



Review Article

THERAPEUTIC BENEFITS OF TAKRA (BUTTERMILK) FOR HUMAN HEALTH

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ABSTRACT

In Ayurveda it is considered that the basis of both the health and the diseases is *Ahara* (food). *Ahara* is considered as *Prana* (basis of life). *Acharya Kashyap* had clearly stated that *Ahara* is the best medicine. *Takra* (buttermilk) is one of the *Aharadravya* described in Ayurved with lots of medicinal properties. Use of *Takra* is indicated as single drug or *Anupan* (vehicle) or as *Pathya* (wholesome) in various diseases like *Grahni* (sprue), piles, diarrhea etc.. Presence of MFGM, sphingolipids, casiens, lactoferrins, various vitamins etc. has been detected in buttermilk. These constituents somewhat explain the mechanism of action of buttermilk. In *Bhavprakash Nighantu*, it is clearly stated that a person who consumes *Takra* never suffers from any disease and where *Takra* (buttermilk) is used as medicine for a disease then there is never relapse of that disease. *Takra* is easily palatable and can be used both for prevention and treatment of diseases.

KEYWORDS: *Ahara, Takr, Anupan, Pathya, Amrit.*

INTRODUCTION

Food has been considered as root cause of life and vitality.^[1] The wholesome and unwholesome food articles are the causative factors par excellence for growth of living beings and their disease respectively^[2]. Defined in general terms, food includes all edible substance^[3]. Food can be taken in four ways viz., as drinks, as eatables, as chewable and as lickables (linctus).

Takra is said to be *Kasay* (astringent)- *Madhur* (sweet) in *Ras* (taste) along with a little bit of *Amlaras* (sour). *Takra* is *Laghu* (light to digest), *Grahi* (~ useful in diarrhea) and *Agnideepak* (promoter of digestion). *Takra* pacifies the *Vaat* and *Kapha dosh* but does not vitiate the *Pittadosh*. *Takra* is a good *Sroto-shodhak* (clarifies the channels of circulation)^[4]. *Acharya Carak* has cleared that

although *Takra* is *Amla* but due to its *Madhurvipak*, it does not vitiate the *Pitta dosh*. *Takra* pacifies the *Kaph dosh* due to its *Kasayaras, Ushn, Vikasi* and *Ruksh gun*. *Takra* is *Madhur, Amla* and *Sandra* and due to these properties it pacifies the *Vaatdosh*.^[5]

Modern medical science is now looking forward to *Takra* as *Takra* is rich in calcium, potassium and Vit B12, vitamin E and folic acid.^[6] *Takra* is a natural probiotic diet because the friendly bacteria for the intestines and the body are found in abundance in it. Whey proteins present in buttermilk help to increase the formation of "IgA" named antibodies. Proteins present in *Takra* cooperates well in absorbing the minerals as well, particularly the calcium and the iron.

Table 1: Comparison of nutritional value of buttermilk and milk^[7]

S.No	Constituent	/100gm buttermilk	/100gm milk
1	Water	90.4gm	90.7gm
2	Protein	3.43gm	3.43gm
3	Fat	0.51gm	0.07gm
4	Cholesterol	4.0mg	3.0gm
5	Carbohydrates	4.01gm	4.80gm
6	Minerals	0.75gm	0.75gm
7	Vitamin B12	200ng	300ng
8	α- tocopherol	20μg	Traces
9	Folic acid	5μg	5μg

Comparison shows that buttermilk is almost similar in composition to skimmed milk. Thus, buttermilk can be used in conditions where milk cannot be given to patients such as lactose intolerance.

Superiority of *Takra* (Buttermilk) Over *Dadhi* (Curd)

By reviewing classics of Ayurved, it becomes clear that *Takra* (buttermilk) is far superior in qualities than

Dadhi (curd). Although *Takra* is prepared from *Dadhi* (curd) by churning procedure. Due to churning, properties of *Takra* changes. *Takra* is *Laghu* (easy to digest) while *Dadhi* (curd) is *guru* (heavy to digest). Similarly *Takra* (buttermilk) is *Madhur* (sweet) in *Vipak* while *Dadhi* (curd) is *Amla* (sour) in *Vipak*. *Takra* pacifies all the three *Doshas* while *Dadhi* (curd) vitiates *Pitta* and *Kaph*. *Takra* is

one of the best medicine for *Shoth* while *Dadhi* (curd) is the causative factor for *Shoth* (oedema).^[8,9]

From modern point of view also, properties of buttermilk varies from those of curd. Churning process destroys MFGM. Thus, buttermilk is rich in destroyed MFGM. The specific proteins, unique polar lipids and minor molecules like minerals, vitamin E, carotenoids of this membrane seem to possess additional functional properties, especially in terms of health.^[10]

Therapeutic Uses of *Takra* (Buttermilk)

1. *Jwar* (Fever)

Sushrut has stated that if there is *Arochak* (uninterested in food) in *Jwar* due to *Kaph*, *Takra* should be used mixed with *Vyosh*.^[11]

Vagbhatt has advised use of *Anamlatakra* (not sour in taste) as *Pathya* (as food material) in *Jwar* (fever). Food cooked with *Anamla* (not sour in taste) *Takra* is *Ruchikarak* (increases appetite).^[12]

2. *Atisar* (Diarrhoea)

Carak has advised use of *Takra* in *Atisar* (diarrhoea) as *Anupan* (vehicle) of *Laghuann* (light to digest)[13]. Further *Carak* has advised *Takra* as *Anupan* (vehicle) for different *Yogas* (formulations) for *Kaphaj Atisar*.^[14] *Carak* has also advised use of *Takra* with *Chitrak* (*Plumbago zylenica*) churn for treatment of *Atisar*.^[15]

Vagbhatt has also advised use of *Takra* in the form of *Tarpanyavagu* (gruel with nourishing property) in *Atisar*.^[16]

3. *Chardi* (Vomiting)

Carak has advised use of *Takra* as *Aahardravaya* (food article) in management of *Kaphaj Chardi*.^[17]

4. Respiratory Disorders

Carak has advised use of *Takra* as *Anupan* (vehicle of drugs) in the management of *Kaphaj Kaas* (cough due to *Sleshm dosh*).^[18]

Vagbhatt has mentioned a special use of *Takra* in *Swas- Kaas* (~ asthma and cough). According to *Vagbhatt* apply thick paste of *Pippali* (*Piper longum*), *Pippalimula* (*Piper longum*), *Pathya* (*Terminalia chebula*), *Vidang* (*Embelia ribes*) and *Chitrak* (*Plumbago zylenica*) to the inner side of earthen pot of *ghee* (butter). When the paste gets dried fill the earthen pot with *Takra* and leave for a month. This *Takra* is said to be *Agnideepak* (improves digestion) and *Swas- kaasnashak* (~ asthma and cough reliever).^[19]

5. *Aanah*

Vagbhatt has stated that use of *Takra* in *Aanah* for *Vat-kaph* patients is equivalent to elixir.^[20]

6. *Udar Rog* (~ abdominal distention)

Carak has advised use of *Takra* in *Udarrog* as follows: ^[21]
Udarrog /*Takra* mixed with

<i>Nichya Udar</i> (<i>Sannipatodar</i>)	<i>Triyushan</i> (<i>Sunthi</i> , <i>Marich</i> and <i>Pippali</i>), <i>Kshar</i> and <i>Lavan</i>
<i>Vatodar</i>	<i>Pippali</i> (<i>Piper longum</i>) and <i>Lavan</i>
<i>Pittodar</i>	<i>Sharkara</i> and <i>Madhuk</i> (<i>Glycyrrhiza glabra</i>)
<i>Kaphodar</i>	<i>Yavani</i> (<i>Trachyspermum ammi</i>), <i>Saindhav</i> , <i>Ajaji</i> (<i>Cuminumcyminum</i>) and <i>Viyosh</i> (<i>Sunthi</i> , <i>Marich</i> and <i>Pippali</i>)
<i>Pleehodar</i>	<i>Madhu</i> , <i>Tail</i> , <i>Vachaa</i> (<i>Acorus calamus</i>), <i>Sunthi</i> (<i>Zingiber officinale</i>), <i>Satahva</i> (<i>Anethum sowa</i>), <i>Kusth</i> (<i>Saussurea lappa</i>) and <i>Saindhav</i>
<i>Jalodar</i>	<i>Vyosh</i> (<i>Sunthi</i> , <i>Marich</i> and <i>Pippali</i>)
<i>Badhodar</i>	<i>Hapusha</i> (<i>Juniperus communis</i>), <i>Yavani</i> (<i>Trachyspermum ammi</i>), <i>Ajaji</i> (<i>Cuminum cyminum</i>) and <i>Saindhav</i>
<i>Chidrodar</i>	<i>Pippali</i> (<i>Piper longum</i>) and <i>Madhu</i>

Carak has also indicated use of *Takra* in *Udar Rog* an *Anupan* (vehicle) of *Narayana Churn*.^[22]

7. *Shawathu* (oedema)

Carak has clearly indicated that if a patient of *Shawathu* is suffering from *Aamatar* then *Takra* mixed with *Vyosh*, *Sauvarchal*, and *Makshik* (honey) should be used for the treatment.^[23]

Takra is a content of *Chitrakghrit*, used for the treatment of *Shawathu*.^[24]

Vagbhatt has advised that for treatment of *Shawathusauvarchal*, *Trikatu*, and honey mixed with *Takra* should be used. Further *Vagbhatt* has advised use of *Takra* as *Anupan* (vehicle) of *Haritaki* (*Terminalia chebula*) used with *Gud* (jaggery) or of *Aadrak* (*Zingiber officinale*) with *Gud* (jaggery).^[25]

8. *Gulm*

Carak has advised use of *Takra* mixed with *Yavani* (*Trachyspermum ammi*) churn and *Vidlavan* as *Pathya*

(useful) in *Gulm*. This *Takra* is *Agnideepak* (improves digestion) and *Vaat- Kaph- Mutraanulomak* (promotes excretion of flatus and urine).^[26]

Vagbhatt has advised use of *Takra* as *Anupan* of various *Ghrit* and *churn* such as *Triyushanadyaghrit* etc.^[27] Further *Vagbhatt* has advised *Takra* as *Pathya* for patients of *Kaphaj Gulm*.^[28]

9. *Arsh*(piles)

Carak has used *Takra* in the management of *Arsh* on a broad level. *Carak* has advised use of *Haritaki* (*Terminalia chebula*) and *Triphala* (three myrobalans) churn with *Takra*.^[29]

Carak has advised special formulation of *Takra*, namely *Takrarisht* in the management of *Arsh*.^[30]

Carak has clearly said that there is no better medicine than *Takra* for the management of *Vaat- Kaphaj Arsh*.^[31] *Carak* has further advised that, all those food materials that causes *Vaatanuloman* (promotes excretion

of flatus) and are *Agnideepak* (improves digestion) should be used for *Arsh* patients and *Takra* possesses both the qualities.^[32]

Vagbhata has advised use of *Takra* as *Anupan* of fruits of *Peelu* (*Salvadora persica*). Further *Vagbhata* has advised use of *Takra* mixed with *Hapusha* (*Juniperus communis*), *Hingu* (*Ferula narthex*) and *Chitrak* (*Plumbago zyleneica*).^[33]

10. *Grahni Dosh* (~sprue)

Carak has described the properties of *Takra* in the *Grahnidoshchikitsaadhyay*. *Carak* has stated that *Takra* is best for management of *Grahni dosh* due to *Deepan* (stomachic), *Grahi* and *Laghu* (light to digest) properties of *Takra*.^[34] Further, *Carak* has stated that all types of *Takra* should be used extensively for the management of *Grahnidosh*.^[35] *Takra* is component of various formulations mentioned for management of *Grahnidosh* such as *Takrarisht*, *Panchmoolyadhya ghris* and *Churn*.^[36]

Sushrut has also stated that in management of *Grahni*, *Churn* of *Pachniya*, *Sanghrahi* and *Deepniyagana* should be used with *Anupan* of *Takra* or only *Takra* is enough to treat the diseases.^[37]

11. *Anupan* (vehicle) of various formulations

Apart from these direct therapeutic indications, *Takra* has also been indicated as *Anupan* (vehicle) for various formulations in Ayurved. *Anupan* is any liquid with which medicine is taken orally or which is drink after taking medicine^[38]. *Anupan* (vehicle) helps in quick assimilation and distribution of drug in body.^[39] Various formulations whose *Anupan* is *Takra* are *Trivritadikalk*, *Laghugangadhar* churn, *Narayan churn*, *Navayasloha*, *Mandurvatak* etc.^[40]

DISCUSSION

Buttermilk has been underestimated for many years. For a long time, modern medical science has regarded it as an unwanted and useless by product which accumulates during the production of butter. However, the high value components of this food which are found to be beneficial to human health, are slowly changing these opinions. Currently research is mostly focusing on the functions of single compounds of buttermilk like phospholipids, MFGM (milk fat globule membrane), caseins, whey proteins etc.

Milk fat globule membrane (MFGM)

Buttermilk specificity is to be rich in destroyed MFGM, whose compactly bound constituents such as proteins, polar lipids (phospholipids and sphingolipids), minerals etc. are released during the process of churning.^[41]

Effects of glycerolphospholipids on human health are very similar to those of sphingolipids: they play an important role in cell signaling and have a strong impact on the development of brain function. Especially, choline containing glycerol phospholipids can positively affect cognition by ensuring ion permeability, fluidity and the suitable environment of the dynamic membrane of the adult brain. These functions are crucial for children, ageing persons and probably for Alzheimer patients as well.^[42]

Sphingolipids are important compounds of the myelin- covering which encloses and protects the axons of the nerve cells.^[43] In addition, they seem to regulate the irritability and transmitter release in the nervous system.^[44]

This probably explains the reason that why buttermilk is said *Medhya* (intelligence promoting) in *Kaidev Nighantu*.^[45]

About 120 different proteins were determined in bovine MFGM e.g. MUC1, xanthine dehydrogenase/oxidase (XDH/XO). XDH/XO inhibits the growth of bacteria such as *Staphylococcus aureus*, *Escherichia coli* and *Salmonella enteritidis* by activating the lactoperoxidase system in milk or the formation of hydrogen per oxide.^[46]

This may be the reason why buttermilk has been so widely indicated in Ayurved in various diseases of G.I.T and respiratory tract diseases that are infectious in nature as per modern medical science.

Caseins in buttermilk

The protein contents of buttermilk, with a percentage of 3.2% corresponds approximately to the content of skim milk. Caseins cover 77-81% of all the existing proteins in buttermilk. Effects of caseins on human health are: increase of amino acid oxidation and protein synthesis, strongly inhibit proteolysis, appetite suppression, anti-hypertensive, immunomodulatory activities, anti-thrombotic, ACE-inhibitory activity.^[47]

Whey proteins in buttermilk

Whey proteins include β -lactoglobulin, α -lactalbumin, immunoglobulins, proteose-peptones, serum albumin, lactoferrin etc. Primary function of these is not the nourishment but the provision of functional properties. Effects of whey proteins on human health's are: strongly stimulate amino acid oxidation and protein synthesis, stimulate insulin secretion, decrease arterial stiffening, provide protection against intestinal, mammary and colon cancers; increases absorption of minerals, liposoluble vitamins, anti-microbial, anti-viral and immunomodulatory action.^[48]

CONCLUSION

Acharya Vagbhata has clearly mentioned that the root cause of all diseases is *Mandagni*.^[49] After reviewing the therapeutic effects of *Takra*, it is clear that *Takra* has a very potent effect on *Mahasrotas*. *Takra* has the potency to normalize the physiology of *Mahasrotas*. *Takra* balances all the three *Doshas* of the body. *Acharya Carak* has mentioned *Takra* in *Agryaushad* as- persistent use of *Takra* is best medicine for *Grahni dosh*, *Shoph*, *Arsh* and *Ghrityapad* (complications due to intake of butter).^[50] This review shows the tendency and potential of *Takra* that it can positively influence human health and its contribution to balanced diet is without doubt. *Bhavprakash* has rightly quoted that as there is elixir for gods, *Takra* is for humans.^[51]

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