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GO GHRITA- COW'S GHEE – AN AYURVEDIC APPROACH

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INTRODUCTION

Ghee known as Ghritam, havish, sarpish and ajya, was used in ancient India as early as 1500 B.C. Rigveda, the oldest collection of Hindu hymns, contains numerous references on ghee, showing its importance in Indian diet. The health benefits from ghee can be fundamentally categorized as, those that are obtained from consuming ghee as food and those are obtained by using ghee as a medicine. Clarified milk fat or butter fat is known as ghrita. It is prepared by heating butter or cream to just over 100°C to remove water content. Goghrita is the best choice for food and medicinal purposes. So in Ayurvedic classics and tradition, if not specified, the word ghrita always applies to goghrta. Ghrita is one among the best Ajasrika Rasayanas. It is Ayu Vardhaka, Balavardhaka, Ojovardhaka, Vayasthapaka, Dhatuposhaka and is supreme in Snehana Dravyas. By virtue of its Yogavahitva, as per its ingredients the medicated Ghrita will be attaining properties of the ingredients without forfieting its own properties.

According to Bhav Prakash Nighantu, ghee is helpful for eye sight, improving digestion. tridosha nashaka, energetic, brain tonic, ageing factors, tonic. Goghrita is called as Uttamam which means that which is best in all Ghritas. It is also used in Unmada, Sosa, Kustha, etc.

Most Ayurvedic formulations are made with ghrita. Digestion, absorption and delivery to a target organ system are crucial in obtaining the maximum benefits from any formulation. This is facilitated by Ghrita. Lipophilic action of Ghrita facilitates transportation to a target organ and final delivery inside the cell, because cell membrane also contains lipid. This lipophilic nature of ghrita, facilitates entry of the formulation into the cell and its delivery to

the mitochondrion, microsome and nuclear membrane. When herbs are mixed with Ghrita, their activity and utility potentiate many times.

Pharmacodynamics

Rasa: Madhura.

Guna: Snigdha, Guru.

Veerya: Sheeta.

Vipaka: Madhura.

Karma: Medhya, Agnivardhak.

Karma of goghrita according to various texts.

Karma	C.S.	S.S.	A.H.
Agnivardhaka	+	-	-
Rasavardhaka	+	-	-
Balya	+	+	+
Ojavardhaka	+	-	-
Kantivardhaka	+	-	+
Indriyabalavridhi	+	-	-
Budhivardhaka	+	+	+
Vayah sthapana	+	+	+
Unmadahara	+	+	+
Apasmarahara	-	+	-

Ghrta- Properties and Indications

It pacifies vata by snigddha guna, pitta by madhura rasa and shaityata and kapha by processing with kaphahara drugs. It should be taken in small quantities for longer duration to pacify pitta and in large amounts to pacify vata.

In Bhavaprakasa it is told that ghrita is Rasayana, tasty, good for eyes, stimulant for digestion, supports glow and beauty, enhances memory and stamina, promotes longevity and protects the body from diseases. Other properties of ghrita include cooling and mruduta of angas, enhancing clarity of voice and complexion. It is conducive for rasa dhatu, sukra dhatu and ojus.[C.Su 13/14]

Ghrita is indicated in persons suffering from conditions like ruksata, ksata, Vata vikara, Pitta vikara, Unmada, Mada, Apasmara, Murcha, Siroroga, Aksiroga, Vrana, Sosa, Jwara, Daha, smrti, Angimandya, and persons who are vriddha, bala, , and those who are desirous of Ayu, bala, varna, swara, pusti, praja, saukumarya, bala , buddhi and indriya and clearness of voice.

The most important property that makes it distinct from taila, vasa or majja is its action on higher mental functions. i.e. dhi, medha, smrti etc. In mastiskajanya vikras, snehana especially by ghrta is very much important, due to the similarity of mastulunga sneha dravyas. So it has targeted action on intellectual and cognitive functions.

Moreover Acharya Charaka has mentioned that the properties of ghee of animals are similar to their milk. Milk of cow is sweet in taste and has sheeta, mrdu, snigdha, picchila, guru, manda and pleasing properties. All these ten properties of milk are similar to that of ojas. Therefore it increases ojas and is Jivaniya i.e.,it provides all the benefits of Rasayana.

Chemistry: The colour of ghee is yellow to white depending on carotene content.

Chemical composition of Cow Ghee

Triglycerides	**97.98%**	**Phospholipids**	**0.2-1.0%**
Diglycerides	0.25-1.5%	Steroles	0.22-0.4%
Monoglycerides	0.16-0.038%	Vitamin-A	2500 / 100gms
Ketoacid glyceride	0.015-0.018%	Vitamin-D	8.5x10.7 gm / 100 gm
Glycerylestors	0.011-0.015%	Vitamin-E	24 x 10.3 gm / 100 gm
Free fatty acid	0.1-0.44%	Vitamin-K	1x10.4 gm / 100 gm

Fatty Acids	**Percentage (%)**
Butyric acid	4.5-6.0
Caproic acid	1.0-1.36
Caprylic acid	0.9-1.0
Capric acid	1.5-1.8
Lauric acid	6.0-7.0
Myristic acid	21.0-23.0
Palmitic acid	19.0-19.5
Stearic acid	11.0-11.5
Arachidic acid	0.5-0.8
Oleic acid	27.0-27.5
Linoleic acid	4.0-5.0

Ghee contains beta-carotene and Vitamin E and both are known anti oxidants. It is estimated that 80% to 90% of degenerative diseases are related to excessive production of free radicals. Ghee resists spoilation by microorganisms or chemicals. Some animal studies have shown the protein casein present in butter elevates cholesterol, but it is removed along with water content by heating the butter just over 100°C to get pure ghee after filtration of residue.

Recent Studies

Ghee contains 8% lower saturated fatty acids which makes it easily digestible. Due to having 4-5% linoleic acid, an essential fatty acid, it promotes proper growth of human body. Ghee also contains vitamin A, B, E and K. Vitamin A and E are antioxidant in nature and are helpful in preventing oxidative injury to the body. Vitamin A also keeps epithelial tissues of body intact, keeps outer lining of eyeball moist and prevents blindness. Ghee is lipophilic and this action of ghee facilitates transportation of ingredients of formulation to target organ and final delivery inside the cell, because cell membrane also contains lipids. This lipophilic nature of ghee facilitates entry of formulation in to the cell and its delivery to mitochondria, microsome and nuclear membrane. In the process of evaluating the activities of natural compounds, it is found that when herbs are processed or mixed with ghee, their activity utility and rate of absorption is potentiated. Thus ghee in general and cow's ghee in particular is one of the easily digestible and assailable food which provides essential nutrients and critical anti oxidants or free radical scavengers to human body for its protection and growth.

The lipids serve the following important function

- Structural components of bio membranes (phospholipids).
- Metabolic regulators (steroid hormone and prostaglandins).
- Storage forms of energy (Triglycerides).
- Acting as electric insulator in neurons.
- Adding taste and palatability to food.

Fatty acids having carbon atoms 4 to 6 are called small chain fatty acids (SCFA), those with 8 to 14 carbon atoms are known as medium chain fatty acids (MCFA); those with 16 to 18 carbon atoms are long chain fatty acids (LCFA) and those carrying 20 or more carbon atoms are named as very long chain fatty acids (VLCFA).

Short chain fatty acid (SCFA), butyric acid (4C) and caproic acid (6C) are present in ghrita. Digestion and metabolism of SCFA and MCFA are drastically different from those of LCFA, containing triglycerides do not require prolonged digestion, also not required any pancreatic lipase or bile salts. They diffuse directly in to portal circulation and taken to the liver and are immediately utilized for energy. SCFA and MCFA are preferentially oxidized by peripheral cells and so they are not deposited in adipose tissues.

Linoleic acid and linoleinic acid are the only fatty acids which cannot be synthesized in the body. Archidonic acid is the precursor of prostaglandin. Prostaglandin are local hormones and function through G-protein coupled receptor this hormones combine with the specific receptor on the plasma membrane. The H-R complex activates the regulatory component of the protein designated as protein is a peripheral protein. The G-protein is a peripheral membrane protein which carries the excitation signal to adenylate cyclase and it embedded in the plasma membrane. Prostaglandin also effect on inflammation and immunity.

Vitamin E is the most powerful natural anti-oxidant; free radicals are continuously being generated in living systems. Their prompt inactivation is of great importance. The free radicals would attack bio membranes. Vitamin E protects RBC from haemolysis. By preventing per-oxidation it keeps the structural and functional integrity of all normal cells. Vitamin E also boosts immunity.

In saturated fatty acids PUFA are essentially fatty acids which carry medicament in micelle form to penetrate in any normal cell after that Betaoxidation occurs and medicament release to the target cell to shows their effect. Its digestibility Co-efficient and the rate of absorption is 96% which is highest of all oils & food. Vitamin A & E are anti-oxidant help in preventing oxidative injury to the body.

Scientific Facts about Cow Ghee

The use of cow ghee does not increase cholesterol. It has no bad effect on the heart. Recent studies have shown that traditional cooking fats like pure ghee; is healthier due to an ideal ratio of omega 6 to omega 3 fattyacids. It is not advisable to restrict all forms of fats as severe restriction results in mental and physical depression.[35]

According to Russian Scientist Servos, Cow's ghee has immense power to protect human body from the ill effect of radioactive waves, evaporation. The residue is filtered out as pure ghrta. The melting point of Ghee is 350 C. which is less than the normal temperature of the human body.

Recently some studies have shown that cow ghee contain various anticarcinogen, such as conjugated linoleic acid (CLA), butyric acid, sphingomyelinn, lipid, vitamins. CLA content is generally 0.6 %in cow ghee ClA inhibits growth of melanoma, leukemia, mesothelioma,and glioblastoma showing their anti carcinogenic activity The value of sphingomyeline contain in

cow ghee is 9.31mg/100g. Has stated that the anticarcinogenic effect of ghee is mainly attribute to its biologically active metabolites ceramide and sphigosine. This may contribute to the suppression of oncogenesis.

Kumar et al (2000) suggest that hypocholesterolemic effect of ghee is mediated by increasing the secretion of biliary lipids. Ghee is observed to improve the growth rate and digestibility studies.

Ghee also improves digestibility of other component, mineral absorption from diet. Cow ghee increases the retention of calcium up to 45% and phosphorus up to 57% (kehar 1956, steggarada 1951).

As chemically ghrta consists of phospholipids, fatty acids etc., it is helpful in correcting the altered disturbed neurotransmitter. Ghrita fortified with medhya drugs releases the medhya effect of the drugs at neurotransmitter working place (synaps etc.)

CONCLUSION

Ghrita having multiple properties should be included in our diet as it prevents various diseases and keeps our organs fit. Home prepared good quality ghee should be consumed daily.