



**NEURO-NUTRIENT IMPACT OF KUSHMAND IN MEDHAKSHAYA AND ITS  
RELATED CHETOROGA (PSYCHIATRIC DISORDERS)**

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**ABSTRACT**

According to *Ayurveda Buddhi (Medha)* includes *Smriti* (power of recollection), *Dhriti* (power of retention) and *Dhi* (power of acquisition). Due to dysfunctioning of *Medha* or *Buddhi* various psychiatric disorders can be produced such as *Unmad* (Insanity), *Apsmara* (Convulsive disorder), *Apatantraka* (Hysteria), *Atattavabhinivesha* (Psychosis), *Smritibhransh* (Alzheimer's disease). To overcome this problem *Ayurveda* provides lots of herbs known as *Medhya dravya*. *Kushmand (Benincasa hispida)* belonging to family Cucurbitaceae is the medicinal as well as nutritional herb having properties like *Madhura rasa*, *Laghu*, *snighdha guna*, *Madhur vipaka*, and *Sheeta virya*. The chemical constituents of *Benincasa hispida* fruits have volatile oils, flavonoids, glycosides, sachtides, carotenes, vitamins, minerals,  $\beta$ -sitosterin and uronic acid. This drug proved for multiple pharmacological activities such as Anti-oxidant, Anxiolytic, Anti-compulsive, Anticonvulsant, Antidepressant, significant action on Alzheimer's disease etc. Present review draw the attention towards the neuro-nutrient impact of *Kushmanda* in *Medhakshya* and its related *Chetoroga* (psychiatric disorders).

**KEYWORDS:** Medha (Intellect), Medhakshya (Cognitive deficit), Benincasa hispida, Kushmanda.

**INTRODUCTION**

According to *Ayurveda*, *Medha* has three components such as *Smriti* (Power of recollection), *Dhriti* (Power of retention) and *Dhi* (Power of acquisition).<sup>[1]</sup> Due to dysfunctioning of *Medha* or *Buddhi* various *Chetorogas* (psychiatric disorders) can be produced. WHO estimates that about 7.5% Indians suffer from some mental disorders.<sup>[2]</sup> Adults are also more vulnerable to severe illness from Covid-19 and have experienced increased levels of anxiety and depression during the pandemic.<sup>[3]</sup> Various memory enhancer drugs are available in market but most of have adverse drug effects issues so to conquer this trouble *Ayurveda* provides a list of herbs known as *Medhya dravya*. *Kushmand (Benincasa hispida)* is one of the *Madhya dravya (Shreshtha valliphala)* belongs to family Cucurbitaceae. According to *Aacharaya Sushruta*, *Bhavpraksha* and *Dhanvantari nighantu* it effective on *Chetoroga* (Mental disorders).<sup>[5,6,7]</sup> Present review draw the attention towards the neuro-nutrient impact of *Kushmanda* in *Medhakshya* and its related *Chetoroga* (Psychiatric disorders).

**AIM**

To study the neuro-nutrient impact of *Kushmand* in *Medhakshya* and its related *Chetoroga* (Psychiatric disorders).

**OBJECTIVE**

1) To study the *Medha*, *Medhakshyaya* and its related *Chetoroga* (psychiatric disorders). 2) To study the pharmacognosy, Phytochemistry, Pharmacological actions of *Kushmanda* and also its neuro-nutrient impact on *Medhakshya* and related *Chetoroga*.

**MATERIALS AND METHODS**

The data was collected from *Ayurvedic* authenticate texts like *Samhitas* and *Nighantus*, scientific journals and through electronic media.

**Medha term in Ayurveda** – The term *Medha* (intellect or Cognitive power) includes: **Remembrance:** means the process where an individual recollects and retrieves information from the brain. **Retention:** It is the ability of the mind through which an individual can keep hold of the past experiences and recall them when required. **Acquisition:** A property of the brain to garner more knowledge and learn new things every day. Hence, all these faculties are interlinked with each other and derangement of any of these will reflects on each other.

Neurological and psychiatric disorders are generally associated with loss of memory, cognitive deficit, impaired mental function etc. *Ayurveda* has described various kinds of *Chetoroga* (Mental disorders) such as

*Unmad* (Insanity), *Apsmara* (Convulsive disorder), *Apatantraka* (Hysteria), *Atattavabhinivesha* (Psychosis), *Smritibhransh* (Alzheimer's disease), *Mada-murcha-sanyasa* (loss of perception leading to coma), *Bhaya* (Fear), *Harsha* (Excitation), *Shoka* (Grief), *Udvega* (Anxiety), *Avasada* (Depression).



**Kushmand:** It is vegetative climbing herb and its fruits are generally used.

**Synonyms**<sup>[4,6,7,10,11]</sup>: *Kushmanda*, *Pushpaphala*, *Pitpushpa*, *Bruhatphala*.

**Rasapanchaka**<sup>[4]</sup>:

**Rasa** – Madhur,

**Guna** – Laghu, Snigdha,

**Veerya** – Sheeta,

**Vipaka** – Madhura,

**Prabhava** - Medhya

**Doshghnata**<sup>[4]</sup> – Bala – Pittahara, Madhya – Kaphavaha, Pakva – Tridosahara.

**Karma (Actions)** – Ripen fruit of *Kushmand* have *Sarvadoshahara* (alleviate all doshas), *Chetorogahara* (Reduce mental illness), *balya* (enhance physical strength), *Hrudya* (cardioprotective), *Vrushya* (aphrodisiac), *Bastishodhana* (Diuretic), *Shukral* (spermatogenesis) and *Bruhana* (health tonic) properties.<sup>[6]</sup>

**Phytochemical constituents**<sup>[8,9]</sup>: Phytochemical analysis showed that major constituents of *Benincasa hispida* fruits are volatile oils, flavonoids, cucurbitacin B, lupeol,  $\beta$ -sitosterol, glycosides, sachtirides, saponins, alkaloids, steroids, proteins, carotenes, vitamins (Thiamine, Riboflavin, Niacin), minerals,  $\beta$ -sitosterin and uronic acid.

#### Pharmacological actions

- **Neuro-protective activity:** The petroleum ether, methanolic and aqueous extract of fruit of *Benincasa hispida* shows the significant neuroprotective activity against D galactose induced aging acceleration.<sup>[12]</sup>
- **Antidepressant activity:** The methanolic extract of *B. hispida* showed significant antidepressant-like

activity in mice probably by inhibiting MAO-A, and through interaction with dopaminergic,  $\alpha$ 1-adrenergic, serotonergic, and GABAergic systems.<sup>[13]</sup>

- **Anxiolytic effects:** alcoholic extract of *B. hispida* were evaluated in mice using elevated plus maze and light-dark transition test and spontaneous motor activity measured by actophotometer.<sup>[14]</sup>
- **Action on Alzheimer's disease:** The chronic treatment with the aqueous extract of *Benincasa hispida* pulp (400mg/kg bw) appeared beneficial in the management of colchicines-induced rat model of Alzheimer's disease.<sup>[15]</sup>
- **Anticonvulsant activity:** properties of alcoholic extract of *Benincasa hispida* was studied on maximal electroshock test (MEST), pentylenetetrazole and strychnine-induced seizures model in mice. It also showed anticonvulsant activity against pentylenetetrazole-induced convulsion and protected mice against strychnine-induced convulsions.<sup>[16]</sup>
- **Anti-compulsive effect:** The methanolic extract of *Benincasa hispida* exhibited significant Anti-compulsive effect in marble-burying behavior test in mice, the effect which may be attributed to the enhancement of serotonergic function.<sup>[17]</sup>
- **Antihistaminic activity:** The methanolic extract of fruit of *Benincasa hispida* caused reduction in spontaneous motor activity with no muscle relaxant activity. It also significantly potentiated the barbiturate induced hypnosis, and showed significant antihistaminic activity.<sup>[18]</sup>
- **Antioxidant activity** and total phenolic content (TPC) of *Benincasa hispida* seeds extract were investigated using conventional Soxhlet extraction (CSE), and DPPH and ABTS scavenging activity tests. The ethanolic extract gave the highest total phenolic content 11.34 $\pm$ 1.3 mg GAE/g and antioxidant activity followed by ethyl acetate and n-hexane extract.<sup>[19]</sup>
- **Immunopotentiator activity:** The aqueous extract of seed of *Benincasa cerifera* Savi shows the immunopotentiator activity.<sup>[20]</sup>
- **Anti-inflammatory activity:** The preliminary investigations of aqueous extract of *Benincasa hispida* showed that it exhibited anti-inflammatory properties.<sup>[21]</sup>

#### Therapeutic uses

1. Juice of *Kushmanda* will be useful in *Unmada* (insanity).<sup>[4]</sup>
2. According to *Sharandhara* the juice of *Kushmanda* with honey and *Kustha* powder will be effective in all types of *Unmada* (insanity).<sup>[21]</sup>
3. *Kushmandapaka* are more effective in *Unmada* (insanity) and *Apsmara* (epilepsy).<sup>[4]</sup>
4. In *Unmada* (insanity), and *Kshsyaroga* (Tuberculosis), *Muktapisthi* with *Kushmanda* juice will be effective.<sup>[4]</sup>

5. *Kushmand swaras* will be apply in case of *Paradvishaktata*. (Mercury poisoning).<sup>[4]</sup>

**Formulations:** *KushmandaKhanda, Kushmanda ghrta, Kushmandagudkalyanaka, Kushmanda rasayana.*

#### Probable mode of action of Medhya dravya – Kushmanda

The *Medhya karma* can be considered as *Prabhavajanya* means unrecognized action. This attribution holds good since the action of *Medhya dravya (Kushmand)* can't be related to a particular quality of drug. Beside that it may be considered as due to the *Madhur rasa, Sheeta virya, Madhura vipaka* and *Tridoshghna* property of *Kushmanda*, it nourishes the all *dhatu* especially *Majja dhatu* and *Oja*. Also because of its *Sheeta virya* it sustains the balance in *Sadhaka Pitta* and *Tarpaka Kapha* which is its desired action. Due to *Balya, Bruhana* and *Sheeta* properties it provides nutrition to neuronal matter of the brain and is effective in *Apatarpanjanya Medhakshya*. This drug also act on *Mansika bhavas* (Faculties of mind) there by alleviate anxiety, stress, depression, dementia, insomnia because of its *Mastishka balya* (nourishing brain) property.

#### CONCLUSION

It is very difficult to assume mode of action of *Kushmanda* as the mechanism of *Medha*. This nutritional herb *Kushmand* which is *shreshtha* in *Valliphala* have tremendous nutritional and *Mastishka balya* (neuro nutrient) property. Its pharmacological actions such as Anti-compulsive, Anxiolytic, Anti-convulsant, Neuroprotective, Anti-histaminic, Anti-depressant validates its claim as *Medhya dravya* in *Ayurveda*. Further molecular study on this drug will certainly provide a ray of hope for neurodegenerative disorders.

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