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Research Article

EXPERIMENTAL EVALUATION OF *TRISHNAHARA* (THIRST RELIEVING) PROPERTY OF *TAKRABHEDA* (BUTTERMILK) MENTIONED IN BHAVAPRAKASHA IN *GREESHMARITU*

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ABSTRACT

Takra is one of the important *Paniya* (drinks) in Indian culture. It is common drink used abundantly especially during the summer season. The main reason for its ample usage as a drink during summer might be the sudden relief it provides to the thirst and fatigue due to extreme heat. Literature review on the Ayurvedic concept of *Takra* shows it possesses *Ushna Veerya* and *Amla Vipaka*, which in turn increases the *Pitta* inside the body and will leads to thirst rather than decreasing thirst especially in *Greehma Ritu*. Thus, there exist a paradox in the literature and practice. Thus a study was conducted to find out the *Trishnahara* property of *Takrabheda* in *Greeshma Ritu*.

In the experiment total intake of water by each group after administering specific variety of buttermilk were calculated. The study was conducted during *Greeshmaritu* in wistar albino rats. Numbers of groups were six which included *Ghola, Matita, Takra, Udasvit Caccika* and Control**.** statistical analysis was done by ANOVA followed by Dunnet multiple comparison as post hoc test, if $p<0.05$ using graph pad instant software and by ANOVA followed by Tukey Kramer as post hoc test, if $p<0.05$ using graph pad instant software.

It is concluded that *Takrabheda* is not having *Trishnahara* property when compared with the control group in *Greeshma Ritu* because of its *Ushna, Ruksha Guna* of *Takrabheda*. But in *Vasanta Ritu,* Acarya advised the intake of *Dipana*, *Laghu* and *Ruksha Ahara*. So, *Takra* can be an effective *Paniya* during *Vasanta Rithu*.

INTRODUCTION

Many article shows *Takra* as a thirst quencher[1] and is one of the drink which is used by the people of India especially during summer[2]. It is available in different names in different part of the country viz., *Chas*, *Sambhara* etc. In *Ritu Charya Adhyaya* Acharya Vagbhata mentioned the characteristics of drinks to be taken during different *Ritus*. In *Greeshma Ritu Charya* (regimen during summer season) it is advised to avoid *Katu Amla Lavana Rasa* and suggested to take *Laghu*, *Snigdha*, *Hima* and *Drava Ahara*[3]. Out of these qualities *Takra* satisfies only *Laghu Guna*[4]. But in practice *Takra* is used as a drink to pacify thirst (*Trishnahara)* especially during *Greeshma Ritu*. There exist a paradox in the literature and practical aspect. The study is conducted in the *Greeshma Ritu* to find the *Trishnahara* property of *Takrabheda*

MATERIALS AND METHODOLOGY[5]

Standardisation of procedure for preparation of *Takrabhedas*

The milk used for the preparation of the *Takrabhedā* was procured from the Safa Farm, Chudalapaara, and Kottakkal. A cow was selected and milk was collected from that particular cow every day at same time, at 3 pm and it was boiled in vessel by keeping it over water in a sterilizer and was allowed to cool down to 37°C. At that particular

temperature the milk was inoculated with two buttermilk starter cultures designated as *L.acidophilus* and yogurt culture (5ml of *L. Acidophilus* and 5 ml of yogurt culture for 1000 ml of milk) inoculation was done at 9 pm and kept overnight kept for 15 hours and pH of the buttermilk was continuously observed with pH meter and when the pH became 4.5, the curd obtained was taken and churned using *Mathana Yantra*. The churning time was standardized as 30 minutes, (as after 30 minutes of churning when buttermilk samples were analyzed for fat content it was nearly 0.1-0.2%).

***Ghōla*[6]:** Churned for 30 minutes without addition of water and butter was not removed.

***Mathita*:[6]** Churned for 30 minutes without the addition of water and removed the butter.

***Takra*:[6]** Churned for 30 minutes by adding 25ml of water for 100ml of curd and removed the butter.

***Udaśvit*:[6]** Churned for 30 minutes by adding 50ml of water for 100ml of curd and removed the butter.

***Caccika*:[6]** churned for 30 minutes by adding 100ml of water for 100ml of curd and removed the butter.

Experimental Study

The study was conducted in Wistar albino rats. Numbers of groups were six which included *Ghola, Matita, Takra, Udasvit Caccika* and Control. Number of rats in each group were 6. Doze of drugs were fixed according to the Pagets and Barns formula and was 27ml. Study was conducted in two phases Phase I: Preliminary Phase (5 days) and Phase II: Experimental Phase (next 10 days).

In preliminary phase only food and water were given and in Experimental phase drugs were given.

Preliminary Phase

Rats were placed in separate metabolic cages. 100 gram of food and 150ml of water were measured and given to each rats separately. Measurement was done on a particular time every day (9:00am). In this phase, daily water intake, was measured on routine basis. The procedure was continued up to 5 days.

Experimental Phase

In this phase animals was administered the drug as per the calculated doses. Experiment was done successively in the order of *Ghōla*, *Mathita*, *Takra*, *Udaśvit* and *Caccika.* Daily intake of water was measured for ten consecutive days.

Statistical Analysis

Result was statistically analyzed by ANOVA followed by Dunnet multiple comparison as post hoc test, if $p<0.05$ using graph pad instant software and by ANOVA followed by Tukey Kramer as post hoc test, if $p<0.05$ using graph pad instant software.

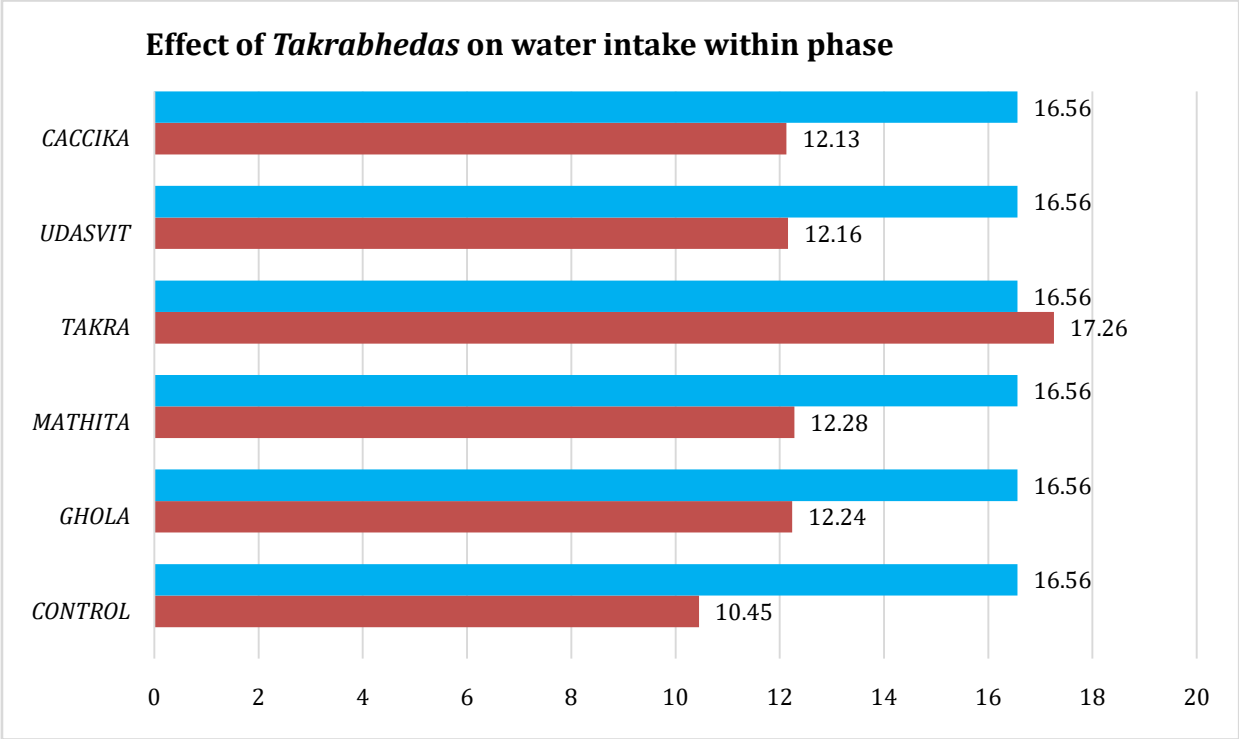
Effect of *Takrabhēdās* on Water Consumption with Data Presented in Relative Values Comparing With Control

Table no.1: One way ANOVA of Relative Water consumption with control:

	Water consumption in ml/100 g body weight				
	P Phase Mean±SEM	**T Phase Mean± SEM**	**% change**	**Value of Sig.**	**P value**
Control	16.56±0.49	10.45±0.57##			
Ghōlam	16.56±0.49	12.24±0.85#	17.1↑	NS	P>0.05
Mathitam	16.56±0.49	12.28±0.32##	17.5↑	NS	P>0.05
Takra	16.56±0.49	17.26±1.33**	65.1↑	**	P<0.01
Udaśvit	16.56±0.49	12.16±0.73##	16.3↑	NS	P>0.05
Caccika	16.56±0.49	12.13±1.37##	16.07↑	NS	P>0.05

**P<0.01-Compared with control # P<0.05, ##P<0.01-Compared with preliminary phase

Graph no.1: Comparison of relative Water consumption with control



The data shows there is increase water consumption in the therapeutic phase of *Ghōla* group when compared to the therapeutic phase of control; the observed result was statistically non-significant. There is a statistically non- significant increase in the water consumption in therapeutic phase of *Mathita Udaśvit* and *Caccika*, when compared to the therapeutic phase of the control group. *Takra* group showed statistically very significant increase in the water consumption in therapeutic phase, when compared to the therapeutic phase of the control group. There is a statistically significant decrease in the water consumption in therapeutic phase of *Ghōla* when compared to the preliminary phase of the same group. There is a significant decrease in the water consumption in the therapeutic phase of *Mathita Udaśvit. Caccika* when compared to the preliminary phase of same group the observe result was statistically very significant. There is statistically non-significant increase in the consumption of water in the therapeutic phase of *Takra* group when compared to the preliminary phase of the same group.

Effect of *Takrabhēdās* on Water Consumption with Data Presented in Relative Values Comparing Within the Group

Table 2: One way ANOVA of Relative Value of Water Consumption within group

Group	P Phase MEAN±SEM	T Phase MEAN± SEM
Ghōla	16.56±0.49	12.24±0.85#
Mathita	16.56±0.49	12.28±0.32##
Takra	16.56±0.49	17.26±1.33**
Udaśvit	16.56±0.49	12.16±0.73##
Caccika	16.56±0.49	12.13±1.37##

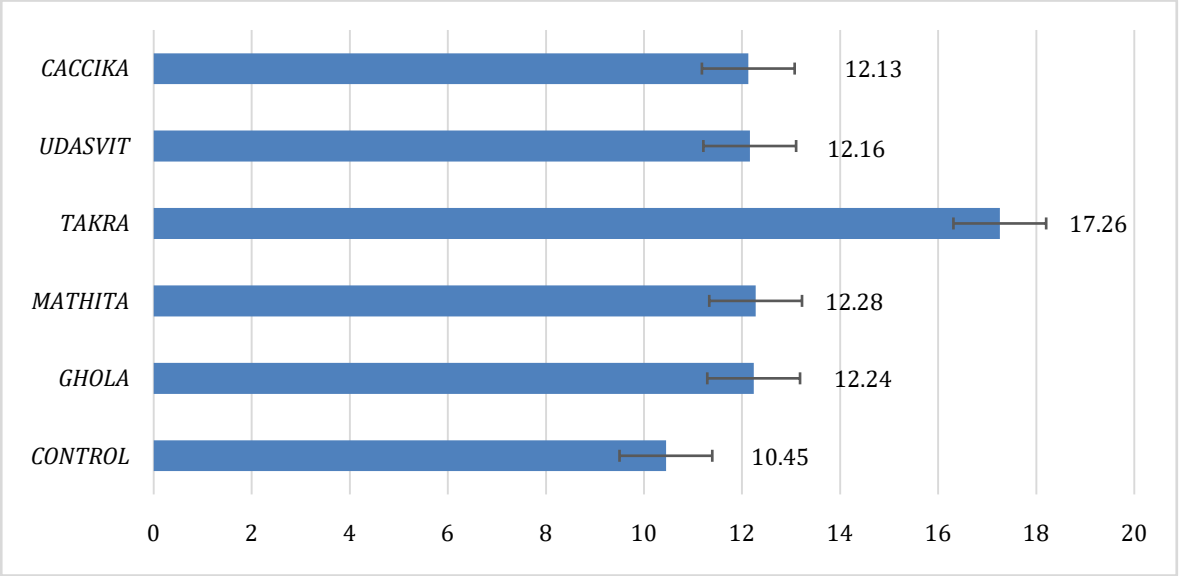
P<0.01-Compared within group, P<0.05, P<0.01-Compared with preliminary phase

Table 3: Post Hoc Test of Relative Value of Water Consumption within group

Group	Group v/s	Value of Sig.	P value
Ghōla	*Mathitam*	NS	P>0.05
	Takra	***	P<0.001
	Udaśvit	NS	P>0.05
	Caccika	NS	P>0.05
Mathita	*Takra*	***	P<0.001
	Udaśvit	NS	P>0.05
	Caccika	NS	P>0.05
Takra	*Udaśvit*	***	P<0.001
	Caccika	***	P<0.001
Udaśvit	*Caccika*	NS	P>0.05

P<0.0001 and it is considered as extremely significant.

Graph no.2: Comparison of Relative Value of Water Consumption within group



Comparing to *Ghōlam*, *Mathitam* showed non-significant increase, *Takra* showed significant increase and *Udaśvit* and *Caccika* showed non-significant decrease in water intake. Comparing to *Mathitam*, *Takra* showed significant increase and *Udaśvit* and *Caccika* showed non-significant decrease in water intake. Comparing to *Takra*, *Udaśvit* and *Caccika* showed significant reduction in water intake. Comparing to *Udaśvit, Caccika* showed non-significant decrease in water intake.

RESULT AND DISCUSSION

It is concluded that *Takrabheda* is not having *Trishnahara* property when compared with the control group. This shows *Takra* possesses *Trishnahara* property but is not good as that of water. The practice of intake of *Takra* (buttermilk) especially in form of *Caccika* is quite common among people. This might be reducing the thirst by the virtue of its *Dravatwa* (liquidity) but its *Ushna Veerya* and *Amla Vipaka* can contribute into increase in body heat and thirst later. During summer season Acharya suggested to avoid *Katu Amla Lavana Rasa Ahara* and recommended the intake of *Laghu*, *Snigdha*, *Hima*, *Drava Ahara*[3]. In general *Takra* is *Amla Rasa Pradhana* and possesses *Ruksha*, *Ushna* properties.[4] This can be the reason for its decreased *Trishnahara* property when compared to control. But comparing to the preliminary phase the decreased water intake suggests that, *Takra* can be used as a thirst reliever but not as a first choice during *Greeshma Ritu*.

Within group studies suggest that among the five varieties *Caccika* is the best form followed by *Udasvit Ghola* and *Matita*. The possible reason could be the maximum *drava* and *Sita*[5] properties of *Caccika* among the five varieties of *Takra*.

CONCLUSION

In *Greeshma Rithu* Acharya recommended the intake of *Laghu*, *Snigdha*, *Hima*, *Drava Ahara*. *Takra* is not having any of this property. The present study also suggests that *takra* is not having *Trishnahara* property during the *Greeshma Ritu*. But in *Vasantha Rithu Charya*, Acharya advised the intake of *Ahara* and *Paniya* which are *Dipana*, *Laghu* and *Ruksha* So, *Takra* can be an effective *Paniya* during *Vasanta Rithu*.

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