ABSTRACT

Curd is a fermented dairy product, widely used in majority of Indian meals and religious ethos since ages. In Ayurvedic medicine curd is grouped under liquid food items, and its qualities, uses and contraindications are described scientifically. Generally the Curd or Dadhi is unctuous, hot in potency, aphrodisiac, sustains life, alleviates vata, and removes diarrhoea, anorexia, rhinitis, emaciation. Depending upon the type of milk of eight different mammals used for curd preparation, the qualities of curds vary with their specific effects on body. Properly coagulated curd restores the bacterial balance in digestive tract and removes bloating and indigestion. To get the beneficial effects one should eat completely coagulated curd at proper time and season. Curd is usually contraindicated in summer, autumn and spring seasons and its intake in winters and rainy seasons is beneficial, although its effects are modified by other conditions like the nature of the patient and disease condition etc. Curd taken at night produces many diseases, so it should always be contraindicated at night or may be taken with sugar, ghrita, honey, green gram soup or amalaki powder. Certain food items should never be consumed with curd as they are incompatible foods so difficult to digest together and may produce allergic reactions e.g. milk, radish, melon etc. Curd should never be heated as the bacteria cannot withstand the high temperature. Avoid over consumption of curd because its excessive intake causes many diseases like diabetes, skin disorders etc. To get the nutritive and therapeutic benefits of curd the specific principles regarding intake of curd should be followed regularly.

KEY WORDS: Curd and seasons, Food combinations, Jata dadhi, Mastu, Sara, Takra.
INTRODUCTION
Ayurveda is an Indian system of medicine serving the mankind since antiquity. The importance of diet and dietetics has been described in the texts for the promotion of health and prevention of diseases. Acharya Charaka proclaims that the biological body is born out of the congenial Ahara and all the diseases too are produced due to vitiated Ahara. The wholesome and unwholesome foods are responsible for happiness and misery respectively.\[1\] In Ayurvedic texts, depending upon the qualities of different solid and liquid food items, their benefits and probable hazards in different individuals has been described very well. Curd or Dadhi is grouped under liquid food items and gorasa varga. There are different qualities of curds based on the type of milk used. It is a fermented dairy product used since ages to gain lots of nutritional values and health benefits. For centuries Indian generations grew up adding curd in their food habits and religious ethos. It is widely used and almost all Indian meals include a bowl of curd. To get the beneficial effects we should eat completely coagulated curd at proper time and seasons.

METHOD OF PREPARATION
Curd is a probiotic food made from fermented milk, mixed with natural lactic acid bacteria. After being pasteurized, milk is cooled down and a culture of lactic acid bacteria is added to ferment the milk sugar, lactose, to lactic acid. The resulting decrease in pH causes casein, a milk protein, to coagulate, a process known as curdling. \[2\] At about pH 4.6 the coagulation of casein makes the curd. The time taken to curdle depends upon the level of heat; within 6 hours in hot weather and up to 16 hours in winters. Fermentation is a metabolic process in which biochemical changes are brought about on an organic substrate like protein, carbohydrate or fat through the action of enzymes liberated by specific living microorganisms. Probiotics are defined as live micro-organisms, when administered in adequate amounts confer various health benefits to the person.

GENERAL QUALITIES OF CURD
Curd or Dadhi is unctuous, hot in potency, sour in taste and vipaka, removes anorexia, stimulates appetite and digestion, grahi, aphrodisiac, sustains life and alleviates vata.\[3\] According to Vagbhata curd is guru, ushna, sour in taste and vipaka, grahi and decreases vata. It increases meda, shukra, bala, kapha, pitta, rakta, agni, removes anorexia and increases oedema in body. \[4\]
Properly coagulated curd (Jata dadhi) alleviates vata dosha. The uppermost thick creamy layer of properly coagulated curd is called ‘Sara’. This is heavy to digest, aphrodisiac, alleviates vata, decreases digestive power, increases kapha and shukra. The watery part settles over the curd is called ‘Mastu’. It is light in nature, increases strength, creates desire for food, relishing, alleviates fatigue, thirst, kapha and vata, cleanses the micro-channels and removes the accumulated faeces. The curd prepared with fat free milk improves appetite, develops taste, easy to digest, astringent in taste, ruksha, grahi, vishtambhi and increases vata. Acharya Sushruta proclaims that curd is generally kashaya in anurasa, unctuous and ushna virya. He differentiated curd into three varieties, viz Madhura (Sweet), Amla (Sour) and Ati- anla (extremely Sour) in taste. Sweet curd is maha-abhishyandi, causes heaviness and blocks all the fluid channels of the body, increases kapha and meda dhatu, aphrodisiac, alleviate vata dosha and raktapitta. Sour curd increases pitta, kapha and raktaja disorders. Extremely sour curd vitiates rakta, vata and pitta.

QUALITIES OF CURD OF DIFFERENT MILK SOURCES

In Ayurvedic texts the qualities of curds prepared from the milk of eight different mammals have described with their specific effects on the body. Out of them the curd prepared from cow’s milk is considered as most wholesome variety.

1. **Gavya Dadhi:** (curd prepared from cow’s milk) - It is unctuous, madhura vipaki, good appetiser, augments strength, mitigates vata and develops taste in food.

2. **Aja Dadhi:** (curd prepared from goat’s milk) - Mitigates kapha and pitta, easily digestible, improves digestive power, alleviates vata, removes emaciation, beneficial in piles, dysuria, cough and dyspnoea.

3. **Mahisha Dadhi:** (curd prepared from buffal’s milk) - Madhura vipaki, aphrodisiac, mitigates vata and pittta, aggravates kapha, especially unctuous and takes time to digest.

4. **Ustra Dadhi:** (curd prepared from camel’s milk) - Katu vipaki, slightly alkaline, heavy to digest, virechaka, mitigates vata, cures piles, skin diseases, intestinal worms and udara roga.

5. **Avika Dadhi:** (curd prepared from sheep’s milk) - Sweet in taste, aggravates kapha and vata, more abhishyandi, exacerbates piles and all doshas. This is most unwholesome among all eight types.
6. **Badava Dadhi**: (curd prepared from horse’s milk) - Astringent in taste, ushna virya, ruksha, improves digestive power, not good for eyes, aggravates vata, mitigates kapha and urinary problems.

7. **Nari Dadhi**: (curd prepared from woman’s milk) - Unctuous, madhura vipaki, bestows strength and nourishment, best for eyes, mitigates doshas and best in qualities.

8. **Hastini Dadhi**: (curd prepared from elephant’s milk)- light, mitigates kapha, hot in potency, destroys power of digestion, increases faeces.

**SEASONS AND TIME OF CURD INTAKE**

In Ayurveda it is mentioned that in Sharad (Autumn), Grishma (Summer), and Vasanta (Spring) seasons curd is usually contraindicated and in Hemanta (Early winter), Shishira (Late winter) and Varsha (Rainy season) its intake is beneficial.\(^{[12,13]}\) In Sharad pitta dosha is aggravated and in Vasanta kapha gets aggravated in human body by nature. Due to unctuous, guru and hot qualities the curd increases pitta and kapha, so contraindicated in Sharad and Vasanta seasons. Due to its abhishyandi nature curd blocks the fluid channels of body and causes heaviness. In Varsha vata is aggravated and curd alleviates vata, so indicated in this season. Due to hot potency curd is contraindicated in Grishma and indicated in winters. Besides above rules the effects of curd are modified by other conditions like nature of the patient and disease condition etc.

Curd should not be taken continuously for long time.\(^{[14]}\) Curd taken at night produces many diseases, so it should be contraindicated at night. Night is basically the kapha predominant period and curd has sour mixed sweet property which also increases kapha dosha in the body and produces many disorders. Intake of curd alone increases kapha so it should always be taken with either of ghrita, sugar, honey, green gram soup or amalaki powder.\(^{[15]}\) If an individual do not follow these rules of curd intake he will suffer from many diseases like Jwara, Raktapitta, Visarpa, Kushtha, Pandu, Kamala and Bhrama.\(^{[16]}\)

**FOOD COMBINATIONS**

It is very well described that certain food items like milk, radish, melon etc. should never be consumed with curd as they are incompatible foods, difficult to digest together and may produce allergic reactions.
I. Right combinations
Curd and sugar
Curd and ghrita
Curd and honey
Curd and green gram soup
Curd and amla powder

II. Wrong combinations
Curd and milk
Curd with sour fruits
Curd with radish
Curd with musk melon/watermelon
Curd and blackberry (jamun)
Curd after heating

PREPARATIONS OF CURD AND THEIR QUALITIES
Takra or Mattha or Buttermilk is a common preparation made by curd. Acharya Charaka described three varieties of Takra as Ruksha (fat free), Ardha sneha yukta (with half fat), and Purna sneha yukta (with full fat).\(^{[17]}\) It is the best medicine for kaphaja and vataja disorders\(^{[18]}\). Takra removes inflammation, anorexia, anaemia, piles, grahani roga, mutrakriccha and udara roga.\(^{[19]}\)

According to Acharya Sushruta the ‘Takra’ has been prepared by churning of curd mixed with half of water and total removal of butter (fat). If curd has been churned only, without adding water and without removal of butter, then it is called ‘Ghola’.\(^{[20]}\) Takra is madhura and amla in taste and kashaya in anurasa, ushna virya, laghu and increases appetite. It is indicated in cold period, decreased appetite, anorexia, excessive thirst, vomiting, atisara, grahani, pandu roga, arsha, pliha vridhhi, gulma, shopha, srotorodha, shula, medoroga, mutrakriccha, vishama jvara, kaphaja and vataja disorders.\(^{[21]}\) It is contraindicated in hot period, burning sensation, raktapitta, injury, giddiness, weakness and unconsciousness.\(^{[22]}\)

Acharya Bhavamishra classified curd preparations into 5 types, depending upon the percentage of water added and the percentage of fat in it.\(^{[23]}\)
1. **Ghola**: When curd is churned only, without adding water and without removing its sara (the upper most thick creamy layer), then it is called ‘Ghola’. The ghola mixed with sugar is vata and pitta shamaka.

2. **Mathita**: When curd is churned without adding water but after removal of sara part of curd, then it is called ‘Mathita’. It alleviates kapha and pitta dosha.

3. **Takra**: When curd is churned by adding one-fourth part of water and without removing its fat portion, then it is called ‘Takra’. It is kashaya and madhura in taste and madhura vipaki, grahi, laghu, ushna, appetizer, increases virya and decreases vata. Due to its laghu and grahi qualities it is beneficial in grahani roga. Its amla rasa and ushna virya properties are responsible for vata alleviation and stimulation of appetite. Takra does not increase pitta due to its madhura rasa and vipaka, and decreases kapha due to kashaya rasa, ushna virya and ruksha quality. In this way the takra balances all of the three dosha.

4. **Udashvit**: When curd is churned by adding half part of water and without removing its fat, then it is called ‘Udashvit’. It is best for removal of ama dosha, increases strength and kapha dosha.

5. **Chacchika (Chacha)**: When curd is churned properly to remove total fat part and added with excess of water, then it is called ‘Chacha’. It is shita, laghu, decreases thirst and fatigue, increases appetite, decreases vata and pitta but increases kapha dosha.

**HEALTH BENEFITS OF CURD**

A good quality curd is firm, of uniform consistency, sweet aroma, and slight acidic taste with smooth and glossy surface that is free from cracks and bubbles. It improves the digestion and absorption of nutrients and is beneficial for lactose intolerant persons. Low-fat curd is good for obese and people with high cholesterol. Intake of curd develops taste in food, increases appetite, aphrodisiac, and removes anorexia, diarrhoea, rhinitis, dysuria, intermittent fever and emaciation. Curd is considered as pathya (wholesome) in atisara, grahani, mandagni, ajirna, kshaya roga, mutrakriccha and nasa roga. A study suggested that adding more curd in diet without increasing the number of calories may reduce the risk of hypertension. Researchers have proved the positive physiological impact of probiotic bacteria on the biomarkers of diarrhoea, lactose intolerance and colon cancer, when daily dose of 100-120 ml curd having 10^9 –10^10 probiotic organisms/ml was consumed. Gut bacteria has important
role in mediating inflammation and thus increasing or decreasing the risk of numerous diseases including colono-rectal cancer, \[26\] and inflammatory bowel disease and Crohn’s disease. \[27\] Adolfsson O et al. proved that curd is beneficial in constipation, H. pylori infection, in inflammatory bowel disease and colon cancer. \[28\] The mucosal lymphoid tissue of the gastrointestinal tract plays an important role as a first line of defense against ingested pathogens. The interactions of Lactic acid bacillus (LAB) with the mucosal epithelial lining of gastrointestinal tract, as well as with the lymphoid cells residing in the gut, have been suggested as the most important mechanism by which LAB enhances gut immune function. Studies in the last few years also suggested that eating non-fat and low-fat yogurt can aid weight loss \[29\], and boost immunity \[30\]. Various research studies have shown that intake of curd bacteria has led to increase in immunity parameters (IgA) with faster recovery of diseases like diarrhoea, dysentery. An article in “Journal of Nutrition”, 2007 suggests that certain probiotic bacteria can protect against allergies by increasing the production of the mucosa immune defender, secretory immunoglobulin A. Secretory IgA contributes to allergen exclusion by reducing exposure of the immune system to antigens. \[31\]

**CONTRAINDICATIONS OF CURD**

Avoid over consumption of curd because its excessive intake causes many diseases like Diabetes, Skin disorders, Bronchial Asthma etc. Acharya Charaka described that, person who does not follow the above mentioned rules related to intake of curd during day or night or during different seasons, may suffers from diseases like Jwara, Raktapitta, Visarpa, Kushtha, Pandu, Bhrama and Kamala. \[32\]

Consumption of incompletely coagulated curd (Mandajata) is strictly prohibited as it aggravates all the three doshas, causes burning sensation during digestion, increases faeces and urine excretion. \[33\] Heated curd should never be taken as its bacteria cannot resist the high temperature. Curd is contraindicated in various diseases viz. Amlapitta, Raktapitta, Shitapitta, Kushtha, Visarpa, Prameha, Krimi roga, Amavata, Vatarakta, Shotha roga, Vrana Shotha, Galaganda, Shlipada and Netra roga etc.

My clinical experience with patients during last ten years exhibits that predominant intake of curd triggers the symptoms of many diseases viz. Bronchial Asthma, Urticaria, Psoriasis, Hyperacidity, Headache, Swellings and Musculoskeletal pains.
CONCLUSION
It has been established that to gain maximum health benefits of curd, we should eat the completely coagulated curd at right time, in right quantity, and with right food combinations. In some conditions where curd is prohibited, the takra may be used sensibly. One who follows the principles regarding intake of curd would be benefitted by all the nutritive and therapeutic effects of it, without suffering from any disease.

REFERENCES


17. Agnivesha: Charaka Samhita, revised by Charaka and Dridhabal, with commentary of Chakrapanidatta, edited by Yadavji Trikamaji Acharya, 5th ed., Varanasi; Chaukhambha Sanskrit Sansthana, 2001; Chikitsasthana, 14/84.


26. http://ajcn.nutrition.org/content/73/2/451s.full

27. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2219330/


30. http://ajcn.org/content/71/4/861.full

