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

Dr. Shweta Ramesh Wasnik
MD Scholar,
CSMSS Ayurveda Mahavidyalaya,
Kanchanwadi, Aurangabad

Dr. Shital P. Antapurkar
Guide And Asso. Professor,
M. D. Kayachikitsa,
CSMSS Ayurveda Mahavidyalaya,
Aurangabad

Dr. S. G. Deshamukh
Prof. And H.O.D.
Dept. of Kayachikitsa,
CSMSS Ayurveda Mahavidyalaya,
Aurangabad

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 contains 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 Charaka & Susharuta is one of the disorders that have emerged out of urban life style. 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 Charaka & 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.

Acharya Charaka while describing the prognosis of the disease Madhumeha, described it to be a kulaja vikara. (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.

Diabetes is fastly gaining the status of a potential epidemic in India. Globally, 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. 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 references according to Ayurvedic Samhita & texts.

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

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

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-sitsterol 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 - Mrudu,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 - Lagh, 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 contains 28% pulp & seeds contain 58% fixed oil.

11) YASHTIMADHU:

**Pharmacodynamics**
- **Rasa** - Madhur
- **Guna** - Guru, Snigdha
- **Virya** - Sheeta
- **Vipaka** - Madhur

**Doshagnata** - Pittaghna, Vataghna, Kaphavardhaka

**Chemical constituent**: Glycyrrhizine, Prenylated biaurene, licoagron, 7-acetox-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 Erythrins 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 crinneric 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

**Doshagnata** - Kaphaghnna, pitaghnna, Vataghna

**Chemical Constituent**: Seeds contains 10% stable oil, 5% volatile oil, 3% potchol, 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 - Tridoshaghnna  

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, limonene carboxylic acid. It contains 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, Tikshna
Virya - Ushna
Vipaka - Katu
Doshaghnata - Kaphagha, Vataghna, Pittaprakopī

Chemical constituent: Seeds contain Pongamia oil 27%, traces of essential oil, Leaves contains a bitter substance Karanjin 3-methoxy pongapin, 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 contains 32% vesicating oil.

24) CHITRAK:
Pharmacodynamics

Rasa - Katu
Guna - Laghu, Ruksa, Tikshna
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, Gallic acid, ellagic acid, chebulagic 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, fructose, 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 :
Pharmacodynamics
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.

**References**

5. Global estimate of Diabetes prevalence 2013 & projection for 2035 for the I. D. F.