

IMPORTANCE OF VARIOUS KSHEERA (MILK) IN DAY-TO-DAY PRACTICE: AN AYURVEDIC AND CONTEMPORARY APPROACH

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ABSTRACT

Ayurveda “The Science of Life” is the oldest medical science and is called the "Mother of all Healings.” Sustenance of living being is dependent on *ahara* i.e., food and primarily acts as preventive, promotes growth, development, repair, nourishment of the body. It is not capable of curing all the diseases, but the majority of the diseases can be put under control only by doing modifications in diet and maintaining proper eating habits. This is an effort to banquet the knowledge of *ksheera*, such as its varieties and different preparations prepared by it, properties of milk of different animals. In this article, an attempt is made to highlight the properties of *ksheera* of various animals explained in our classics.

Keywords: *Ahara, Ksheera, Paya, Dugdha, Milk, Ayurveda*

INTRODUCTION

Ksheera is compared with *Amruta* (nectar) as it is complete of all food and also called *Dugdha, Payaha, Stanya, Balajeevana*.¹ It is used from babies to old age because of *ajanma satmya* (Lifetime conducive) guna. It helps in the growth of the children, provides

nutrition, complexion, strength, prevents *vardhakya* (ageing), acts as *Asthi Sandhanakara* (helps to join the broken bones) etc. It is best *ahara dravya* in *vata* and *pitta prakruti* persons, acts as *shukravardhaka* (increase the semen) etc. This review article aims to

evaluate the nutritional values and medicinal properties of Ksheera based on Ayurveda and Modern sciences.

Concept of Ksheera (Milk): Sushruta elaborates ksheera is ahara of all animals, whereas, in Shatapatha Brahmana, Ksheera is said as pradhana anna (important food) for humans. Milk is recommended as a complete food for the growth and development of the human body, because of its protein, fat, carbohydrate, calcium and vitamins and minerals.

Ksheera Guna: (General Properties of Milk)

Ksheera is madhura (sweet), snigdha (Unctuous), vata pitta hara, sara guna (moving), sadhya shukrakara

(instantly increases the semen) sheeta (cold), satmya (conductive), jeevana (gives life), bruumhana (nourishing), balya (strength), medhya (imparts intelligence), vajeekarana (an excellent aphrodisiac), vayasthapana (prevents aging), ayushya (increases the life span), sandhikrut (re-joins the broken tissues) and rasayana (rejuvenating).²

Classification of Ksheera:

All the classical texts explain eight varieties of Ksheera, but in different chronological orders and given the synonyms of the same animals as follows.

Table 1: Classification of Ksheera by different Acharya

Sl. No.	Charaka	Sushruta	Vagbhata	Bhavaprakasha	Dravadravya sangraha
1	Gavya (Cow Milk)				
2	Mahisha (Buffalo milk)	Aja (Goat Milk)	Mahisha (Buffalo milk)	Mahisha (Buffalo milk)	Aja (Goat Milk)
3	Ushtra (Camel Milk)	Ushtra (Camel Milk)	Aja (Goat Milk)	Chaaga (Goat Milk)	Aurabhra (Sheep Milk)
4	Ekashapha (Single Hoop)	Avika (Sheep Milk)	Kaarabha (Camel Milk)	Avika (Sheep Milk)	Mahisha (Buffalo milk)
5	Chaga (Goat Milk)	Mahisha (Buffalo milk)	Stree (Human Milk)	Ekashapha (Single Hoop)	Kaaren (Elephant Milk)
6	Avika (Sheep Milk)	Ashva (Horse Milk)	Avika (Sheep Milk)	Ushtra (Camel Milk)	Ushtra (Camel Milk)
7	Hastini (Elephant Milk)	Naridugdha (Human Milk)	Ebha (Elephant Milk)	Hastini (Elephant Milk)	Vadava Skheera (Horse Milk)
8	Manusha (Human Milk)	Hasti (Elephant Milk)	Ekashapha (Single Hoop)	Naridugdha (Human Milk)	Maanusha (Human Milk)

Table 2: 1). Goksheera: (Cow Milk):

Bhavaprakasha	Madhura in rasa (sweet) and vipaka (post-digestive effect), dosha, dhatu, mala and srotas kinchit kledakara (it mildly enhances the moisture content of Dosha, dhatu etc.), guru (heavy), sheetala (cold) stanya vardhaka (promotes breast milk), Snigdha (unctuous), vata, pitta, rakta hara. Regular intake of ksheera alleviates jara (old age) and other diseases. ³
Charaka	Mrudu (Soft), Bahala (density/thick), Shlakshna (smooth), Picchila (sliminess), Manda (slow), Prasanna (calming), rasayana (rejuvenating). Dasha gunas (ten qualities) explained by him are the same as oja guna, hence ksheera causes oja vrudhi by samanya guna concept. ⁴
Sushruta	Alpa-abhishyandhi guna, jeevaneeya (gives life), raktapittahara (alleviate bleeding disorders). ⁵
Rajanighantu	Pathya (wholesome), Ruchya (excellent promoter of taste), Kanti (imparts lustre), Pradnya (intellect), Budhi (wisdom) and Medha ((retention capacity of mind), Angapushthi (nourishes all parts of the body). ⁶
Vagbhata	It is conducive for kshata and ksheena, reduces shrama, bhrama, mada, alakshmi, shwasa, kasa, trushna, kshuda hara, jeernajwara, mootrakruchra, Raktapitta nashaka, ⁷

Table 3: Composition of Cow milk⁸

Water	Total Solids	Fat	Solids not Fat	Protein	Lac	Ash	Ca	Mg	Na	K	P	Citrates	Cl
86.07	13.93	4.90	9.43	3.42	4.91	0.70	0.12	0.01	0.05	0.15	0.10	0.18	0.1

Table 4: 2). Mahisha Dugdha: (Buffalo Milk):

<i>Bhavaprakasha</i>	It is comparatively more <i>Madhura Rasa</i> (Sweet), <i>Ati Snigdha</i> (high fat content), <i>Shukravardhaka</i> (enhances semen count), <i>Nidrakara</i> (Sleep inducing), <i>Guru</i> (Heavy) and <i>Abhishyandhi</i> (unctuous) compared to <i>Goksheera</i> . It alleviates <i>Kshudha</i> (hunger) and <i>sheetal</i> (cool) in nature, it is <i>maha-abhishyandi</i> and causes excessive <i>kleda</i> in <i>dosha</i> , <i>dhatu</i> , <i>mala</i> and <i>shrotas</i> . ³
<i>Charaka</i>	It is advised in <i>teevragni</i> (increased digestive power) person. ⁴
<i>Sushruta</i>	The fat content of the <i>mahisha ksheera</i> is more than <i>gavya ksheera</i> . <i>Vanhi nashaka</i> (reduces the digestive power). ⁵
Bhojanakutuhalam	It imparts strength, complexion, vitality, sleep and virility. It tempers <i>teekshnagni</i> , it is <i>rasa</i> and <i>vipaka</i> and nourishes the tissues. It overcomes the fatigue and vitiation of <i>vata</i> in persons given to physical exertion. It confers libido even to an aged person for sexual desire and especially increases libido in physically strong youths. ⁹

Table 5: Composition of Buffalo milk¹⁰

Water	Total Solids	Fat	Solids not Fat	Protein	Lac	Ash	Ca	Mg	Na	K	P	Citrates	Cl
82.98	17.02	7.06	9.96	3.90	5.28	0.78	0.18	0.02	0.05	0.11	0.10	0.18	0.07

Table 6: 3). Aja Ksheera: (Goat milk):

<i>Bhavaprakasha</i>	<i>Kashaya</i> (astringent), <i>madhura</i> (sweet), <i>sheeta</i> (cold), <i>grahi</i> (absorbant), <i>laghu</i> in nature (light to digest), It is advised to use in conditions like <i>raktapitta</i> (bleeding disorders), <i>atisara</i> (diarrhea), <i>kshaya</i> (emaciation), <i>kasa</i> (cough), <i>jwarahara</i> (fever). As Aja is <i>alpakaaya yukta</i> (small body frame) and eats <i>katu</i> (astringent), <i>tikta</i> (bitter) tastes, drinks less quantity of water, <i>vyayamat</i> (exercise/walks continuously), so milk produced by it is <i>sarvarogaapah</i> (cures all diseases). ³
<i>Charaka</i>	<i>Charaka</i> calls this animal <i>Chaga. Mruga</i> (deer) which roams in <i>Jangal</i> (forest) is also having the same qualities as <i>Aja dugdha</i> . ⁴
<i>Sushruta</i>	<i>Gavyatulyagunam</i> (qualities resemble the <i>goksheera</i>) but it is best in <i>shosha/rajayakshma</i> (emaciation) <i>roga</i> and <i>agnideepaka</i> (increases the digestive power). ⁵
Bhojanakutuhalam	Alleviates <i>kapha</i> , it is beneficial in diarrhea caused by vitiation of blood. Goat's milk is superior to cow's milk in its properties. The milk of stout goat is wholesome for those who have <i>teekshnagni</i> (high digestive fire). The milk of thin goat is to some extent inferior to stout goat. ⁸

Table 7: Composition of Goat Milk¹¹

Total Solids	Energy	Lipid	Protein	Carb	Ash	Ca	Mg	Na	K	P	Zn	Fe
12.97 %	69 Kcal	4.14 %	3.56 %	4.45 %	0.82 %	134mg	14 mg	50 mg	204 mg	111 mg	0.3mg	0.05mg

4). Avika Dugdha: (Sheep Milk):

Lavana (salty), *Swadu rasa* (sweet), *Snigdha* (unctuous), *Ushna veerya* (hot in potency), *ashmari nashaka* (subsides the urinary calculi), *ahrudhya* (not conducive for the heart), *tarpana* (satisfying), *keshya* (good

for hairs), *Shukra pitta kapha prada* (increases the semen, pitta and kapha), *Guru guna* (heavy) and useful in *vataja kasa* (cough) and *keval vatajanya vyadhis*^{3,5} as per *Charaka* it increases the *hikka* (hic-cough) and *shwasa* (dyspnea)^{4,5}

Table 8: Composition of Sheep Milk¹²

Water	Total Solids	Fat %	Solids not Fat	Protein %	Lac %	pH	Ca mg/100gm	Mg mg/100gm	P mg/100gm	Fe mg/100gm
82%	18.50	6.99	12.0%	4.50-6.60	3.90-4.90	6.51-6.85	193	18	158	0.08

5). *Ghotaki/Ashva Kheera*: (Horse Milk):

It is *ruksha* (dry), *ushna* (hot in potency), *balya* (strengthening), *shoshaghna* (alleviates emaciation), pacifies *vata*, *amla* (sour), *lavana* (salty), *laghu* (light for digestion) and *madhura rasa* (sweet), all the *ekashapaha* (one hooked) are having same qualities of

ashva dugdha.² It is called *ekashapha* (animals having one hoof) by *Charaka*. This milk is *sthairyakara* (produces stability in the body), *rookshakara* (produces dryness), *Shakha vataharam* (pacifies the *vata* in extremities)³, *Lavana anurasa*⁴, *Shwasa* (dyspnoea) and *vata hara*⁷.

Table 9: Composition of Horse Milk^{13,14}

Energy	Solids not Fat	Fat %	Sugar	Protein %	Ca	Ash %	Phos	Mg	Zinc
50.6 Kcal/100mg	10.2	1.29	6.9 %	1.93	700 mcg	0.32	540 Mcg	43 mcg/gm	1.8 mcg/gm

6). *Ushtra*: (Camel milk):

It is *laghu* (light), *madhura* (sweet), *lavana* (salty), *deepana* (appetiser), it cures *krumi* (worms), *kushtha* (skin diseases), *kapha*, *anaha* (distension), *shotha* (edema), *udara hara* (visceral diseases), *sara*

(*laxative*) *guna*.³ *Ruksha* (dry), *Ushna* (hot), it used in *Arsha roga* (haemorrhoids)⁴ *Kinchit lavana* (lightly salty), *gulma* (abdominal tumors), *udara* (Ascites), *vi-sha nashaka*(cures the poison).⁵ *Supti* (numbness), *pitta*, *shleshmahara*.⁹

Table 10: Composition of Camel Milk¹⁵

Water %	Total Solids	Fat %	Solids not Fat	Protein %	Lac %	Ash %	Ig G	Mg	Na	K	Cl
86.50	14%	3.80	10.36%	3.26	4.30	0.6-0.9	1.64 mg mL 1	10.5	59	156	114 mg

7). *Hasti*: (Elephant Milk):

Brumhana (nourishing), *madhura* (sweet), *Kashaya* (astringent), *guru* (heavy), *vrushya* (aphrodisiac), *balya* (strengthening), *sheeta* (cold), *snigdha*

(*unctuous*), *chakshusya* (good for vision), *sthiratakara* (stamina),^{3,4} *kashaya anurasa* (slightly astringent),⁵ *dhairyakara* (braveness).⁹

Table 11: Composition of Elephant Milk¹⁶

Water	Fat	Protein	Carbohydrates	Ash	Ca	Cl	P
77-85 %	0.63-19.0 gm/100gm	3.4-6.5 gm/100gm	2.42-5.25 gm/100gm	500-800 gm/100gm	93-165 gm/100gm	42-64 gm/100gm	186 -305 gm/100gm

8). *Naridugdha*: (Human Milk):

Laghu(light), *sheetam* (cold), *deepana* (appetiser), pacifies *vata**pitta*, used in *Chakshushoola* (eye pain) and *Abhigata* (external injury). It is best for *nasya*

(nasal instillation) and *aschotana* (eye drops) *karma*,³ *Jeevana* (gives life), *Brumhana* (nourishing), *satmya* (conducive), *snehana* (unctuous), used in *navana nasya* (nasal instillation), *raktapitta* (bleeding

disorders), *tarpana* (satisfying),⁴ and *kashaya anurasa* (slightly astringent).⁵

Table 12: Composition of Human Milk ¹¹

Total Solids	Energy	lipid	Protein	Carb	Ash	Ca	Mg	Na	K	P	Zn	Fe
12.5 %	70 Kcal	4.38 %	1.03 %	6.89 %	0.2 %	32 mg	03 mg	17 mg	51 mg	14 mg	0.17mg	0.03mg

DISCUSSION

Milk is an integral part of human life which is consumed right from birth to existence. *Ayurveda* recommends *Ashtha* (eight) sources of milk for human consumption on the basis of their qualities and necessary to fulfill the nutritional gap. *Goksheera* (cow milk) is best for *ojo vardhaka* (immune booster) and it has higher amount of water content i.e., 86.07% and less fat i. e. 4.90% compared to *Mahisha ksheera* (Buffalo milk) which is best in the enhancement of *nidra* (sleep) and acts as *vajikara* (aphrodisiac) and contains less i.e., 82.98% water and more amount of fat 7.06%. *Charaka* calls *Aja* (Goat) as *Chaga* and *Gavyatulya-gunam* (qualities resemble with *goksheera*) as per *Sushruta*. Goat's milk is recommended in various disease conditions as it consumes all the leaves and has 3.56% of protein which is lesser than *Avika ksheera* (Sheep milk) i.e. 4.50-6.60%. It has *keshya* (good for hairs) and *ashmari nashaka* (urinary calculi) gunas. *Ashvaksheera* (Horse milk) is preferable in the case of *shakhagata vata* (cures the vata of extremities) and contains 1.29% fat and 1.93 % protein which is less than *Ushtra Ksheera* (Camel milk) i.e. 3.80% fat and 3.26% protein and this milk is recommended in *kushtha* (skin) and *shotha* (inflammation) conditions. *Hasti Ksheera* (Elephant milk) is *sthiratakara* (compatibility) and *dhairyakara* (gives courage), it has 0.63-19.0 gm/100gm fat, 3.4-6.5gm/100gm protein, 2.42-5.25 gm/100 gm carbohydrates. *Nari ksheera* (Human milk) is best for *akshi roga* (eye diseases), *nasya* (nasal installation) and *aschotana* (eye installation) with 70 Kcal energy, 1.03% protein, 6.89% carbohydrates which fulfills the needs of the neonates.

There is a need for scientific research to check the clinical efficacy, their action etc. of the above- mentioned *ksheeras* (milk) in various diseases.

CONCLUSION

As per *Ayurveda* to maintain and promote the health of healthy people and to prevent various diseases, usage of *Ksheera* plays an important role. *Ksheera* of various animals was in use since ancient times due to their unique nutritional properties for the maintenance of health and treatment of many diseases. Further research is required for the analysis of different animal *ksheeras* for the scientific evidence. As per modern science, milk is a food item that will be used from birth for the growth and development of the baby because of its protein, fat, carbohydrate, calcium, vitamins and minerals etc.

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