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Therapeutic Potential of Chaturbeeja Churna on Various Disease's

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Abstract : In Ayurveda our Ancient Aacharyas described various drugs in combination therapy based on their similar characteristics either as morphologically, therapeutically or using the same part of all drugs called as a Gana. Suchrutacharya given the term Mishraka Gana as it mentioned two or more dravyas which have a therapeutically similar characteristics. Chaturbeeja one of the mishraka gana in which Seed part of Four dravyas are described such as Methika, Chandrashura, Kalajaaji and Yavani. Acharya Bhavprakash described the various actions of Chaturbeej gana dravyas in various diseases like, Vatavikar (Vataj disoreders), Ajeerna (indeigestion) Udarshul (Abdominal Pain), Adhman (Feeling of Fullness of Stomach), Parshwshool , Kativyatha (Lower back pain). Present study is a review to update knowledge on pharmacological properties, thepeutic potential of chaturbeej gana on various diseases by their Gunkarma's .

Keyword: Mishraka gana, Chaturbeeja, Gunkarma, Therapeutic actions.

Introduction: All we knows Ayurveda is a holistic system of medicine in which all type of herbal drugs are described as a single drug therapy or a combination drug therapy. Acharya Charaka mentioned Fifty Mahakashaya in which 10 herbal dravyas are included based on their therapeutic similarity[1]. Also Acharya Sushruta, Acharya Bhavprakasha given Mishraka Gana in which two or more dravyas include in one group according to Morphologically or Therapeutically similar in action[2,3]. Chaturbeej one of the Mishrak gana described by Acharya Bhavprakasha in Four drugs are involved such as Methika, Chandrashur, Kalajaji and Yavani. This drugs having Katu Tikta Rasa, Laghu, Ushna, Snigdha, Tikshna and Pichhil Guna, Katu Vipaka and Ushna Veerya[3]. On the basis of all Gunakarmas's this dravya combinly do various therapeutic actions on various diseases such as, Vatavikar (Vataj disoreders), Ajeerna (indeigestion) Udarshul (Abdominal Pain), Adhman (Feeling of Fullness of Stomach), Parshwshool , Kativyatha (Lower back pain).

Chaturbeej[3] :

मेथिका चंद्रशुरश्च कालाजाजी यवानिका ।

एतत् चतुष्ट्यं युक्तं चतुर्बीजं इति स्मृतम् ॥ भा.प्र. (हरितक्यादि वर्ग)

Aacharya Bhavaprakasha mentioned this Chaturbeej gana in their first varga that is Haritakyadi varga. In this gana the Seed part of four drugs are taken in equal quantity such as:

Table No.1 Chaturbeej Dravya:

Sr. No.	Dravya	Latin Name	Family	Part used	Picture
1.	Methika	Trigonella foenum-graecum Linn.	Papilionaceae		
2.	Chandrashur	Lepidium sativum Linn.	Cruciferae		
3.	Kalajaji	Nigella sativa Linn.	Ranunculaceae		
4.	Yavani	Carum copticum Benth / Trachyspermum ammi Sprague Linn.	Umbelliferae / Apiaceae		

Table No. 2: Raspan chanka of Chaturbeej Dravyas[4] :

Rass-Panchaka	Methika	Chadrashura	Kalaajaji	Yavani
Synonyms	Methikaa, Methinee, Methee, Deepanee, Bahupatrikaa, Bodhinee, Bahubeejaa, Jyotirgandhaphalaa, Vallaree, ChaMdrikaa,Mantha,	Chandrikaa, Charmahantri, Pashumehankarikaa, NAndinee, Karavi, Bhadra, Vaspushpi, Suvasaraa, Chadrashura	Upakunchikaa, Mangarailaa	Yavanika, Ugragandhaa, Bramhadarbha, Ajmodikaa, Deepyakaa, Deepya, Yavasaahyaa

	Mishrapushpa, Kairavi, Kunchikaa, Bahupatra, Pitbeejaa,			
Rasa	Katu	Katu, Tikta	Katu, Tikta	Katu, Tikta
Veerya	Ushna	Ushna	Ushna	Ushna
Vipaka	Katu	Katu	Katu	Katu
Guna	Laghu, Snigdha	Laghu, Snigdha, Picchil	Laghu, Ruksha, Tikshna	Laghu, Ruksha
Doshaghnata	Kaphavaat Shamaka	Kaphavaat Shamaka	Kaphavaat Shamaka, Pittakara	Kaphavaat Shamaka, Pittakara
Karma	Vaatanulomaka, Agnideepaka, Aadhmanhara, Balya, Vrushya, Vatahara, Garbhashasankochaka	Rasayana, Balya, Vajikaran, Anulomika, Stanyajanan, Shulhara	Vatatulomik, Deepan, Pachan, Garbhashaya Shudhikara, Stanyavardhaka, Swedana, Krumighna	Agnideepaka, Pachaka, Balya, Krumighna

Table No. 3: Chemical constituents and Pharmacological actions of Chaturbeej dravya :

Sr. No.	Dravya	Chemical Constituents	Pharmacological action
1.	**Methika**	45–60% carbohydrates, 20–30% lysine and tryptophan proteins, 5–10% oil (lipid), mucous fibers, trigonelline (0.20–0.38%), choline (0.5%), free amino acids such as 4-hydroxy-isoleucine (0.09%), arginine, histidine and lysine, calcium and iron, vitamins A1, B1, C and 0.015% volatile oils[5]	**Antioxidant Activity**[6] - AntiKaviarasan et al. (Citation2004) reported that polyphenol-rich fenugreek seeds extract significantly reduced H_2O_2-induced oxidative modifications in normal and diabetic human erythrocytes, suggesting potent antioxidant properties of the fenugreek seeds. **Antidiabetic Effect**[7] - In type-2 diabetic rats daily oral administration of *Trigonella* seed-derived soluble dietary fiber (SDF) for 28 days decreased serum glucose, increased liver glycogen content and enhanced total antioxidant status; however, serum insulin and insulin secretion remained unaffected (Hannan et al., Citation2007). **Antilipidemic Effect**[8] - Fenugreek given at a dose of 2.5 g twice daily for 3 months to healthy individuals showed no affect on the blood lipids and fasting or postprandial blood sugar. However, fenugreek administered in similar fashion to coronary artery disease (CAD) patients with or without type-2 diabetes significantly decreased blood lipids, total cholesterol and triglycerides, without affecting the HDL-cholesterol (Bordia et al., Citation1997). **Anticancer Effect**[9] - Hibasami et al.

			(Citation2003) demonstrated that fenugreek-derived compound protodioscin displayed a growth inhibitory effect against HL-60 cells by inducing apoptotic changes. alcoholic whole plant extracts of *Trigonella foenum-graecum* showed *in vitro* cytotoxicity against different human cancer cell lines such as IMR-32, a neuroblastoma cell line, and HT29, a cancer cell line (Verma et al., Citation2010). **Anti-Inflammatory Action[24]:** In an *in vitro* model, a methanol extract of fenugreek seed inhibited the production of phorbol-12-myristate-13-acetate-induced inflammatory cytokines such as tumor necrosis factor (TNF)-α in cultured THP-1 cells (Kawabata et al., Citation2011). In an adjuvant-induced arthritis in albino rats, Suresh et al. (Citation2012) showed that an ethanol extract of *Trigonella* significantly decreased paw edema and decreased levels of IL-1α, IL-1β, IL-2, IL-6 and TNF-α. The extract also significantly decreased the levels of LPO and increased the SOD and GSH levels in cartilage tissue (Suresh et al., 2012)
2.	**Chandrashur**	glycoside, alkaloids, phenolic, flavonoids, cardiotonic glycosides, coumarins, glucosinolates, carbohydrates, proteins and amino-acids, mucilage, resins, saponins, sterols, tannins, volatile oils, triterpene, sinapic acid and uric acid[10,11]	**Hypoglycemic effects[12]** The hypoglycemic effect of the aqueous extract of *Lepidium sativum* seeds (20 mg/kg, orally for 16 d) was investigated in normal and streptozotocin-induced diabetic rats. Administration of the aqueous extract of *Lepidium sativum* seeds caused a significant reduction in glucose, creatinine, and alkaline phosphatase levels. Elevated cholesterol level was restored approximately to normal and a significant decrease in malondialdehyde levels was also observed compared to diabetic controls. **Anti-inflammatory, analgesic and antipyretic effects[13]** The activities of the optimized LSP extract of *Lepidium sativum* were tested in an *in vivo* endotoxin shock induced in mice with a single *E. coli* ip injection. Septic mice showed a substantial raise in the levels of TNF-α in plasma, whereas mice treated with *Lepidium sativum* polysaccharides (LSP) after *E. coli* injection showed considerable lower plasma levels of TNF-α ($p < 0.05$), which

			indicated the beneficial effects of LSP when administered to mice with endotoxin shock by diminishing the pro-inflammatory response. **Hypolipidemic effects**[14] The total cholesterol, triacylglycerol and alanine transaminase (ALT) activity were increased significantly in the rats fed with high cholesterol diet as compared to the control group. *Lepidium sativum* reduced total cholesterol and ALT; however, higher dose (6 g/kg diet) was found better than lower dose (3 g/kg diet) in reducing serum triacylglycerol. Histopathological findings revealed that liver of cholesterol-treated rats showed varying degrees of vacuolar degeneration, fatty changes, fatty cysts, and lobular disarray. Livers of the *Lepidium sativum*-treated rats showed mild to moderate degree of recovery.
3.	**Kalajaji**	Black cumin seed have two different forms of alkaloids: isoquinoline alkaloid that includes: nigellicimine, nigellicimine n-oxide and pyrazol alkaloid that includes: nigellidine and nigellicine[15,16,17]	**Antibacterial Activity** - *N. sativa* seed oil had a strong antibacterial activity against all the strains of *L monocytogenes*, yielding a significantly greater inhibition zone than that of gentamicin (P<0.01). The mean zones of inhibition produced by *N. sativa* seed oil and gentamicin were 31.50±1.0 and 14.80±0.50 mm, respectively[18] **Anti-inflammatory and Immunomodulatory Activity** - Concerning the anti-inflammatory activity, NSO injection at different doses to rats with carrageenan-induced edema in the hind paw causes significant suppression of the edema, this effect has been attributed to the inhibition of eicosanoid and lipid generation[19]
4.	**Yavanika**	fiber (11.9%), carbohydrates (38.6%), tannins, glycosides, moisture (8.9%), protein (15.4%), fat (18.1%), saponins, flavone and mineral matter (7.1%) containing calcium, phosphorous, iron and nicotinic acid[20].	**Hepatoprotective activity:** *The hepatoprotective actions* in vivo *showed that* T. ammi *was 80% protective in mice against a normally-lethal dose of paracetamol (1 g/kg), it prevented the CCl_4-induced prolongation of pentobarbital sleeping time in mice, and it tended to normalize the high serum levels of liver enzymes caused by CCl_4-induced liver damage in rats*[21]. **Antihypertensive, antispasmodic and broncho-dilating activity:**The antihypertensive effect of *T. ammi* administered intravenously *in vivo*, and the antispasmodic and broncho-dilating actions *in vitro* showed that calcium channel blockade

			has been found to mediate the spasmolytic effects of plant materials and it is being considered that this mechanism contributed to their observed result and supported the traditional use of *T. ammi* in hyperactive disease states of the gut such as colic and diarrhea as well as in hypertension[21]. **Anti-inflammatory potential:** Anti-inflammatory potential of the total alcoholic extract (TAE) and total aqueous extract (TAQ) of the Ajwain seeds was determined. TAE and TAQ exhibited significant (P<0.001) antiinflammatory activity in both the animal models. The weights of the adrenal glands were found to be significantly increased in TAE and TAQ treated animals. TAE and TAQ extracts from the ajwain seeds exhibit significant anti-inflammatory potential[22,23].

Therapeutic actions of Chaturbeej Mishraka Gana:

तच्च भक्षितं नित्यं निहन्ति पवनामयम् ।

अजीर्णशूलं आध्मानं पार्श्वशूलं कटिव्यथाम् ।। भा. प्र.

According to Aacharya Bhavprakasha this all dravyas mentioned in Chaturbeej Gana i.e Methika, Chandrashura, Kalajaji and Yavani, this all should take daily as dietary nutritional product so they give very good effect on the diseases like Vatavikara, Ajeerna (Indigestion), Aadhman (feeling of fullness of stomach), Parshwashool (Pain in Flank region) and Kativyatha (Lower back pain).

Mode of Action:

Chaturbeej Gana effective in Vatavikar's : All we knows the dominancy of Vata dosha among Tridosha's. Our Aacharya's give 'Samanyaja and Nanatmaja' Vyadhi in which Nanatmaja vyadhi means those diseases which are developed by due the only one Vikruta Dosha. Such Nanatmaja vyadhi's of Vataj Dosha are Almost 80 or More in number called as Vataj Vikara's . As per Vata dosha are very strong and aashukari like that their diseases also very strong and Aashukari.

Such Vaat Vyadhi's occur by two mechanism generally called as Dhatukshayajanya Vaat vyadhi and Srotorodhpradhan Vaat vyadhi. In Dhatkshayjanya Vaatvyaadhi there is increased Vaatsosha occupy the 'Kha vaigunya' area and due to increased vaat there is all the vqualities of vaat Dosha are increased i.e Kharata, Rukshata, Parushata, Chalta, and due to this there is loss of Snigdhta, Mruduta, Stabdhataa of Dhatus, which ultimately resulted into Maans kshay, MedaKshay , Ashtikshaya, Majjakshaya, Shukrashaya i.e all Dhatukshaya which is turned into various diseases like Sandhigata vaat,.

Such vatavyadhi's general mechanism are described shortly, as due to various Kapha and Aampradoshaka reasons there is increase in Kaphadosha, due to the increased Kaphadosha and Aam there is obstruction in Passage of

Vatadosha in various Srotasa and due to this Srotovarodh are developed and disturb the functions of various system's of body and Vataj vikara's are created. So in this obstructed Pathology we need to do clear pathway by reducing the elevated Kaphadosha and Aam and Anulomana of Vatadosha so that obstruction in Srotasa are reduced and all system's of body do normal functions.

Chaturbeej dravya's have Ushna, Tikshna, Laghu Guna, Katu, Tikta rasa, Katu Vipaka and Ushna Veerya. With this properties Chaturbeej dravya reduces the elevated Kapha and Aam in body and clear the passage of Vata by doinig Vatanulomik Karma. Due to Deminish obsturtion in the Srotasa, Vata dosh do their normal functions and ultimately reduce the Vataj vikara's. Snigdha and Picchil guna of Chandrashura are effective in Dhatukshayajanya vaat vyaadhi, also Ushna, Teekshna, guna Ushna veerya of these dravyas are effective to reduce Vaata and their disorder's. So, in both this condition Chaturbeej dravya's are useful to reduce Vaat Vikara.

Chaturbeej Gana effective in Ajeerna vikar : All the dravyas in the Chturbeej gana have Katu, Tikta rasa, Katu Vipaka and Ushna veerya and Laghu, ruksha Guna. Due to all this properties this dravyas do the Deepan (Digestive fire) and Pachan (Apetizer) Action which very useful to normalize the function of Jatharagni and give relief from Ajeerna Vikara.

Chaturbeej Gana effective in Adhman (Flatulence) : 'Adhman' this disease are also one of the vataj Nanatmaj roga, in which obstruction in Vata occurs. The Anuloma direction of Vata in abdomen are get obstructed by various factors and fullness of stomach and pain are occure. So in this condition we need to remove the obstruction of Vata and clear the Pathway of Vata. The Dravyas in the Chaturbeej Gana do the action of Mala-Vatanuloman by their Katu, Tikta rasa, Katu Vipaka and Ushna Guna.

Chaturbeej Gana effective in Parshwshool : This disease occurs due to the vitiated Kapha and Vata. The aggravated Kapha moves towards the sides of the body (in the Flank region) and gets lodged there in. This Kapha blocks the pathways of Vata thus obstructing its free movements. It causes distention of chest and also pricking pain in the flanks. So in the treatment of Parshwshool we need to reduce vitiated Kapha and Anuloman of Vaat. Chaturbeej dravya have Katu, Tikta Rasa, Katu Vipaka and Ushna Veerya. By these properties it reduces the Kapha and by UShna and Snigdha Guna its do Anuloman of Vata.

Chaturbeej Gana effective in Kativyatha : Kativyatha means Pain in Lower back region. This also Vata predominant vikar. Kaphadushti, Aamasanchaya is happened in the body and it results into Srotoavarodha. Vata is the predominant dosha causing Vayuvimargagaman resulted into Katigat vat commonly represented as Katishool. Chaturbeej dravya remove the obstruction by Kapha chedana and doing Aampachan and Vata Anuloman.

Dose: Powder – 2 to 3 Gram with Hot Water

Discussion: The content of Chaturbeej Mishraka gana are Methika, Chandrashoor, Kalajaji and Yavani. This dravyas have Katu, Tikta Rasa, Katu Vipaka, Ushna Veerya and Laghu, Snigdha Guna. Due to all properties it reduces the elevated Kapha Dosha, Vatadosha and reduces obstruction in the Srotasa. So it useful in various Vaat dominant and Kaphaj Diseases. Also various researches are done on the dravyas of Chaturbrrj gana and Various Pharmacological actions of this dravyas are proven such as Anti-inflammatory, Anti diabetic, Hepatoprotective, Antihypertensive, Antipyretic and so on.

Conclusion: It is Concluded that 'Chaturbeej' One of the Mishrak Gana described by Aacharya Bhavprakasha have various therapeutic potential to reduces the various symptoms and diseases like Vataj vikar, Ajeerna, aadhman, Parshwshool, KatiShool, Udarshool and so on by their Therapeutic Potential.

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