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ORGANOLEPTIC AND PHYSICO-CHEMICAL PROFILE OF *TAKRA* PREPARED BY DIFFERENT METHODS

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ABSTRACT

Takra (Buttermilk) is a nutraceuticals product which is being used from centuries. *Takra* is a divine nectar (*Amrita)* on the earth as mentioned in *Astang Hrudaya*. It is a digestive tonic to all human beings. *Takra* is *Tridosha shamaka* by means of its gunas. Many *Acharya's* has stated different methods of preparation of *Takra,* according to quantity of water added in it while churning. This difference in method of preparation might show variations in their properties. This study aims to distinguish and determine the organoleptic, physiochemical properties of the *takra* prepared by different methods as mentioned in *Shushrut Samhita, Bhavaprakash Nighantu and Raj Nighantu*. *Takra* was prepared with different methods and its Pharmacognostic evaluations was done. It was found that Takra is highly acidic in nature and no difference was found in the pH value of *takra* prepared by all the methods. Viscosity of *Takra* prepared by the method of *Bhavaprakash Nighantu* is high in range i.e. 39.150 Cps as compared to other methods.

KEYWORDS: *Takra* (Buttermilk), Physico-chemical, Organoleptic Properties.

INTRODUCTION

Takra (butter milk) is one of the dietary product mentioned in ayurvedic texts which is used as *Ahariya as well as Aushadhiya dravya. Takra* is obtained from curd and is palatable in all age groups. *Takra* can be used internally in various diseases such as *Grahani, Udar, Ajeerna, Arsha, Atisar* and for external application in skin diseases such as *Dadru, Pama* etc.

Takra (buttermilk) has fair amount of acid which works against bacteria and clear stomach and aids in digestion. *Takra* is prepared by various methods in different countries and different cultures. Different Ayurvedic texts had also described different methods for preparation of *Takra*. According to *Shushrut Samhita, Bhavaprakash Nighantu and Raj Nighantu. Takra* mainly differ in the amount of water to be added while churning the curd. Whereas *Charak Samhita* and *Astang Hrudaya* have categorized the product by amount of fat present in it.

According to Ayurvedic Formulary Of India, *Takra* is the liquid obtained by adding half quantity of water to curd (*dadhi*) and decanting the same by churning.[1] The composition of *takra* undoubtedly plays role in the physicochemical properties and organoleptic characteristics of it.

This study aims to distinguish and determine the organoleptic, physiochemical properties of *takra* prepared by different methods as mentioned in *Shushrut Samhita, Bhavaprakash Nighantu and Raj Nighantu*. This will not only explore the relation between preparatory methods and properties of *takra* but also help *Ayurvedic* researchers and clinicians as no such data of *Takra* is available at present.

Aim and objectives

To determine and distinguish organoleptic and Physico-chemical properties of *Takra* prepared by different methods mentioned in *Shushrut Samhita, Bhavaprakash Nighantu and Raj Nighantu.*

Material and Methods- Material

1) Curd made from Indigenous cow milk
2) Earthen pot
3) Wooden Stirrer
4) Measuring cylinder
5) Beaker
6) Pycnometer
7) Viscometer
8) Density bottle

Methods

Study Will be done in 2 parts-

1. Preparation of three samples of Takra by different method.
2. Pharmacognostic study-

A. Organoleptic study

B. Physico-chemical study.

Preparation of Curd (*Dadhi*)

Indigenous Cow milk is obtained from authentic source. Curd (*Dadhi*) is prepared by traditional method.

In Traditional method Curd (*Dadhi)* is prepared on small scale, Milk is heated intensively to boil for 5 to 10 mins cooled to room temperature and inoculated with previous day curd or buttermilk at rate of 0.5 to 1.0 %. Milk is them stir and allowed to set undisturbed for overnight.[2]

3 Samples of *Takra* were prepared by following methods

1. **Sample A** - According to *Shushrut Samhita* - ½ quantity of water is added in Curd (*dadhi*) and churned.[3]
2. **Sample B** – According to -Raj *Nighantu*-1/3rd quantity of water is added in Curd (*dadhi*) and churned.[4]
3. **Sample C** – According to. - *Bhavaprakash Nighantu* ¼th quantity of water is added in Curd (*dadhi*) and churned.[5]

While preparing the three samples, Churning was done for approximately 1 *Prahara* i.e. 3 hours. as per described in *Kaiyadev Nighantu*[6], since no other texts has mentioned the period for churning.

i) Organoleptic evaluation-

1. *Sparsha*- Consistency
2. *Rupa* – Appearance
3. *Rasa*- Taste
4. *Gandha*- Odour

ii) Physico-Chemical Study- Following properties were studied as per methods mentioned in Ayurvedic Pharmacopoeia of India.[7]

1. pH
2. Specific Gravity
3. Viscosity
4. Density

OBSERVATIONS

i) Organoleptic study

Table 1: Showing Organoleptic study of *Takra.*

Sr. no.	*Grantha*	*Sparsha*	*Rupa*	*Rasa*	*Gandha*
Sample A	*Shushrut Samhita*	*Drava*	*Shweta varna*	*Madhura Amla Kashaya*	*Amla Gandhi*
Sample B	*Raj Nighantu*	*Drava*	*Shweta varna*	*Amla Madhura Kashaya*	*Amla Gandhi*
Sample C	*Bhavaprakash Nighantu*	*Drava*	*Shweta varna*	*Kashaya Amla Madhura*	*Amla Gandhi*

ii) Physico-Chemical study.

Table 2: Showing Physico-chemical properties of Takra.

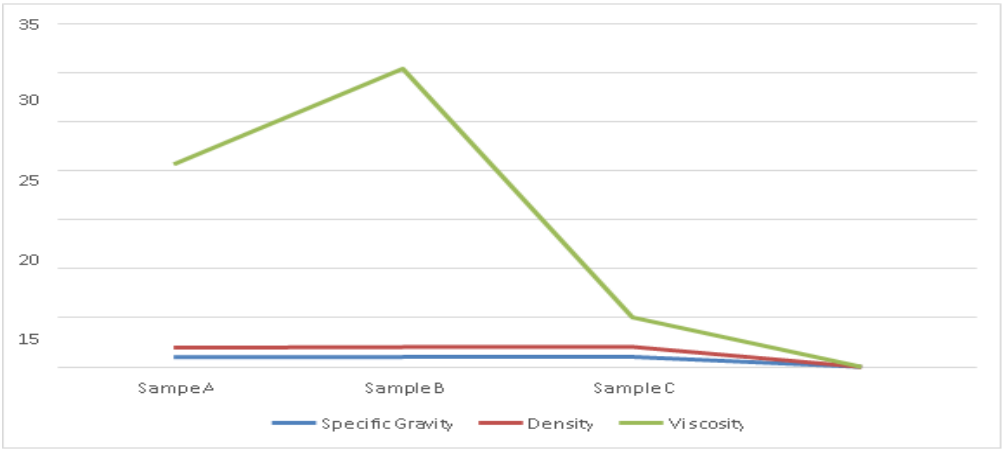
Sr. No.	Grantha	Amount of curd.	Amount of water added	PH	Specific gravity	Viscosity (Cps)	Density (gm/cm3)
Sample A	*Shushrut Samhita*	1part	1/2 part of the curd	3	1.003	18.680	0.962
Sample B	*Raj Nighantu*	1 part	1/3 rd of the curd	3	1.007	28.374	1.011
Sample C	*Bhavaprakash Nighantu*	1 part	1/4 th of the curd	3	1.026	39.150	1.019

Fig 1: -showing Preparation of Takra

Fig 2:- showing 3 different samples prepared according to different texts.

Fig 3: showing Pycnometer to calculate specific gravity

Fig 4:- showing Viscometer to calculate Viscosity.



Line Graph Showing – Specific gravity, Density and Viscosity

Characteristics of *Takra*

1) *Guna* and *karma of Takra* (*Shushrut Samhita*)

As per the text, *Takra* is that, from which fat has been separated (removed) by churning etc. and added with water half of its quantity, which is neither too thick nor too thin liquid, sweet and sour in primary taste and astringent in secondary taste.[3]

Rasa- Madhura, Amla, kashaya Anurasa Veerya- Ushna Guna- Laghu, Ruksha

Used in artificial poisoning, swelling, diarrhea, anemia, piles, digestive disorders, spleen enlargement, gulma, anorexia, fevers. Thirst, vomiting, nausea etc.

Intake of *Takra* according to *Doshas*.[3]

In *Vata vyadhi – Amla Takra* with *Saindhav.*

In *Pitta Vyadhi- Madhura Takra* with *sharkara.*

In *Kaphaj Vyadhi – Takra* with *Trikatu* and *Yavakshara.*

2) *Guna* and *karma* of *Takra (Raj Nighantu*)

According to a *Raj Nighantu, Takra* is that in which 1/3 rd part of water is added in 1 part of the curd. it is mentioned in *ksheeradi varga*.[4]

Rasa- Amla, Madhur, Kashaya

Takra pacifies Tridosha, it is *Ruchi karaka, Agnideepaka*, due to its *amla rasa* it pacifies *Vataj vyadhi*, *madhura rasa* pacifies *Pittaj vyadhi* and *Kashaya rasa* pacifies *Kaphaj Vyadhi*. Just as divine nectar is for the God, *Takra* (buttermilk) is to humans. Consumption of *takra* is beneficial in many diseases such as *Amaatisara, Visuchika, vataj jwara, panduroga, kamala, prameha, Gulma, Udara, Arochaka.*[4]

Intake of takra should be done in *Sheeta kala, Agnimandya, Kaphavikara, panduroga, kustha Takra* is used as *Anupana* in different types of *Udara with other herbal drugs.*

1. *Vataj Udara- pippali + Saindhav+ Takra*
2. *Pittaj Udara- Sharkara+ Marich Choorna + takra pana*
3. *Kaphaj Udara- Ajvayan+ Saindhav+ Jeera+ Trikatu +Takra*
4. *Sannipataj Udara- Trikatu + Ksahara + Saindhav + Takra.*

3) *Guna* and *karma of Takra* (*Bhavaprakash Nighantu*)

Rasa - Kashaya, Amla and Madhura Rasa Vipaka- Madhura

Veerya- Ushna Guna- Grahi, Laghu

Takra stimulates digestive system (*Agnideepan*). It is *Grahi* & easily digestible. It has *Vata & Kapha shamak* properties. It does not cause *Pittaprakop* due to its *Madhur Vipak.* It is useful in *Kapha prakopa* due to its *Kashaya Rasa, Ushna Veerya & Ruksha guna*. It is useful in *Vataprakop* due to its *Madhur Vipak & Amla Rasa*.[5]

According to *Bhavaprakash Nighantu*, who ingest *Takra* daily does not suffer from diseases and diseases cured by takra does not reoccur. Just as *Amrita* is for god. *Takra* is *amrita* for humans.[5]

Uses of *Takra* (Buttermilk) in different diseases According to texts.

Table 3: Showing- Uses of *Takra* in various diseases.

	Shushrut Samhita	***Raj Nighantu***	***Bhavaprakash Nighantu***
Agnimandya	√	√	√
Arochaka	√	√	√
Srotavarodha	-	√	√
Chardi	√	√	-
Praseka	√	√	-
Visham jwara	√	√	-
Pandu	√	√	√
Sthlouya	√	√	-
Grahani	√	√	-
Arsha	√	√	-
Mutravikara	√	√	-
Bhagandara	-	√	-
Prameha	√	√	√
Gulma	√	√	√
Atisara	√	√	√
Udara	-	√	√
Visha	-	√	-
Switra	-	√	-
Kustha	-	√	√
Shotha	√	√	√
Trushna	√	√	-
Krimi	-	√	-
Pleeha	√	√	-
Snehavyapada	√	-	-
Vrushya	√	-	-
Visuchika	-	-	√
Kamala	-	-	√
Shoola	√	√	√

Contraindications of Takra- Consumption of *Takra* should not be done during hot season such as *Grishma* and *Shishira Ritu* and by *Krusha* (lean), weak people. Also avoid using *takra* in diseases such as giddiness, burning sensation and bleeding disorders.[8]

DISCUSSION

Takra is dietary product that rejuvenates and nourishes the whole body. As per the study, takra prepared by the method of *Bhavaprakash Nighantu* is high in Viscosity as compared to the other methods. Higher viscosity suggests longer time for digestion and gastric emptying. Density and Specific gravity of all samples were almost same.

Lactic acid increases the acidic nature of *takra* (buttermilk). It prevents the growth of potentially harmful microorganisms and increases the shelf life of *Takra*. Thus, Lactic Acid content of *Takra* plays an important role in treatment of skin disorders. It exfoliates the skin, speeds up cell turn over and stimulates cells renewal.

Takra is choice of drug in *Grahani vyadhi* due to its *Grahi guna*. As it rectifies digestion by doing *Deepana* and *Pachana karma*. *Takra* encourages the normal acid producing organisms in GI tract. Restores necessary intestinal bacteria that are helpful in diarrhea and irritable bowel syndrome.

Dadhi and *Takra* both are acidic but *Takra* is *laghu* and easy to digest due to water added in it while churning. *Dadhi* is *Guru* and *Apathyakara* in various diseases.

As per the text particular diseases such as *Sneha Vyapada* and for *Vrushya chikitsa takra* should be prepared as per mentioned in *Shushrut Samhita.* Diseases such as *Srotavarodha, Bhagandara, Visha, Switra, Krimi takra* intake should be done as per the method given by *Raj Nighantu* and in *Visuchika* and *Kamala, Takra* Should be prepared according to *Bhavaprakash Nighantu* specifically. Because due to Physico-chemical properties and quantity of water added while preparing takra might show appreciable benefits of it in particular diseases.

This study will significantly play a role to know the standards and righteous quality of *Takra* as no such reliable data is available at the present.

CONCLUSION

Takra acts as a probiotic which facilitates proper digestion. It is a wholesome diet for all the human beings. The beverage also takes care of skin inside out. According to physicochemical profile, *Takra* should be given in particular diseases with particular *Anupana*. *Takra* Should be given according to the *Bala, Ritu, Agni* and *Dosha*. After knowing the *Agnibala* of the person particular amount of water is to be added in curd while churning. Because Less the viscosity of *Takra* easier to digest. Hence, one has to use *takra* in proper manner so that it will definitely act as the nector on the earth.

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