

Datta Meghe Institute of Medical Sciences

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Mahatma Gandhi Ayurved College and Research Center ,Salod ,Wardha

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Title-

Critical study on Dadhi (Curd) in Ayurveda

SUBMITTED BY:

DR. PRERNA UIKEY

PhD (Sch)

ASSO.PROF. DEPT.OF SWASTHAVRITTA

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Ayurvedic System of Medicine includes *panchagavya* and their formulations. Milk, ghee, curd, urine and dung are five products of *pachagavya*. Several Ayurvedic formulations are used against various pathological conditions which are described in ancient texts. Association between 'Dadhi' and disease pathogenesis has always been a field of interest among the medical professional as well as patients. Properties, action and *dadhi* as a causative factor has been given in all Ayurveda literature. So in this essay will provide a brief vision on critical study Dadhi.

Etymological derivation of word Dadhi

दधातीतत। धा +भाषायां धात्र्
कृसृगभिजनिनमिथ्यः ।३/२/१७१।
इत्पथ्य वार्ति कोक्त्याः किः सः च लिङ्वत ।
क्षीरोत्तरावस्थाभावः। दइ इतत भाषा।

तत्पर्तयाया :क्षीरजम। मंगल्यम ।क्षीरसम । पयसम । (शब्दकल्पद्रुम/खंड २/६७९)

Introduction:

Dadhi is also known as *Dugdha Vikruti* which means milk product. Dadhi is one of the oldest fermented milk products and may be considered equivalent to yoghurt. A Sanskrit word Dadhi used in ancient texts for a lacto-fermented dairy product (*Ksheera Vikruti*) called Dadhi in Hindi. In English it is said as Curd.

Preparation of Dadhi:-

As per traditional method explained in *Bahav Prakaash Nighantu*, By natural culturing of boiled and subsequently cooled cow, buffalo or mixed milk or with batch of earlier days curd /Dadhi is preferably prepared , by this process ultimately resulting in variability in its quality due to undefined starter cultures and uncontrolled fermentation. Acharya *sushruta* also explained preparation of dadhi from cow milk in *sutrasthan adhyaya* 45/67.

Preparation curd from milk is also explained in modern science. By the process of coagulation of milk (Curdling) curd is obtained. It is prepared by either method using acidic substances like lemon juice, vinegar or homemade by transferring a spoonful of the previous batch of Dadhi to *Shrutaksheer* (heated milk) at room temperature. It is then left to curdle at room temperature.

Types of Dadhi according to various *Samhita Granthas*:

7 categories of Dadhi (Curd) has mentioned by *Acharya Sushruta*. *Madhura* (sweet), *Amla*, *Atyamla* (excessive sour), *Mandajat* (improperly formed), *Shrutksheera* (Prepared from boiled milk), *Sara* (Supernatant cream layer), *Asara* (without fat). the characteristics of Dadhi (curd) prepared from milk of cow, buffalo, goat, sheep, horse, elephant, human and camel also explained by Sushruta.

Acharaya Bhavaprakash also explained types of curd which is elaborated in table form given below-

Table 1: Types of curd according to *Bhavaprakasha*

Sr. no	Types	Properties
1.	<i>Manda</i> (not properly formed formed thick curd)	<ul style="list-style-type: none"> • It increases the production of urine and faeces, • It helps in aggravation of Tridosha. • burning sensation. • Not suitable.
2.	<i>Swadu</i> (Sweet- thick curd)	<ul style="list-style-type: none"> • Sweet in taste, • It is an aphrodisiac, • It increases at deposition. • It is helps to cure bleeding disorders.
3.	<i>Swadamla / Jatadadhi</i>	<ul style="list-style-type: none"> • sweet and little sour curd increases appetite • it aggravates <i>Pitta</i> and <i>Kapha</i>.

	(Sweet – Sour curd)	<ul style="list-style-type: none"> It also aggravates <i>raktdruti</i>.
4.	<i>Amla Jatadadhi</i> (Sour curd)	<ul style="list-style-type: none"> This is the curd which is properly formed but sour in taste. Aggravates <i>Pitta & Kapha dosha</i> and blood.
5.	<i>Atyamla Jatadadhi</i> (Excessively sour curd)	<ul style="list-style-type: none"> Excessively sour curd causes tingling sensation in teeth and burning sensation in throat. appetizer Aggravation of <i>Vata, Pitta</i> and disorders of <i>blood</i>.

Table no 2-Properties of various curds prepared from milk of animals like cow etc. according to *Shushruta*:

Sr. no	Dadhi Prepared from various animal milk	Characteristics
1.	Cow Dadhi	<ul style="list-style-type: none"> Unctuous , Produces sweet taste after digestion appetizer helps in pacification of <i>vata</i> it helps in increasing strength
2.	Goat dadhi	<ul style="list-style-type: none"> light in nature helps in aggravated <i>Pitta</i> and <i>Kapha</i> It pacify <i>Vata</i> Useful in <i>rajayakshma</i> appetitizer cures hemorrhoids, helps in breathlessness

		<ul style="list-style-type: none"> • cures cough
3.	Buffalo Dadhi	<ul style="list-style-type: none"> • Sweet in taste after digestion • Aggravates <i>Vata -Pitta</i> • Nourishing –strengthening
4.	Sheep Dadhi	<ul style="list-style-type: none"> • It aggravates <i>Vata</i> and <i>Kapha</i>, • It produces more secretions • It can tend to derange all the <i>Doshas</i>.
5.	Strained Dadhi	<ul style="list-style-type: none"> • Aggravates <i>Vata</i> • More restorative in nature • It pacify pitta dosha
6.	<u>Dadhisara</u> (cream of curd)	<ul style="list-style-type: none"> • <i>Vata</i> pacification • It is guru in nature • Increases sperm count. • It is aphrodisiac • hard to digest • mucus production increases • over-consumption in avoided.
7.	<i>Asaradadhi</i>	<ul style="list-style-type: none"> • Fat free • dry in nature, • astringent in taste • It increases constipation • It aggravates <i>Vata dosha</i>.

Properties and action of Dadhi according to various *samhita granthas* :

Acharya vagbhata, in *Sutrasthan* had explained properties of Dadhi in *Dravadravya vidyaniyam adhayaya* .He mentioned 5 groups about knowledge of liquid material,*Dugdha varga* (milk and milk product)is one ,where detail description of Dadhi is given.

According to acharya vagbhata ,Curd possesses sour taste and having *vipaka* (conversion after digestion) sour .It is *ushna virya*(hot in nature). Dadhi is heavy to digest (*Guru*).

okrftr~A

esn% "kqØcy"ys'e fiRr jDrkfXu"kksQd`r~A v-g-lw- 5@29

Action on *Dosha* -It balances *Vata dosha* (Vatajit), It leads aggravation of *kapha dosha*.

Action on *Dhatu* –It increases *Meda* (fat), *Shukra* (semen),

jksfp'.kq "kLre#pkS "khrdS fo'keTojsA

fiuls ew=d`PNs p #{ka rq xzg.khxnsA v-g-lw- 5@30

Another functions –It increases *Bala* (strength), It increases taste (*Rochishnu*)

Action on digestion –It stimulate digestive strength (*agni*) .It absorbs water from intestines hence also having properties as *Grahi*. By the virtue of this property, it is widely used to treat diarrhea and dysentery. It causes heaviness when used in excess and may cause constipation.

Adverse effect of Dadhi:

Intake of Dadhi is the cause of *raktapitta* (bleeding disorders), *shopha* (inflammation).

Useful:

Curd Useful in the conditions like useful in anorexia, *Vishama jwara* (chronic, recurrent fever), *Peenasa* (rhinitis), *Mutrakruchra* (dysuria), *Grahani*(malabsorption syndrome).

Rules for curds consumption:

uSokgikfuf"k uSoks'.k olUrks'.ka "kjRlquA

ukuqnxlwia uk{kkSnza rUuk?k`rflrksiye~A

u pkukeyda rkfi fuR;a xkseUFkeU;FkkAA v-g-lw- 5@31

- Curd should not be eaten at nights
- It is not made hot,
- Curd should not be taken along with green gram soup
- It should not be taken along with honey, ghee.
- Contraindicated season -spring,autumn, summer.

- Ghee, sugar and *amalaki* should always mixed with Dadhi before eating.
- Daily intake of curd should be avoided.

Intake of *mandak dadhi* causes:

Tojkl`fdiRrohliZ dq'B ik.MqHk`eizne~AA v-g-lw- 5@32

It produces

- *Jwara* (fever)
- *Raktapitta* (Bleeding disorders)
- *Visarpa* (skin infection)
- *Kustha* (skin disease)
- *Pandu* (Anemia)
- *Bhrama* (dizziness)

Acharya charaka in explained Qualities of curd in *sutrasthana –annapanvidhi adhaya*.
Their he mentioned

रोचनं दीपनं वृष्णं स्नेहं बलवर्धनम्।
पाकेऽम्लमुष्णं वातघ्नं मङ्गल्यं बृंहणं दधि॥ Cha .Su 27/225
पीनसेचातिसारे च शीतके विषमज्वरे।
अरुचौ मूत्रकृच्छ्रे च कार्श्ये च दधि शस्यते॥ Cha .Su 27/226

Curd is said to be an appetizer, it is aphrodisiac in nature. It increases unctuousness, increases strength, on digestion it turns sour taste, hot in potency, it pacifies *vata* disorders and considered as auspicious and nourishing. It helps to cure rhinitis, diarrhea, cold, irregular fevers, anorexia, dysuria and emaciation.

शरद्रीष्मवसन्तेषु प्रायशो दधि गर्हितम्।
रक्तपित्तकफोत्पेषु विकारेष्वहितं च तत्॥ Cha .Su 27/227

Intake of curd is contraindicated in autumn, summer and spring seasons. In *raktapitta* (bleeding disorders) and disorders of *kapha*, it is said to be unwholesome.

त्रिदोषं मन्दकं, जातं वातघ्नं दधि, शुक्रलः।
सरः, श्लेष्मानिलघ्नस्तु मण्डः स्रोतोविशोधनः॥ Cha .Su 27/228

Aggravation all the three *dosha* takes place due to immature or partly formed curd. Fully formed curd is effective in *vata* disorders. In disorders of *kapha* and *vata* and *strotorodha*

avastha(cleaning the channels) , cream of curds is seminiferous and the whey is considered effective.

According to *Sushrut Samhita* - Curds qualities and benefits are explained in *Sutrasthan adhaya* 45. The cream of curd is heavy to digest. It increases sperm count. It pacifies *vata dosha*, balances *agni* said to be *vajikar*. Curd made without cream is astringent in taste and produces *mala –mutra graha* (*Vistambhi*), It is appetizer and is comparatively lighter.

The use of curd is generally is contraindicated in (*Vasanta*) spring, (*Grishina*) summer, and (*Sharad*) autumn, whereas it is recommended during the rainy season (*Varsha*) and also in the forepart of winter (*Hemanta*), also in cold season (*Shishira*). The residuary sediment of curd is called as *Mastu*,it is frigorific and refrigerant, it is light in nature and helps to purifying to the internal channels of the body. It has a sweet and astringent taste and is anti-aphrodisiac. It balances Vata and Kapha, and is pleasant and palatable. It acts as a speedy purgative, and imparts strength to the body.

Table no 3 showing *Rasa-virya-vipak* of *dadhi* according to various Acharya.

Samhita	Rasa	Virya	Vipaka
<i>Charak</i> [Cha.su.27/ 225-227]		<i>Ushna</i> (hot in nature)	<i>Amla</i> (sour)
<i>Sushrut</i> [Su.su.45/65-67]	1) <i>Madhur</i> (sweet) 2) <i>Amla</i> (sour) 3) <i>Ati -Amla Kashay</i> <i>Anuras</i>		<i>Madhur</i> (sweet)
<i>Ashtang Hruday</i> [Ast. Hr. su 5/29- 32]	<i>Amla</i> (sour)		<i>Amla</i> (sour)

Takra-

All the *samhita gramnths* mentioned the qualities of *Takra* –(Fat-less buttermilk) after *dadhi* ,as *takra* is said to be the transformation stage of curd ,where by *sanskar guna* new qualities are produced.

rØa y?kq d'kk;kEya nhiua dQokrftr~A

“kksdksnjk”kkS x`g.kh nks'kew= xzgz#fp%A

lyhgxqYe ?k`rO;kinxjik.M~oke;ku~ t;sr~AA v-g-lw 5@34

According to *vagbhata* ,*Takra* (butter milk) is *laghu* i.e easy to digest having astringent and sour taste, improves digestive power, it balances *Kapha* and *Vata* dosha.

Indications of *Takra* in various disorders like

- inflammatory conditions,
- udara awastha (ascites),
- hemorrhoids,
- malabsorption syndrome,
- urine infection, dysuria,
- anorexia,
- abdominal distention
- indigestion caused by excess consumption of ghee,
- chronic intoxication .

Mastu – It is supernatant liquid of curds (whey/watery part of curds) :-

rOnukLrq lja L=ksr% “kksf/k fo'VEHkftrye/kqA

Buttermilk properties are similar to *mastu*. It promotes movement of fluids inside body channels, it is relieves constipation and easy to digest.

Other preparations from curd (fatty dairy products):

Charka acharya also explained fatty dairy products like *kilata* and *morat*. Solid portion obtained after heating curds or buttermilk is called as *Kilat*. *Morata* is the sour, thin liquid portion. *Manda Dadhi* as it is not fully formed and immature, it is not good to consume. *Kilata*, *Piyusa*, *Kurcika* etc. *Kilata* and *morat* are useful in strengthening, it increase the semen, helps to

induce sleep and increases *Kapha* dosha ,produces constipation, heavy to digest, aggravation of all three *doshas* should takes place by its intake.

As *virudha ahara* (incompatible food):

Acharya vagbhata, in *annrakshadhyaya adhaya* and Acharya charaka in *atreya bhadrapyaya adhaya*,gave some examples of combinations of Curd which results into incompatible to body and produces a diseases.

तक्रसिद्धः कम्पिल्लकः

Kampilla (a dish) prepared with buttermilk,Chicken (*Kukkuta mansa*) and Spotted deer should not be taken along with curds ,Banana along with butter milk is said to be incompatible. Intake of curds mixed with *Tala phala* (Palm date),*Pippali*, *Maricha* and honey is also produces adverse effect on the body. Various types of disorders like impotency, blindness, erysipelas, ascites, pustules, insanity, fistula-in-ano, fainting, narcosis, tympanitis, spasm in the throat, anaemia, ama visha, leucoderma, leprosy, IBS, oedema, acid gastritis, fever, rhinitis, due to intake of incompatible food.In compatible food leads to genetic disorders and even death of person.

Takra is like nectar –obtained from curd

Acharya charaka in *Arsha chikitsa* had explained ,one formulation takrasista which contain – Takrarista includes Takra which cointain 75% curd and + 25% water, it also contain som Ayurveda gerbil drugs like black pepper,*ajowan*,*amlaaki* ,*haritaki*, *Sauvarcala lavan*, *Saindhava lavan* , *Bida lavan*, *Audbhida lavana* and *Samudra lavana*. It is effectively used curing of hemorrhoids, worm infestation, loss of appetite, irritable bowel syndrome and cures diarrhea.

Formulation as well as individual components exhibited antibacterial activity against different strains according to latest researches. In curd ,lactic acid bacteria are their which produces antibiotics-like substances and peptides^{5,6}.so that it serves as antimicrobial . Takrarishta is effective over the single use of takra, which may be due to the large number of lactic acid bacteria.It is indicated in gastrointestinal infections and cures food poisoning.

Formation of curd from milk is one of the example of *aharvidhi visheshatayan* which is explained in 1st adhayaya of *Charak vimansthan*. Second *aharvidhi visheshataayan* is karan (sanskar). Processing on the *ahardravya* with the help of media/instruments/modalities like

water), heating, adding substances, cleaning and washing, *desh*, *Kala*, Bhavana is called as *karan*. As per requirement, it can change the properties of any substance with the process of Karana

The quality of *Dadhi* differs with the quality of milk as well as source of milk. Modern science has focused on preparation of curd from milk which is obtained by process of coagulation of milk (Curdling). This coagulation is achieved by means of enzyme rennet or substances like lemon juice or vinegar. Study shows that during the formation of curd from milk the constituent's rennet, calcium ions and casein plays main role.

Depending upon the quality of milk the nutritive value of milk product is also depends. The basic factors for formation are lactic acid bacteria into milk and subsequent acid production will also result in gel formation of milk. The increased acidity causes the milk proteins (casein) to convert into solid masses, or curds. Milk that has been left to sour (raw milk alone or pasteurized milk with added lactic acid bacteria) will also naturally produce curds. There is more diversity in physico-chemical, microbial, nutritional and therapeutic properties of *Dadhi*, which shows in survey.

We can analyses the various stages of *Dadhi* that have been explained in ancient texts. Regarding the rules of ingestion of *Dadhi*, due to aggravation of *Kapha*, *dadhi* should not be taken at night, Consumption of Curd in night should be avoided due to its *Kapha* increasing properties as in night there is *Kapha* dominance naturally. *Dadhi* should never be heated as it loses its properties.

Due to better nutritive value, good quality of *Dadhi* have more demand in market. One must have possess skills for the preparation of *Dadhi* as it involved appropriate boiling of milk, and also it require proper method of fermentation. We already various types of *Dadhi* and its properties as per source of animals has been described with their therapeutic properties discussed in Ayurveda. Compared to other animals' milk here in India, buffalo and cow milk are used in diet on tremendous level. Due to growing modern machineries, advanced technology dairy products made from milk has become a huge market and farmers get the financial gain from it. Much more study should be required to find out microbial contamination as well as to enhance its nutritive value in terms like multivitamins, protein, minerals for the traditional type of *Dadhi*. Much more researches must have carried out to standardized its method of preparation and to enrich therapeutic and nutritive value for treating various diseases according to Ayurveda management.

Dadhi /curd is useful to our digestive system and also boost the overall immunity due to presence of a wide variety of bacteria in it. It is also useful in the person those having lactose intolerance, and also fulfills the need of low calcium and phosphorous. So ultimately *Dadhi* prepared from cow's milk is considered to be the best with nutrients value in Ayurveda.