



ISSN (E): 2277- 7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.03  
TPI 2018; 7(3): 569-571  
© 2018 TPI  
www.thepharmajournal.com  
Received: 22-01-2018  
Accepted: 23-02-2018

**Honest Pramjeet Simon**  
Lecturer, Warner College of  
Dairy Technology Sam  
Higginbottom University of  
Agriculture Technology and  
Sciences, Allahabad,  
Uttar Pradesh, India

**Dr. Ramesh Chandra**  
Professor, Warner College of  
Dairy Technology Sam  
Higginbottom University of  
Agriculture Technology and  
Sciences, Allahabad, Uttar  
Pradesh, India

**Dr. Shanker Suwan Singh**  
Assistant Professor, Warner  
College of Dairy Technology Sam  
Higginbottom University of  
Agriculture Technology and  
Sciences, Allahabad,  
Uttar Pradesh, India

#### Correspondence

**Honest Pramjeet Simon**  
Lecturer, Warner College of  
Dairy Technology Sam  
Higginbottom University of  
Agriculture Technology and  
Sciences, Allahabad,  
Uttar Pradesh, India

## Evaluation of physico-chemical analysis of probiotic herbal yoghurt

**Honest Pramjeet Simon, Dr. Ramesh Chandra and Dr. Shanker Suwan Singh**

DOI: <https://doi.org/10.22271/tpi.2018.v7.i3i.1811>

#### Abstract

Yoghurt becomes a functional food upon incorporating probiotics live micro-organism which we administered confer health benefits. Probiotics are fermentable fiber's that nourish beneficial microflora enhances the functionality of probiotics. The research was conducted to determine the effect of different concentration of Ginger & Garlic extract on physicochemical analysis of yoghurt was prepared by standardised milk having 4.5% & 12 SNF with herbs & Ginger 1.0-1.5 & Garlic 0.2-0.4% respectively. The research analysis was carried out of each sample to its different parameters such as (Moisture, fat, protein, total solids acidity and sensory evaluation) of the prepared yoghurt was carried out.

**Keywords:** Garlic, ginger, yoghurt, physicochemical analysis, *Sithermophilus*, *Rhommosus*

#### Introduction

Probiotic yoghurt is considered worldwide for its nutritional and health benefits are well known for centuries. The probiotics is described as a substance secreted by one organism that stimulates the growth of another, (Lilly & Stillwell, 1965) [4]. Probiotic have been found to be effective in the treatment of some gastrointestinal diseases as an anotomy for antibiotics has emerged, for the term probiotic have been porposed by Fuller (1991) [3]. Many reports studied ginger used to fortify dairy products. (Okwute LO, Olafiaji B; 2013) [8] Revealed that incorporating ginger into Ogi (Nigerian traditional fermented food) significantly reduced its microbial load during fermentation which helps to improve its nutritional quality and the prevention of food borne diseases. Ginger is available in May form, but here, we have focused on the use of its fresh juice that is very potent as it contains high levels of active enzyme and substance. It is noteworthy that ginger juice contains gingerols (Nakamura *et al.* 1982) [7], which were reported as bacterial substances (Mahady *et al.* 2003) [5] and thus may be have adverse effects on the fermentative properties when adding it into yoghurt. One of the most widely researched medicinal plants and spice that has been used as both medicine and food in many civilizations for more than 400 years is garlic (*Allium sativum*). The *Codex Ebers*, dating to about 1550 B. C is an Egyptian medical papyrus that gives more than 800 therapeutic formulas, of which 22 of them mention garlic as an effective remedy for a variety of disorders including headache, heart problems, tumors, bites and worms (Milner 1996) [6].

#### Material and Method

Fresh buffalo milk was used for preparation of yoghurt. Milk composition was adjusted to achieve the desired fat and solid non-fat content (4.5% fat and 12% SNF) SMP was added to increase the amount of whey protein to desirable texture. Different concentration of Garlic (0.2-0.4%) and Ginger (1%-1.5%) added in standardized milk. The milk was pasteurized at 185° F (85 °C) for 30 minutes. The milk was cooled to 108°F (42 °C) favourable temperature for the growth of started culture. The started cultures (St. Thermophilus. L. Rhomonsus) were inoculated. Ginger rhizome & Garlic extracts is different concentration of 1-1.5%, 0.2-0.4% were added & rotate the milk were hold at 108(42 °C) until PH 4.5 is reached. Then allow the fermentation to settle in gel form & produce yoghurt flavour, it takes 6-7 hrs. After setting yoghurt is placed in store at 6 °C.

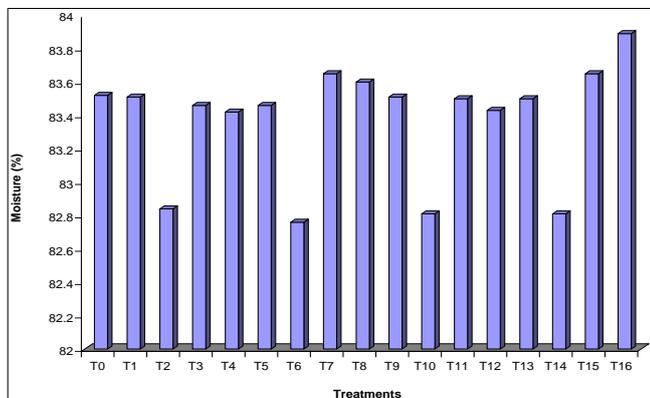
**The physicochemical analysis was carried 3 days interval during storage.**

- 1. Fat:** Fat was determined by using Gerber method
- 2. Total Solids:** The determination of the total solids of the sample was done gravimatrially as per procedure for milk laid down in IS-1475 part 1

3. **Moisture:** The moisture percentage of herbal yoghurt was determined as per AOAC (1990) [2]
4. **Ash:** The total Ash was determined according to AOC (1975)
5. **Lactose:** The Lactose content of formulated processed cheese spread was determined by Lane Eynon method as per IS: SP:18, Part X11(1981)
6. **Protein:** The protein content of herbal yoghurt is determined by Kjeldahl method described in AOAC (1990) [2]

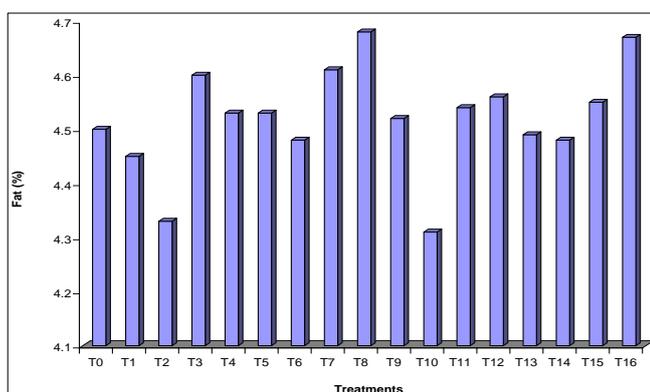
**Results and Discussion**  
**Physiochemical Analysis**  
**Moisture**

It is evident from the fig. 1 that the highest average value of moisture content was obtained in the treatment T<sub>16</sub> Ga=0.4% garlic extract + St. thrmophilus + L. rhamnosus 1:2@ 2% (83.89) whereas lowest value of moisture content was obtained in the treatment T<sub>6</sub> Gg=1.5% ginger extract + St. thrmophilus + L. rhamnosus 1:2@ 1.5% (82.76).



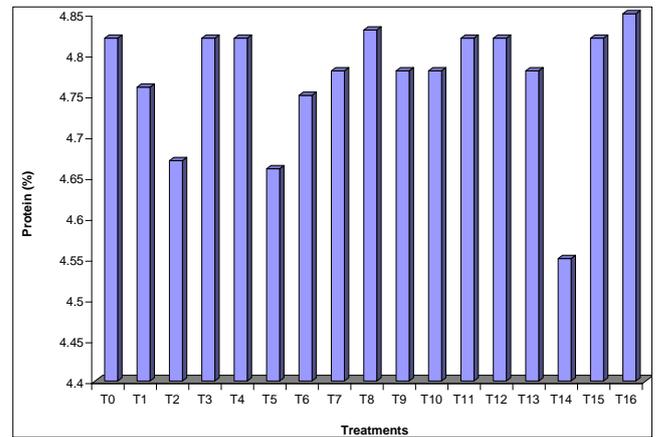
**Fig 1:** Average Moisture (%) in Probiotic Herbal Yoghurt Fat

It is evident from the fig. 2 that the highest average value of fat content was obtained in the treatment T<sub>8</sub> Ga=0.4% garlic extract + St. thrmophilus + L.rhamnosus 1:2@ 1.5% (4.68%). Whereas lowest value of fat content was obtained in the treatment T<sub>10</sub> Gg=1.5% ginger extract + St. thrmophilus + L. rhamnosus 1:1@2% (4.31).



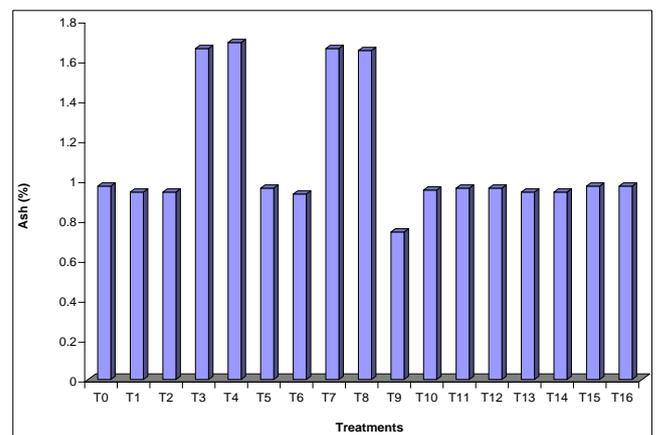
**Fig 2:** Average Fat (%) in probiotic herbal yoghurt Protein

It is evident from the fig. 3 That the highest average value of protein content was obtained in the treatment T<sub>16</sub> Ga=0.4% garlic extract + St. thrmophilus + L. rhamnosus 1:2@ 2% (4.85). Whereas lowest value of protein content was obtained in the treatment T<sub>14</sub> Gg=1.5% ginger extract + St. thrmophilus + L. rhamnosus 1:2@ 2% (4.55).



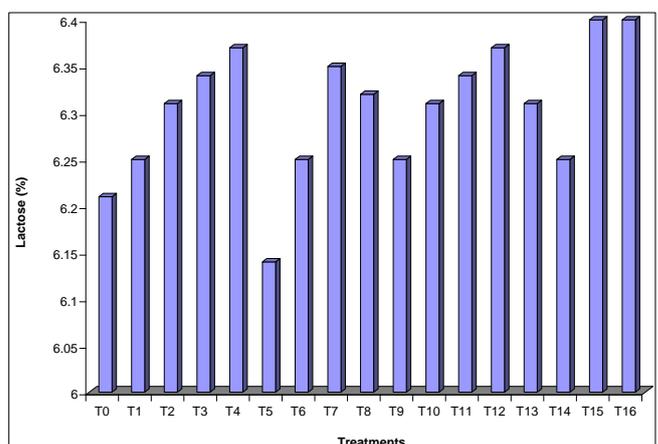
**Fig 3:** Average Protein (%) in probiotic herbal yoghurt Ash

It is evident from the fig. 4 that the highest average value of ash content was obtained in the treatment T<sub>4</sub>Ga=0.4% garlic extract + St. thrmophilus + L. rhamnosus 1:1@ 1.5% (1.69). Whereas lowest value of ash content was obtained in the treatment T<sub>9</sub> Gg=1% ginger extract + St. thrmophilus + L. rhamnosus 1:1@ 2% (0.74).



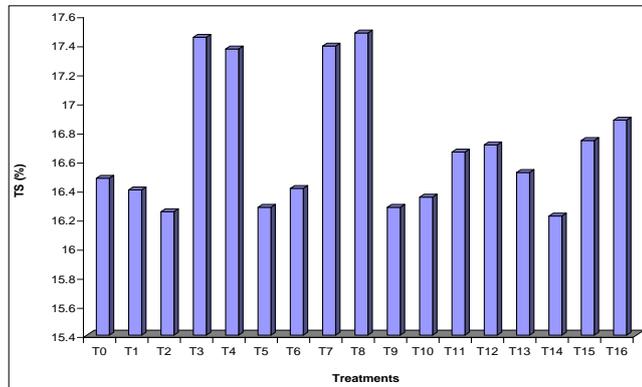
**Fig 4:** Average Ash (%) in probiotic herbal yoghurt Lactose

It is evident from the fig. 5 that the highest average value of lactose content was obtained in the treatment T<sub>15</sub> Ga=0.2% garlic extract + St. thrmophilus + L. rhamnosus 1:2@ 2% and T<sub>16</sub>Ga=0.4% garlic extract + St. thrmophilus + L. rhamnosus 1:2@ 2% (6.40). Whereas lowest value of lactose content was obtained in the treatment T<sub>5</sub> Gg= 1% ginger extract + St. thrmophilus + L. rhamnosus 1:2@ 1.5% (6.14).



**Fig 5:** Average Lactose (%) in probiotic herbal yoghurt Total Solids

It is evident from the fig. 6 that the highest average value of TS content was obtained in the treatment T<sub>15</sub> Ga=0.2% garlic extract + St. thrmophilus + L. rhamnosus 1:2@ 2% and T<sub>8</sub> Ga=0.4% garlic extract + St. thrmophilus + L. rhamnosus 1:2@ 1.5% (17.48). Whereas lowest value of TS content was obtained in the treatment T<sub>14</sub> Gg=1.5% ginger extract + St. thrmophilus + L. rhamnosus 1:2@ 2% (16.22).



**Fig 6:** Average TS in probiotic herbal yoghurt

### Conclusion

It can be concluded from our research that by incorporation of ginger 1 & 1.5 percentage and garlic 0.22 & 0.4% resulted garlic significantly increased percentage of moisture & fat T<sub>16</sub> & T<sub>8</sub> as comparison with other treatments. The highest protein of probiotic yoghurt is seen in T<sub>8</sub> and T<sub>16</sub>. The data on comparison between of lactose content shown significantly increased in T<sub>16</sub> and T<sub>5</sub> as compared with other treatments. It can be deduce from research obtained that the addition of two herbs garlic and ginger level improve the taste and flavour, colour and appearance, body texture and wide acceptability of probiotic herbal yoghurt.

### Reference

1. AOAC. Official Methods of Analysis, 13th ed. Association of Official Analytical Chemists, Washington, D. C, 1980, 51.
2. AOAC. Official Methods of Analysis, 15th ed. Association of Official Analytical Chemists, Washington, D. C, 1990; 200-210.
3. Fuller R. Probiotics in human medicine. Gut. 1991; 32:439-442.
4. Lilly DM, Stillwell RH. Probiotics: growth-promoting factors produced by microorganisms. Science. 1965; 147:747-8.
5. Mahady GB, Pendland SL, Yun GS, Lu Z-Z, Stoia A. Ginger (*Zingiber officinale* Roscoe) and the gingerols inhibit the growth of Cag A + strains of Helicobacter pylori. Anticancer Res. 2003; 23:3699-3702.
6. Milner JA. Garlic: its anticarcinogenic and antitumorigenic properties. Nutr. Rev. 1996; 54:82-86.
7. Nakamura H, Yamamoto T. Mutagen and anti-mutagen in ginger, *Zingiber officinale*. Mutat. Res. Lett. Cross Ref Google Scholar. 1982; 103:119-126.
8. Okwute LO, Olafiaji B. The effect of ginger (*Zingiber officinale*) on the microbial load of a Nigerian traditionally fermented maize paste (OGI) American journal of Research Communication. 2013; 1(9):84-98.