Charas, Caras, Ganja, Bohar
- Sanskrit Name- Vijaya, Ananda, Banga, Bijeeah, Chapal
- Marathi Name- Bhangachajhada, Bhamgi
- Tamil Name- Kalpam, Korkkarmuli, Ganja-chedi, Bangi
- Gujarati Name- Bhaag
- Urdu Name- Bhang, Ganja
- Bengali Name- Bhang, Qinnab, Tukhm bhang
- Malayalam Name- Kancabu, Kancha, Kanchava-cheti, Sivamuli, Cherukanchava
- Mizoram Name- Kanja
- Tibetain Name- Myan Rtsi Spras
- Telgu Name- Kalpam-chettu, chettu, Bangiaku, Ganjachettu
- Assamese Name- Bhang
- Manipuri Name- Ganja

Chemical Constituents

The active principles are contained in its Resin. The principal constituent of the resin are cannabinol, which has no action. Cannbinol is also inert, but on exposure to heat, it is partly converted to the very active isomeric tetrahydrocannabinols (THC). All parts of the plant, male or female, contain the active material, except stem, root & seeds. It is a CNS stimulant. It is a psychoactive drug. THC is metabolized in the liver & excreted in the urine & faeces. It is used in the following forms-

- (A) Bhang: It is prepared from the dried leaves & fruit shoots. It is the mildest & contains 15% of active principle. Fresh bhang is highly intoxicating & narcotic.
- (B) Majoon: It is a sweet prepared with bhang. It increases the appetite & sexual desire.
- (C) Ganja: It is prepared from the tops of the female plants. It has a rusty green colour & characteristic odour. It is mixed & smoked with tobacco in a pipe or hukka. It contains 15-25% of the active principle.

- (D) Charas or Hashish: It is the resin (dope or shit) exuding from the leaves & stems of the plant. It contains 25-40% of the active principal. It is dark green or brown in colour. It is mixed & smoked with tobacco in a piper or hukka.

Rasa panchaka

Guna- Laghu, Teekshna
Rasa- Tikta
Vipaka- Katu
Virya- Ushna
Karma- Kapha-Vatahara

Mechanism of Toxicity

- (A) Endogenous cannabinoid receptors- (i) Cannabinoids exert their effects by interaction with specific endogenous cannabinoid receptors {CB₁, CB₂, GPR18, GPR55 and GPR119}. (ii) Discovered in 1990. (iii) All are G protein-coupled cannabinoid receptors (GPR). (iv) Location- CB₁ is located in the brain, and CB₂ in peripheral tissues of the immune system.
- (B) Endogenous cannabinoids- Anandamide (from Sanskrit word "Anand", happiness), an endogenous cannabinoid, attaches to these receptors. Produces natural pain relief and controls immunity.
- (C) THC- Additionally acts on CB₁ and enteric nervous system to suppress emetogenic stimuli communicating between them. Acts as an effective antiemetic.

Sign and symptoms

According to Ayurveda- Eye disorder, unstable mind, loss of memory, delirium, vomiting, dryness of throat.

According to Modern Toxicology

- Two stages occur-
 - (1) Stage of excitement or euphoria.
 - (2) Stage of narcosis.

(1) Stage of excitement or euphoria

- Delightful and sensuous hallucinations
- Irrelevant laughing and singing
- Talking at a high pitch
- Increased appetite and thirst
- Sleeplessness etc.

(2) Stage of narcosis

- Muscular weakness
- Lassitude
- Drowsiness
- Loss of co-ordinated movement
- Dilatation of pupils
- Frail pupils etc.

Chronic poisoning

- Loss of appetite
- Loss of libido.
- General weakness
- Emaciation
- Trembling etc.

Fatal dose

- Bhanga: 10gm/kg body wt.
- Ganja: 8gm/kg body wt.
- Charasa: 2gm/kg body wt.

Fatal period -Death may occur in 12 hrs

Shodhana of Bhang

Before its usage, it is subjected to a purification procedure. Its leaves are tied in cloth and boiled in milk for three hours. After that, it is taken out, dried and fried in ghee. Only after this, Cannabis sativa is used for medicinal purposes.

Treatment of Poisoning**According to Ayurveda**

The cows curd mixed with sunthi and the fresh root of sandesada (*Poinciantic elata*) crushed in water if consumed subsides all the poisonous effects of the bhanga.

According to Modern Science

- Inducing vomiting
- Stomach wash
- Cold water irrigation over the head
- Artificial respiration
- Give anti-psychotic drug like haloperidol
- 5-10mg Diazepam

Important Formulations

Pushpadhanwa Ras, Jatiphaladi Churna, Nidroday Ras, Bahumutratak Ras, Maha Jwarankush Ras, Madnannda Modak.

- Pushpadhanwa Ras- Used in the Ayurvedic treatment of sexual disorders such as low stamina, premature ejaculation.

- Jatiphaladi Churna- Used in treatment of digestive and respiratory conditions.
- Nidroday Ras- Used in treatment of sleeplessness, nocturnal emission.
- Bahumutratak Ras- Used in treating frequent urination.
- Maha Jwarankush Ras- Used in treating fever, chronic fever, intermittent fever etc.

Post Mortem Appearance- No characteristic features have so far been described because fatalities are rare.

Medicolegal Important

- Most cases of poisoning are accidental or due to overindulgence. It is the most commonly used illicit drug among pregnant women and of childbearing age in most western societies.
- Majum and charas are sometimes used by thieves to stupefy person to facilitate robbery.
- Sometimes, it is taken by criminals before committing a criminal act to strengthen nerves.
- It is used as an aphrodisiac and is supposed to increase duration of coitus.
- Its use in chocolates causes intense craving among children for its euphoric effects.

Run-amok

- Run-amok (Portuguese-Indian amuco: heroic warriors ready to die in the battle) is a psychic disturbance resulting from continued use or sudden consumption of cannabis, and is characterized by a peculiar homicidal mania.
- After intake, there is a period of depression, followed by excitation, confusion and a violent attempt to kill people (impulse to murder).
- The addict first kills a person against whom he may have real or imaginary enmity and then kills anyone who comes in his way, until the homicidal tendency lasts. The person may then commit suicide or surrender himself to the law enforcement authority.
- Criminal responsibility: The person is not held responsible for his acts since run amok is considered a disorder of mind and not intoxication, unless he had taken it purposefully to innerve (strengthen) himself before commission of the offence.

CONCLUSION

As per the concept of Ayurved, even a strong poison can be converted to an excellent medicine if processed and administered properly. Bhang is found throughout India and its description can be traced since ancient era. Its medicinal use has been highlighted since the medieval period. Ayurveda uses many toxic natural drugs either in their crude form or after subjecting them to Sodhana processes for treating human ailments. Bhang has been attributed with different pharmacological properties. Bhang fulfils the criteria of a good and effective drug, as recommended in the classical text of Ayurveda. Prevention and criminalization of Bhang smoking is very

important as the drug use could destroy the preceding generation of the society. Specific media has definitely an important role in making a drug act without causing side-effects/adverse effects.

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