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Antidiabetec Properties : A Conceptual Study Of Nyagrodhadi Churna On Madhumeha (Diabetes Mellitus)

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Abstract: Now a days the sedentary life style & stressful mental conditions are the major contributors of many distressing disease; foremost amongst them being Diabetes mellitus – a perfect example for a life style disorder. Diabetes mellitus is similar to *Madhumeha* which is a sub – type of *Vataja Prameha* and disorder mainly *Tridoshaja. Acharya Sushruta* has mentioned *Nyagrodhadi Gana in Su. Su. 28,* coated it as *Medoghna, Varnya, Rakta – Pittahara*.with some different ingredients of *Nyagrodhadi Churna* containts 30 Drugs. Most of the drugs in this formulation are having *Pramehagna* Properties like as, *Nyagrodha, Udumbar, Ashwath, Amra, Shyonaka* etc. Many other drugs are having *Kaphahara, Pittahara and Medohara* properties.Hence, helpful in the *Samprapti Vighatana* of the disease.

Keywords: *Madhumeha,* Diabetes, Ingredients, Pharmacodynamics*, Doshaghnata* & Chemical Constituent of *Nyagrodhadi Churna.*

Introduction:

Ayurveda is often referred as “Science of life" but it is more of a science that deal with prevention of mental & physical diseases. It is one of the oldest systems of medicine. Today's era is dominated by disorder of life style and *Ayurveda* is the finest solution to these disorders. *Prameha,* as described by *Acharya Charka & Susharuta* is one of the disorders that have emerged out of urban life style[1]. Diabetes mellitus in *Ayurveda* is referred to as *Madhumeha* or *Kshaudrameha* which means excessive urine with sweet taste like honey. “ *Prameha”* as described by *Acharya Charka & susharuta*, is one of the major disorders which have emerged out of urban life style. In all, twenty types of *Prameha* have been described based on the predominance of *Vata, Pitta* & *Kapha.* “*Madhumeha*” is subtype of vataja *Prameha*[2].

Acharya Charaka while describing the prognosis of the disease *Madhumeha,* described it to be a *kulaja* vikara[3]. (Meaning a disease occurred due to some genetic defect & can be inherited.) Acharya Susharuta also mentioned the term “sahaja” in context of the genetic predisposition in the pathophysiology of the disease Madhumeha[4].

Diabetes is fastly gaining the status of a potential epidemic in India. Globaly, the prevalence of Diabetes is predicted to be double from 171 million in 2000 to 366 million in 2030 with a maximum contribution from India[5]. *Ayurvedic* treatment as described by various *Acharyas* is much safer even cost effective. *Harita* in his treaty has mentioned *Nyagrodhadi Churna*.The Chapter 28/18-21 *trutiya sthana* for the treatment of *madhumeha*. *Ayurveda* with its virtuous concepts and medications can possibly cure.

Aims and Objectives:

1) To study the concept of Antidiabetic drugs of *Nyagrodhadi Churna* on *Madhumeha* According to *Ayurvedic Samhita*.
2) Collect all the referances according to *Ayurvedic Samhita* & texts.

Materials And Methods : This conceptual study is based on literary review collected from *Ayurveda Samhita* .

INGREDIENTS OF NYAGRODHADI CHURNA[6]

Sr. No.	Drugs	Latin Name	Part Used	Ratio
1.	*Nyagrodha*	Ficus bengalensis	Bark	*Sambhaga*
2.	*Udumbar*	Ficus glomerata	Bark	*Sambhaga*
3.	*Ashwath*	Ficus religiosa	Bark	*Sambhaga*
4.	*Aragwadh*	Cassia fitula	Fruit pulp	*Sambhaga*
5.	*Shyonaka*	Oroxylum indicum	Bark	*Sambhaga*
6.	*Priyal*	Buchanania latifolia	Bark	*Sambhaga*
7.	*Arjun*	Terminalia arjuna	Bark	*Sambhaga*
8.	*Jambu*	Eugenia jumbolana	Bark	*Sambhaga*
9.	*Kapittha*	Limonia acidissima	Bark	*Sambhaga*
10.	*Amra*	Magnifera indica	Bark	*Sambhaga*
11.	*Madhuk*	Madhuka indica	Bark	*Sambhaga*
12.	*Yastimadhu*	Glycerrhiza glabra	Bark	*Sambhaga*
13.	*Paribhadra*	Erythrina variegate	Bark	*Sambhaga*
14.	*Devdar*	Cedrus deodara	Bark	*Sambhaga*
15.	*Chitrak*	Piumbago zeylanica	Root	*Sambhaga*
16.	*Dalchini*	Cinnamommum zeylanicum	Bark	*Sambhaga*
17.	*Ela*	Elletaria cardamomum	Seed	*Sambhaga*
18.	*Tejpatra*	Cinnamomum tamala	Leaves	*Sambhaga*
19.	*Sunthi*	Zingiber officinale	Rhizomes	*Sambhaga*
20.	*Mire*	Piper nigrum	Fruit	*Sambhaga*
21.	*Pimpali*	Piper longum	Fruit	*Sambhaga*
22.	*Hirda*	Terminalia chebula	Fruit	*Sambhaga*
23.	*Awala*	Emblica officinalis	Fruit	*Sambhaga*
24.	*Behada*	Terminalia belerica	Fruit	*Sambhaga*
25.	*Patol*	Trichosanthes	Leaves	*Sambhaga*
26.	*Agnimantha*	Premna mucronata	Root	*Sambhaga*
27.	*Dantimula*	Baliospermum montanum	Root	*Sambhaga*
28.	*Meshashringi*	Gymnema sylvestre	Leaves	*Sambhaga*
29.	*Karanja*	Pongamia pinnata	Seed	*Sambhaga*
30.	*Bhallatak*	Semicarpus anacardium	Seed	*Sambhaga*

Properties Of Nyagrodhadi Churna[7-8] :

1) NYAGRODHA :

Pharmacodynamics:

Rasa- *Kashaya*

Guna- *Guru, Ruksa*

Vipaka-*Katu*

Virya- *Sheeta*

Doshaghnata- *Pitta-Kapha Shamaka*

Chemical constituent - Bark contains leucoanthocyanin, Tiglic acid, B- sitsterol-a- glucoside.

2) UDUMBAR :

Pharmacodynamics:

Rasa - *Kashaya, Madhur*

Guna- *Guru, Ruksa*

Virya - *Sheeta*

Vipaka - *Katu*

Doshaghnata *- Kapha – Pittashamaka*

Chemical constituent- B-sitosterol ceryl behenate.

3) ASHWATHA :

Pharmacodynamics:

Rasa - *Kashaya, Madhur*

Guna- *Guru, Ruksa*

Virya - *Sheeta*

Vipaka - *Katu*

Doshaghnata *- Kapha – Pittashamaka*

Chemical constituent - B-sitsterol-D-glucoside,Vit.K, Stigmastetol,

4) ARAGWADHA :

Pharmacodynamics:

Rasa - *Madhur*

Guna- *Mridu,Guru, snigdh*

Virya - *Sheeta*

Vipaka - *Madhur*

Doshaghnata *- Kapha – Pittashamaka*

Chemical constituent - Seeds contain Sugars, galactomannan.Flowers Contain Fistulin, leucopelargonidin tetramer; Kaempferol.Bark & Heart wood contains Barbaloin, Fistucacidin, and Rhein etc.

5) SHYONAKA:

Pharmacodynamics :

Rasa - *Tikta, Katu*

Guna - *Laghu, Ruksa*

Virya *- Sheeta*

Vipaka- *Katu*

Doshaghnata -*Tridoshashamaka*

Chemical Constituents: "Oroxylin" – A bitter crystalline alkaloid, baicalein and chrysin (flavons), glycoside, pectin, tannic acid etc.

6) MADHUK (MOHA) :

Pharmacodynamics

Rasa - *Madhur, Kashaya*

Guna- *Guru, Snigdha*

Virya - *Sheeta*

Vipaka - *Madhur*

Doshaghnata - *Vata – Pittashamaka*

Chemical Constituents: Saponins, myricetin, Quercetin. The seeds contain 55% stable oil.

7) ARJUNA :

Pharmacodynamics

Rasa - *Kashaya*

Guna - *Laghu, Ruksha*

Virya - *Sheeta*

Vipaka- *Katu*

Doshaghnata - *Kaphaghna, pittaghna, Vatavardhka*

Chemical constituents: Arjuna Bark - B – Cholesterol , Egelic acid ,Arjenic acid, Arjunetin Glycoside, Fridley found and the Ash amount of 34% of almost Cacarbonate , 16% tannin , Mg.- 0.078 % , Aluminium 0.076%

8) JAMBU :

Pharmacodynamics

Rasa- *Kashaya,Madhur,Amla*

Guna- *Laghu, Ruksha*

Virya - *Sheeta*

Vipaka- *Madhur*

Doshaghnata- *Kaphaghna, pittaghna, Vatavardhka*

Chemical constituents: Contains Eugenia triterprnoids A & B, oleanolic acid, malic acid, glucose, fructose etc, Stem bark and contains Kaempferol, myricetin

9) AMRA :

Pharmacodynamics

Rasa- *Kashaya,Madhur*

Guna - *Snigdha, Guru, Sara*

Virya - *Sheeta*

Vipaka- *Katu*

Doshaghnata-Vata- *pittashamaka*

Chemical constituents: It contains Lupeol, Betulin, β- Sitosterol etc.

10) PRIYAL :

Pharmacodynamics

Rasa - *Madhur*

Guna - *Snigdha, Guru, Sara*

Virya - *Sheeta*

Vipaka - *Madhur*

Doshaghnata- *Vata – Pittaghna*

Chemical Constituent: It containts 28% pulp & seeds contain 58% fixed oil.

11)YASHTIMADHU :

Pharmacodynamics

Rasa - *Madhur*

Guna - *Guru, Snigdha*

Virya - *Sheeta*

Vipaka- *Madhur*

Doshaghnata - *Pittaghna, Vataghna Kaphavardhaka*

Chemical constituent: Glycyrrhizine, Prenylated biaurene, licoagrone, 7-acetoxy-2methylisoflavone, 7-methoxy-2-methyliso-flavone, ligaumarine glyzarin, glzaglabrin, licoisoflavones A, B, Licoisoflavon, glycyrin, sugars and asparagin.

12) PARIBHADRA :

Pharmacodynamics

Rasa - *Katu, Tikta*

Guna - *Laghu*

Virya - *Ushna*

Vipaka - *Katu*

Doshagnata - *Kapha-Pitta Shamaka*

Chemical constituent: Bark yielded Erythrinins A, B, C; erythratidine, epierythratidine etc. A seed contains Erythraline, erysovine.

13) DALCHINI :

Pharmacodynamics

Rasa - *Katu, Tikta, Madhur*

Guna - *Laghu, Ruksha, Tikshna*

Virya - *Ushna*

Vipaka - *Katu*

Doshagnata - *Pittashamak, Vatashamak, Kaphashamak*

Chemical Constituent : It contains 2% volatile oil which is called as cinnamon. It also contains cinneric acid , resin, tannin, sugar, starch etc. Leaf oil is dark in colour and has clove – like aroma. Root oil is yellow colour and water insoluble.

14) ELA :

Pharmacodynamics

Rasa - *Katu, Madhur*

Guna - *Laghu, Ruksha*

Virya - *Sheeta*

Vipaka - *Madhur*

Doshaghnata - *Kaphaghna, pittaghna, Vataghna*

Chemical Constituent: Seeds contains 10% stable oil, 5% volatile oil, 3% potchlor,3% starch, 2% yellow colouring matter and bhasma 6 – 10% . This bhasma contains manganese.

15) TEJPATRA :

Pharmacodynamics

Rasa - Madhur, Katu, Tikta

Guna - Ushna, laghu

Virya - Ushna

Vipaka – Madhur **Doshaghnata –**Kaphavataghna

16) PATOL :

Pharmacodynamics

Rasa - *Tikta*

Guna - *Laghu, Ruksa*

Virya *- Ushna*

Vipaka - *Katu*

Doshaghnata -*Tridoshaghna*

Chemical constituent: Fruit contains Nicotinic acid, riboflavin, vit. C, thiamine Seed contains linoleic, oleic, oleostearic acid Root contains colocynthin, trichosanthin, hentriacontane.

17) AGNIMANTH :

Pharmacodynamics

Rasa -*Tikta, Katu, Kashaya, Madhur*

Guna - *Ruksh, Laghu*

Virya *- Ushna*

Vipaka - *Katu*

Doshaghnata - *Kaphaghna, Vataghna*

18) DANTI :

Pharmacodynamics

Rasa - *Katu*

Guna - *Guru, Tikshana*

Virya *- Ushna*

Vipaka - *Katu*

Doshaghnata - *Kaphaghna, Pittaghna,*

Chemical constituent: Root contains Baleospermin, montanin. Seeds contain Croton oil, axillarenic acid. Action

19) MESHASHRINGI :

Pharmacodynamics

Rasa - *Kashaya, Tikta*

Guna - *Laghu, Ruksa*

Virya *- Ushna*

Vipaka - *Katu*

Doshaghnata - *Kaphavatshamaka*

Chemical constituent: Sun dried leaves contain resins, albuminous and colouring matters, Calcium oxalate, Pararabin, Glucose, some Tartaric acid, an organic acid said to be a glucoside and to possess anti-saccharine property.

20) DEVDARU :

Pharmacodynamics

Rasa - *Tikta, Katu*

Guna - *Laghu, Snigdha*

Virya *- Ushna*

Vipaka - *Katu*

Doshaghnata - *Kapha – vatashamaka*

Chemical Constituents : Dihydromyricetin, Cedrine, Deodorin, and Cedrinoxide, Glucoside, Polyphenolic lignoids, limonenecarboxylic acid. It containts dark coloured oil and resin.

21) KAPITHA :

Pharmacodynamics

Rasa - *Kashaya, Madhur, Amla*

Guna - *Guru, Ruksha*

Virya - *Sheeta*

Vipaka -*Madhura*

Doshaghnata - *Vata - Pittashamaka*

Chemical constituents: It contains Calcium, Phosphorus, Iron, Riboflavin, and Vitamin C.

22) KARANJ :

Pharmacodynamics

Rasa - *Tikta, Katu*

Guna - *Laghu, Tiksna*

Virya - *Ushna*

Vipaka- *Katu*

Doshaghnata - *Kaphaghna, Vataghna, Pittaprakopi*

Chemical constituent: Seeds contain Pongamia oil 27%, traces of essential oil, Leaves contains a bitter substance Karanjin 3- methoxypongapin, Kanjone, Pongol. Pongamol, Glabrin etc.

23) BHALLATAKA :

Pharmacodynamics

Rasa- *Katu, Kashaya, Madhur*

Guna- *Laghu, Snigdha, Tikshna*

Virya - *Ushna*

Vipaka- *Madhura*

Doshaghnata - *Vataghna, Kaphaghna, Pittakar*

Chemical Constituent : The fruit containts 32% vesicating oil.

24) CHITRAK :

Pharmacodynamics

Rasa- *Katu*

Guna - *Laghu, Ruksa, Tiksna*

Vipaka- *Katu*

Virya- *Ushna*

Doshaghnata *- Kapha-Vatashamaka*

Chemical constituent: It contains Chitranone, Plumbagin, 3- chloroplumbagin, dorserone, elliptinone, Isozeylan-one, Plumbagic acid, dihydrosterone, B- sitosterol etc.

25) BIBHITAKA :

Pharmacodynamics

Rasa- *Kashaya*

Guna- *Laghu, Ruksha*

Vipaka - *Madhura*

Virya *- Ushna*

Doshaghnata *- Tridosha-nashak but mainly Kapha nashak*

Chemical constituent: B. sitosterol, Gallicacid, ellagic acid, chebulugic acid, galloyl glucose and a number of free sugars have been isolated from the plant. B-sitosterol, gallic acid, ellagic acid, ethyl gallate, galloyl glucose, chebulagic acid, manitol, glucose, galactose, fructuse, rhamnose, a new cardiac glycoside named bellericanin in the fruits.

26) HARITAKI :

Pharmacodynamics

Rasa - *Pancharasa (Except lavana rasa) Kashaya Pradhana*

Guna - *Laghu, Ruksha, Sheeta*

Vipaka - *Madhura*

Virya - *Ushna*

Doshaghnata *- Tridoshahara mainly Vatashamaka*

Chemical constituent: Protein, Carbohydrates, Iron, Nicotinic acid, Vitamin C, constituents Ca., Glucose etc.

27) *AMALKI :*

Pharmacodynamics

Rasa -Pancharasa (Except lavana rasa) Amla Pradhana

Guna - Laghu, Ruksha, Sheeta

Vipaka - Madhura

Virya - Sheeta

Doshaghnata - Tridoshahara mainly pittashamaka

Chemical constituent: Protein, Carbohydrates, Iron, Nicotinic acid, Vitamin C, constituents Ca., Glucose etc.

28) SHUNTHI :

Pharmachodynamics

Rasa - Katu

Vipaka - Madhura (Shunthi), Katu (Ardraka)

Virya - Ushna

Guna - Laghu, Snigdha (Shunthi),Guru, Ruksha, Tikshna (Ardraka)

Doshaghnata - Kapha-Vatashamaka

Chemical Constituents: It contains protein, carbohydrate, mineral, calcium, phosphorus, iron, iodine, chlorine, Vitamin A, B and C and volatile oil and gingerol and shogaol, resin starch.

29) MARICH :

Pharmacodynamics

Rasa - *Katu*

Guna - *Laghu, Tikshna*

Vipaka -*Katu*

Virya- *Ushna*

Doshaghnata - *Vatakaphashamaka*

Chemical Constituents: Its phalatwaka contains piperine, piperidine, and chavicine. It also contains volatile oil, protein and Vitamin A.

30) PIMPALI :

Pharmacodynamics

Rasa - *Katu*

Guna - *Laghu, Snigdha, Tikshna*

Vipaka - *Madhura*

Virya - *Anushna , sheeta*

Doshaghnata *- Kapha-Vatashamaka*

Chemical Constituents: It contains piperine, piperidine, sesamin and piplasterol. Its root contains piperine, pialartine, 1 steroid and glycoside.

Discussion and Conclusion:

Diabetes mellitus is similar to madhumeha which is a sub – type of Vataja Prameha. The disease Diabetes mellitus is caused because of disrupted Carbohydrates & Fat metabolism sedentary life style, faulty foods & lack of exercise precipitate the disease various metabolic changes involved in the pathogenesis here genetical inheritance is one of the major etiological factor. Most of the drugs in these formulations are having Pramehagna properties, mentioned in classics. For examples, Nyagrodha, Udumbar, Aswath, Amra, Jambu, Arjuna, Paribhadra, Shyonaka, Argwadha, Meshshringi, Chitrak, Amalki, Haritaki, Bhallataka etc. are Pramehagna drugs many others drugs are having Kaphahara, Pittahara, & Medohara properties hence, helpful in the Samprapti Vighatana of the disease.

Content of Nyagrodhadi Chuna having Katu, Tikta, Kashaya Rasa pradhanta, Mutrasangrahniya Gana, Seeta & Ushna virya, Katu vipak might have corrected the Kapha Dushti. Along with this, it contains the Tikta Rasa, Sheeta Virya and Madhura Vipaka.Kaphahara, Pittahara & Medohara properties to manage the vitiates Kapha, Pitta, & Meda. The ayurvedic treatment for this disease is based on an entire change in lifestyle of the person. Along with medication & diet, the patient is also advised to lead a healthy lifestyle.

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