



IJPPR

INTERNATIONAL JOURNAL OF PHARMACY & PHARMACEUTICAL RESEARCH
An official Publication of Human Journals

ISSN 2349-7203



NAGPURI BUFFALO MILK ANALYSIS AS PREBIOTICS FOR GROWTH OF PROBIOTICS

Abhinandan Patil^{1,2*}, Srinath Balkundhi¹, Vaishnavi Raut¹, Gaurav Ghewade², Kumar Gurakesh²

1. *School of Pharmaceutical Sciences, Sanjay Ghodawat University, Kolhapur, India.*
2. *Pollen Healthcure Pvt. Ltd. Pune, India.*

ABSTRACT

Milk plays vital role in the human daily life. Because it contains the fat, protein, vitamin, carbohydrates and minerals. It contains sodium, potassium, vitamin B6, vitamin D, vitamin C, iron, Phosphorous, casein. Most probably calcium is an important content in the milk along with casein which contains highest amount of protein. Sheep and Buffalo milk contains more amount of casein than the human milk. Daily consumption of milk can help in our growth and development. Prevents wear and tear of the body. Daily consumption of milk helps to increases the RBC count in the human body and even it makes muscles strong. It provides the energy to the body due to the presence of phosphorous in it. It controls the weight gain in body. Milk plays important role in children it helps to make their bones strong because of the nutrients present in it.

Keywords: - Probiotics, prebiotics, milk, Lactobacillus

SHORT COMMUNICATION

Milk plays vital role in the human daily life¹⁻³. Because it contains the fat, protein, vitamin, carbohydrates and minerals. It contains sodium, potassium, vitamin B6, vitamin D, vitamin C, iron, Phosphorous, casein. Most probably calcium is an important content in the milk along with casein which contains highest amount of protein. Sheep and Buffalo milk contains more amount of casein than the human milk⁴⁻⁶. Daily consumption of milk can help in our growth and development. Prevents wear and tear of the body. Daily consumption of milk helps to increases the RBC count in the human body and even it makes muscles strong. It provides the energy to the body due to the presence of phosphorous in it. It controls the weight gain in body. Milk plays important role in children it helps to make their bones strong because of the nutrients present in it⁷⁻¹¹.

On the same ground, total of 100 milk samples was collected from Nagpuri (n=100) buffalo from countryside in India. Approximately 60 ml of the milk was used for the experimentation purposes¹²⁻¹⁵. Prior to use, the milk samples were treated by ultra-high-temperature (UHT) pasteurization for 8 s in a cyclic process of 60 min time duration. Later, the collected milk samples packed in 100 ml centrifuge tube at deep freeze. FOSS milk scanTM 120 (calibrated with buffalo standards, Swabhimani dairy, India) milk analyzer was used in order to determine the total solid content (%), protein (%), casein (%), density (%), freezing point (%), fat (%) and lactose (%)¹⁶⁻¹⁸.

The components such as protein, fat, lactose, total solid content and percentage of casein in obtained in the raw milk of Nagpuri were 4.5 ± 0.51 ; 7.0 ± 0.84 ; 5.4 ± 0.65 ; 17.2 ± 1.21 ; 10.8 ± 1.20 respectively. Similarly, the protein, fat, lactose, total solid content and percentage of casein in obtained in the pasteurised milk of Nagpuri were 4.1 ± 0.41 ; 6.5 ± 0.12 ; 5.2 ± 0.32 ; 17.1 ± 1.0 ; 10.2 ± 1.11 respectively. No any significant ($p < 0.05$) changes were observed in thenutrient contents of raw and pasteurized milk of all breeds as observed in fig.1.

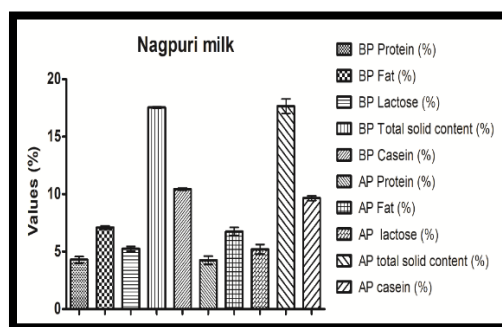


Fig 1. The physiochemical composition of Nagpuri milk

± indicate standard error of means; n=3

Various different probiotics such as *Lactobacillus plantarum*, *Lactobacillus acidophilus* and *Lactobacillus rhamnosus* were grown in milk of Nagpuri buffalo. The growth observed after 24 hours at 37°C was determined by cfu count. It was found that CFU count of *Lactobacillus acidophilus* was higher in 8×10^8 CFU/ ml as compared to *Lactobacillus rhamnosus* showing less growth of around 6×10^8 CFU/ ml ($p < 0.05$, $n = 3$) as per figure. 2.

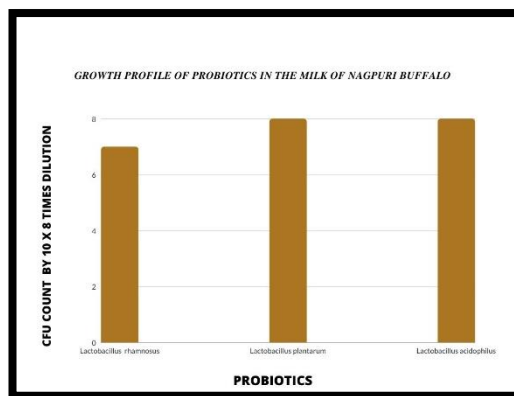


Figure.2. Determination of growth of probiotics in Nagpuri milk in form of CFU count

± indicate standard error of means; $n = 3$

REFERENCES:

1. Abhinandan, Pawar S. "Health benefits of Probiotics by Antioxidant Activity: A review". *Pharma Times* 50.9 (2018): 1-3.
2. Abhinandan Patil., et al. "Granules of unistain *lactobacillus* as nutraceutical antioxidant agent" 9.4 (2017): 1594-1599.
3. Disouza J, Patil A. "Antioxidant study and phenolic content of *Caralluma fimbriata* herb". *World Journal of Pharmaceutical Research* 3.7 (2014): 565-575.
4. Hamada S., et al. "Evaluation of the rodent micronucleus as-say by a 28-day treatment protocol: Summary of the 13th Collaborative Study by the Collaborative Study Group for the Micronucleus Test (CSGMT)/Environmental Mutagen Society of Japan (JEMS)-Mammalian Mutagenicity Study Group (MMS)". *Environmental and Molecular Mutagenesis* 37.2 (2001): 93-110.
5. Patil A, Disouza J. "Genomic-Based Restriction Enzyme Selection for Specific Detection of *Lactobacillus rhamnosus* and *Lactobacillus plantarum* strain by 16S rDNA PCR-RFLP". *International Journal of Innovative Science, Engineering and Technology* 1.1 (2020): 91-99.
6. Patil A., et al. "Shelf-life stability of encapsulated lactic acid bacteria isolated from Sheep milk thrived in different milk as natural media". *Small Ruminant Research* 170 (2019): 19-25.
7. Patil A., et al. "Evaluation of *Lactobacillus plantarum* growth in milk of Indian buffalo breeds based on its physicochemical content". *Buffalo Bulletin* 38.2 (2019): 345-352.
8. Patil A., et al. "Probiotic potential of *Lactobacillus plantarum* with the cell adhesion properties". *Journal of Global Pharma Technology* 10.12 (2018): 1-6.
9. Patil A., et al. "Complete Genome Sequence of *Lactobacillus plantarum* Strain JDARSH, Isolated from Sheep Milk". *Microbiology Resource Announcements* 9.2 (2020).
10. Patil A., et al. "Banana fibers camouflaging as a gut worm in a 6-month-old infant". *Iberoamerican Journal of Medicine* 3(2020): 245-247.
11. Patil A R. "*Lactobacillus rhamnosus* ARJD as a Functional Food with Potential Antioxidant and Antibacterial Abilities". *Acta Scientific Pharmaceutical Sciences* 3 (2019): 63-70.
12. Patil A R. "Use of Probiotics as a Functional Food against Cancer". *Acta Scientific Pharmaceutical Sciences* 3.8 (2019): 103-105.
13. Patil A R. "The role of the food and fertilizers in antimicrobial resistance in human and its preventive measures". *International Journal of Innovative Science, Engineering and Technology* 1.1 (2020): 31-37.
14. Patil A R. "The origin of novel coronavirus: COVID-19". *International Journal of Innovative Science, Engineering and Technology* 1.1 (2020): 18-23.

15. Patil A R., *et al.* “Nanotechnology based upgradation in tuberculosis diagnosis and treatment” (2020): 395-414.
16. Patil A R and Disouza J. “Isolation and characterization of *Lactobacillus* species from sheep milk”. *International Journal of Innovative Science Engineering and Technology* 1.1(2020):9-17.
17. Patil A R, Patil P. “The Insight of Body’s Immune System, Inflammation and Damages in Wound Healing- The review”. *International Journal for Research in Applied Science and Engineering Technology* 9.8 (2021): 2777-2780.
18. Patil A R., *et al.* “*Lactobacillus* Model Moiety a New Era Dosage Form as Nutraceuticals and Therapeutic Mediator”. *In Biotechnology and Bioforensics Springer, Singapore* (2015):11-21.

