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A COMPARATIVE PHARMACOLOGICAL STUDY ON NAVA AND PURANA GUGGULU

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ABSTRACT

Ayurveda explains about effect of time on quality of drug. Different *acharyas* had given explanation about *Purana* and *Nava* characteristics of different drugs and their respective uses for medical propose. *Guggulu* is one of the drugs where the *gunas* of it will changes with time. *Acharya Sharangadhar* opines that in all occasions mostly fresh drugs should be used but gives exception for *dravyas* like *Vidanga*, *Pippali*, *Guda*, *Dhanya*, *Makshika*, *Sarpi* (*ajya*) etc. and they should be used in their *Purana* state. These exempted drugs will attend more potent quality on time stand. *Guggulu* is one where we can get the references about its *Puranata* and *Nava* state with its quality difference. We cannot get exact or specific period for *puranata* of a *dravya*. The opinion regarding *puranata* (older period) of a *dravya*, changes according to individual *dravya* (drug) and opinions of *acharyas*.

The *purana guggulu* have the property like *Atikarshana*, *Atilekhana* on comparison with *nava-guggullu*. Here an attempt is made to study pharmacological characteristic of *Puarana* and *Nava Guggulu* with lipid profile estimations in western albino rats. The western albino rats were induced with hypercholestremic diet. Out of 5 groups 2 groups were treated with *Nava* and *Purana guggulu*. The best action of Antihyperlipidemia was seen in *navaguggulu* in cholesterol control and triglyceride control and *purana Guggulu* in LDL control. But both *Guggulu* shows marked increase in HDL level, this is suggestive of the action of *Rasayana.*

The total analysis of lipid profile in two groups i.e. *nava* and *purana* group show significance in total cholesterol control. The study revealed that there is a significant pharmacological change in *purana* and *navaguggulu*. Keeping in further scope of study it is concluded that there is an effect of time on pharmacological properties of *guggulu*. *Nava guggulu* is better in controlling Total cholesterol and Triglyceride levels where as *Purana guggulu* is better in LDL control.

Keywords: *Navaguggulu, Puranaguggulu,* lipid profile, LDL, HDL

INTRODUCTION

Ayurveda the science of life is one of the oldest medical system of world originated in India. *Ayurveda* explains about preventive and curative health with its basic principles like *panchamabutha, tridosha, padartha, tri sutra* etc. major therapies explained in *Ayurveda* uses naturally available herbs as main component. Quality

of herbal drug will change with time factor. *Kala* is one among the *karanadravya* which will influence on *guna* of drug.

Kala brings transformation in *dravya*, it may be in the *Aakara* (physical state) of *dravya* or in *Guna* (qualities) of *dravya*. Such transformation or changes with respect to *kala* (time) are observed by our *Acharya* as hence *Nava* and *Purana* concept has evolved.

Concept of *Nava* and *Purana*:

Acharya Sharangadhar opines that in all occasions mostly fresh drugs should be used but gives exception for *dravyas* like *Vidanga*, *Pippali*, *Guda*, *Dhanya*, *Makshika*, *Sarpi* (*ajya*) etc. and they should be used in their *Purana* state[1]. These exempted drugs will attend more potent quality on time stand. *Guggulu* is one where we can get the references about its *Puranata* and *Nava* state with its quality difference. We cannot get exact or specific period for *puranata* of a *dravya*. The opinion regarding *puranata* (older period) of a *dravya*, changes according to individual *dravya* (drug) and opinions of *acharyas*.

Different opinions regarding the considerations of duration are 100 years, 10 years, above 1year etc[2]. All our *acharyas* mentioned the superiority of *puranata* in terms of their good benefits on body.

Considerations about *puranata* and *nava*[3]

The word meaning of *Nava--- Sadyojatam, Tatkalahrutam, Nutanam, Natijeernam*

In the context of *Navaneeta (*Butter) explanation ----- *Navaneetamnavodrutam*! (Butter should be used when it is freshly prepared) - *Acharya Charaka*

Acharya chakrapani comments --*Navodrutam Sadyaskam* (Immediately collected butter)

- While explaining the qualities of *Purana sarpi Acharya chakrapani* comments
- ✓ *Jeernamtudashavarshaateetam !*
- ✓ *"Puranam dashavarshashyat prapuraanamatah param " iti*
- ✓ *Yathayathacha jeernatvaprakarshastathatathagunotkarshogneya !*
- *Acharya dalhana* comments on the word *purana* in the context of *Purana sarpi*
- ✓ *Puranam Dashavarshasthitam !*
- *Acharya Bhavamishra*[4]says that
- ✓ *Varshadoordvam Bhavedajyam Puranam tat-Tridoshanut !*

Table 1: Properties of *Nava* and *Purana Guggulu*

Granthas	***Nava***	***Purana***
Sushruta samhita[5]	*Bramhana, Vrushya, Teekshna Ushna, Kphavatagna, Sara*	*Apakarshana*
Bhavaprakasha Nighantu[6]	*Bramhana, Vrushya, Snigdha, Kanchana, Sakasha, Pakvajamboopalopamam, Sagandhi Picchila.*	*Atilekhana, Durgandhayukta Tyektaprakrutivarnaka, Veeryavarjita.*
Kaideva nighantu[7]	*Bramhana, Vrushya.*	*Atikarshana*
Sodala nighantu[8]	*Bramhana, Vrushya.*	*Apakarshana.*
Madhava dravyaguna[9]	*Bramhana, Vrushya.*	*Atikarshana.*
Raja nighantu[10]	*Bramhana, Vrushya.*	*Atikarshana.*
Madanadi nighantu[11]	*Bramhana, Vrushya*	*Prakarshanat*

Hypo Lipidic Activity in Albino Rats

Screening Method: Cholesterols induced hypercholestemia in albino rats.

Selection criteria for animals:

Healthy three-month old Albino rats of Wister strain weighing around 200-225 gm bred and maintained in SDMCA animal house were used for the study. The animals were maintained on standard rodent diet and water. The composition of the diet was obtained from National Institute of Nutrition, Hyderabad.

The animals were maintained on 12hr / 12hr light-dark cycle at temperature: 25±2c, Humidity: 45%-55% and Ventilation: 10-12 exchanges/hr.

Procedure followed

High Fat Diet (HFD)administration

Composition of HFD was following:

- Each 100 gm of feed contains:

- Cholesterol - 2 gm
- Cholic acid - 1gm
- Coconut oil -30 ml (Arbeeny,1980)

The freshly prepared Standard Rodent Diet was finely powdered and Cholesterol, Cholic acid and Coconut oil were uniformly mixed in the diet. The resultant mixture was solidified in cold conditions and was made into bolus of uniform size. This modified diet was administered for 3 weeks to induce hyperlipidemia

Experimental design

- **Group I**—Normal Control group Consisting of Normal rats receiving standard rodent diet for 30 days.
- **Group II**—Hypercholesterolemic Control group consisting of rats receiving High Fat diet for 30 days.
- **Group III**-- Hypercholesterolemic Nicotinic acid group consisting of rats receiving High Fat diet for 20 days followed by standard drug treatment plus High fat diet for next 10 days.
- **Group IV**-- Hypercholesterolemic *Purana Guggulu* Group consisting of rats receiving High Fat diet for 20 days followed by *Purana guggulu* treatment plus High Fat diet for next 10 days.
- **Group V**---- Hypercholesterolemic *Nava Guggulu* Group consisting of rats receiving High Fat diet for 20 days followed by *Nava guggulu* treatment plus High Fat diet for next 10 days.

Sample collection method

The blood samples are collected after an overnight fast from retro-orbital sinus through heparinized capillary tubes under light ether anesthesia in clean dry centrifuge tubes. The blood is allowed to clot for 10 minutes after which it is centrifuged at 3500 rpm for 15 minutes. The serum is collected for further biochemical analysis.

Parameter for screening activity

The following estimations are performed at room temperature between 9 a.m. to 4 p.m. on all days: Total Cholesterol, Triglycerides, HDL-Cholesterol, LDL - Cholesterol

Serum Total Cholesterol, Triglycerides and HDL-Cholesterol were determined on Day 0, day 20, day 30 of the treatment period.

Evaluation

Estimated values of Lipid profile in different groups of animals (Values are in mg/dl)

Table 2: Group I- Normal control group

Rat no	Date of blood collection	T.Chol	TG	HDL	LDL
1	6/12/05	49	62	48	10
	27/12/05	53	60	50	12
	7/1/06	59	64	52	16
2	6/12/05	48	63	45	15
	27/12/05	52	66	51	18
	7/1/06	56	64	53	20
3	6/12/05	43	65	51	12
	27/12/05	50	64	50	14
	7/1/06	54	66	54	18
4	6/12/05	46	64	48	18
	27/12/05	52	64	50	15
	7/1/06	58	66	52	20
5	6/12/05	43	66	47	15
	27/12/05	48	64	51	17
	7/1/06	52	62	54	20
6	6/12/05	45	62	46	16
	27/12/05	47	66	49	18
	7/1/06	50	68	52	23

Table 3: Group II- Hypercholesterolemia group: Control					
Rat no	Date of blood collection	T.Chol	TG	HDL	LDL
1	6/12/05	150	100	75	55
	27/12/05	199	109	88	89
	7/1/06	208	70	85	109
2	6/12/05	62	43	43	10
	27/12/05	65	65	38	14
	7/1/06	96	116	48	25
3	6/12/05	60	65	30	17
	27/12/05	64	103	32	11
	7/1/06	90	110	45	23
4	6/12/05	80	90	40	22
	27/12/05	88	50	49	29
	7/1/06	96	91	58	20
5	6/12/05	62	45	43	10
	27/12/05	90	68	55	21
	7/1/06	96	94	58	20
6	6/12/05	70	120	35	11
	27/12/05	79	110	50	10
	7/1/06	86	80	60	16

Table 4: Group III- Standard group: Nicotinic acid					
Rat no	Date of blood collection	T.Chol	TG	HDL	LDL
1	6/12/05	81mg/dl	94	49	13
	27/12/05	113	69	36	57
	7/1/06	121	148	55	36
2	6/12/05	71	80	44	19
	27/12/05	92	93	51	22
	7/1/06	69	110	58	11
3	6/12/05	62	43	43	10
	27/12/05	103	93	42	42
	7/1/06	88	107	56	11
4	6/12/05	93	77	43	35
	27/12/05	95	110	48	25
	7/1/06	88	67	62	13
5	6/12/05	88	50	49	29
	27/12/05	103	86	52	34
	7/1/06	80	68	40	26
6	6/12/05	84	80	45	22
	27/12/05	120	90	45	57
	7/1/06	100	75	58	27

Table 5: Group IV- Trial group 1: *Purana guggulu*					
Rat no	Date of blood collection	T.Chol	TG	HDL	LDL
1	6/12/05	88	50	49	29
	27/12/05	103	86	52	34
	7/1/06	95	60	45	38
2	6/12/05	88	71	51	23
	27/12/05	91	67	33	45
	7/1/06	95	92	66	11
3	6/12/05	90	68	55	21
	27/12/05	96	91	58	20
	7/1/06	88	90	63	7
4	6/12/05	82	60	33	37
	27/12/05	84	80	45	23
	7/1/06	79	115	50	6
5	6/12/05	86	65	48	25
	27/12/05	100	75	50	35
	7/1/06	90	70	45	31
6	6/12/05	80	50	35	35
	27/12/05	90	75	45	40
	7/1/06	85	65	40	32

Table 6: Group V- Trial group 2: *Nava guggulu*					
Rat no	Date of blood collection	T. Chol	TG	HDL	LDL
1	6/12/05	68	60	32	24
	27/12/05	72	75	34	20
	7/1/06	73	85	44	12
2	6/12/05	70	75	35	20
	27/12/05	72	89	34	20
	7/1/06	80	73	38	27
3	6/12/05	80	100	35	25
	27/12/05	97	122	36	37
	7/1/06	113	61	40	61
4	6/12/05	50	75	25	10
	27/12/05	70	134	25	18
	7/1/06	60	65	30	17
5	6/12/05	71	75	45	11
	27/12/05	90	80	48	26
	7/1/06	88	71	51	23
6	6/12/05	96	100	58	18
	27/12/05	100	86	52	34
	7/1/06	103	94	42	42

DISCUSSION

A Drug is known in respect to its name, form and properties. Improperly administered medicine leads to bad consequences but known drug with proper administration acts like *Amrita.*

The best physician always knows the principles governing their correct application in consonance with the place, time and individual variation. Keeping this in mind this study has been started with title 'A Comparative Phytochemical study on *Nava* and *Purana Guggulu*'. It gives the detailed concept of *Nava* and *Purana Guggulu* with classical correlations and its Preliminary Phytochemical changes.

Guggulu: *Guggulu* is undisputed thing for its identity. It has close association found even in epics and puranas to many religious practices of Hindus. The therapeutic utility of *Guggulu* in all *Brihatrayee's* for spiritual therapy (*Daivavyapashraya*), therapy based on reasoning (*Yuktivyapashraya*) as well as psychic therapy (*Satvavajaya*) shows wide ranging knowledge of *Guggulu*.

Based on its site of action (*Adhikarana*) *Guggulu* was employed in *Vatavikara's*, *Medovahasrotovikara's*, *Tridoshahara*, *Sanjnastapana*, *Eladi* and *Lekhanaganadravyas*. All *Nighantus* have mentioned about *Guggulu* properties and its types i.e. *purana* and *nava*. *Rasapanchaka* of *Guggulu* being *Tikta, Katu* and *Kashaya rasa* and properties includes *Laghuguna, Ushnavirya* and *Katuvipaka*. Taxonomically the drug is placed under Burseraceae family with no controversies; the source plant is identified as *Commiphoramukul*. Ethano-botanical report shows use of these *Guggulu* for various purposes like Hyperlipidemia, Rheumatism etc. common ailments. Numerous chemical studies have been undertaken for isolation of various components from *Guggluluniryasa*, ex. Z and E guggulusterons.

Pharmacological studies eliciting the Anti hyperlipidemic and Anti-inflammatory actions of some extract of gum resin are reported.

Concept of purana and *nava*:

Charaka has recommended the use of *Guggulu* that it is one among the drugs which is used in conditions *Margavarodha* by either *medasa* or *kapha*. The *vata* gets highly stimulated in the body. *Vaghbhata* has recommended *guggulu* in the treatment of conditions involving both *medasa* and *vata*. *Acharya Susruta* states in one context that the new specimen of drug *Guggulu* is *brimhana* and *vrushya*. The old sample is *atilekhana* i.e. highly effective in reducing the fat in the body. *Bhavamisra*, a much later authority has given a good description of the pharmacological actions and therapeutic indications of the drug. On textual basis an oleogumresin of *Commiphoramukul* i.e. both *purana* and *nava* was selected for trial in the disorders of lipid metabolism.

Animal experimentation

Antihyperlipidemic study

A comparative experimental study of *nava* and *puranaGuggulu* with control and nicotinic acid as standard with cholesterol induced Hyperlipidemic model (n = 6) showed some variations between two samples. The best action of Antihyperlipidemia was seen in *navaguggulu* in cholesterol control and triglyceride control and *puranaGuggulu* in LDL control. But both *Guggulu* shows marked increase in HDL level, this is suggestive of the action of *Rasayana.*

The total analysis of lipid profile in two groups i.e. *nava* and *purana* group show significance in total cholesterol control.

CONCLUSION

On literary review it is found that different *acharyas* had given explanation about *Purana* and *Nava* characteristics of different drugs and their respective uses for medical propose. *Acharya Sharangadhar* opines that in all occasions mostly fresh drugs should be used but gives exception for *dravyas* like *Vidanga*, *Pippali*, *Guda*, *Dhanya*, *Makshika*, *Sarpi* (*ajya*) etc. and they should be used in their *Purana* state. *Guggulu* is one where we can get the references about its *Puranata* and *Nava* state with its quality difference. The total analysis of lipid profile in two groups i.e. *nava* and *purana* group show significance in total cholesterol control. The study revealed that there is a significant pharmacological change in *purana* and *navaguggulu*. It is concluded that there is an effect of time on pharmacological properties of *guggulu*. *Nava guggulu* is better in

controlling Total cholesterol and Triglyceride levels where as *Purana guggulu* is better in LDL control.

Scope for further studies

- Large scale pharmaceutical industry people should give attention towards textual differences in preparation of *Guggulu.*
- Older sample of *Guggulu* i.e. 10years and more; can be taken for similar study to get much clearer results.

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