Journal of Pharmacognosy and Phytochemistry

Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2019; 8(4): 1639-1640
Received: 19-05-2019
Accepted: 21-06-2019

Shweta Tripathi
Research Scholar,
RD University Jabalpur,
Madhya Pradesh, India

Nandita Sarkar
Professor, RD University Jabalpur, Madhya Pradesh, India

Meera Vaidya
Professors, RD University Jabalpur, Madhya Pradesh, India

Correspondence
Shweta Tripathi
Research Scholar,
RD University Jabalpur,
Madhya Pradesh, India

Prevalence of *E. coli* in raw milk marketed in different area of Jabalpur city

Shweta Tripathi, Nandita Sarkar and Meera Vaidya

Abstract
Present study was conducted to isolate the *E. coli* of from raw milk samples belonging to Jabalpur city. A total of 240 Raw milk Samples were aseptically collected randomly from four different areas (South Civil Lines, Medical, Aadhar Tal and Vijay Nagar Colony) of Jabalpur City. 60 Samples were collected from each area and analyzed for isolation of *E. coli* by using standard method and further confirmed by different Biochemical test. Prevalence rate of E. coli in different area was 5%, 2.5%, 6.6%, 8.33% 22.5% in Vijay Nagar, South Civil Lines, Medical, and Aadhar Tal Respectively. Overall prevalence rate of *E. coli* in milk samples obtained from all the area of Jabalpur city was 22.5%. Highest number of *E. coli* was isolated from Aadhar Tal where, out of 60 samples 20 samples were found to be positive for *E. coli*. Presence of this organism in milk indicates improper handling and storage.

Keywords: Raw milk, *E. coli*, Jabalpur, isolation & identification

Introduction
Milk is a lacteal secretion of animal. It is considered as a complete and ideal food. Milk offers a lot of nutrients and a great source of high biological value of protein, fat, minerals and vitamins. It also serves as a food for infants as well as older people too. In India, Milk is an important part of diet as its large number of population is vegetarian and milk and milk products are the only source of animal protein. As milk is nutrient rich, it also serves as an ideal medium for the growth of microorganisms. Milk is a perishable product and gets easily destroyed when handled poorly. Unhygienic handling and storage conditions of milk contribute to various pathogenic organisms which are responsible for life threatening diseases. Some of the organism are; *E. coli*, *S. aureus*, *Mycobacterium tuberculosis*, *Listeria monocytogenes* etc. out of these *E. coli* is the major contaminant in milk and milk products (Steele *et al.*, 1997) [1].

E. coli is the gram negative non motile organism and responsible for causing diarrhea, UTI, Cholangits, Cholecystis and other life threatening diseases such as neonatal meningitis and Pneumonia (Thapilyal 1999) [2]. Some of its strains are non-pathogenic too. It spreads through fecal oral route and occurrence of this organism in milk and milk products signals towards fecal contamination. So, present study was conducted to know the prevalence rate of *E. coli* in milk marketed in different areas of Jabalpur city.

Material and Methods
This study took place in Jabalpur city. Samples were randomly collected from four different area (Medical, South Civil lines, Aadhar Tal and Vijay Nagar). Total sixty samples were aseptically collected; 15 from the dairies of each area. Samples were brought to laboratory for further analysis. Isolation of *E .coli* was done from the sample of milk according to Agrawal *et al. (*2003) [3].Presumptive *E. coli* isolates were then subjected to Biochemical identification as per procedure described by and Cruikshank *et al.,* (1975) [4].

Results and Discussion
Area wise distribution of isolation of *E. coli* is depicted in table 1.In current research out of 240 samples from four different areas of Jabalpur city, 54 (22.5%) samples showed the growth of *E. coli*. 5%, 2.5%, 6.6% and 8.3% was the incidence of *E. coli* in milk samples from Vijay Nagar, South Civil Lines, Medical, and Aadhar Tal respectively. Higher incidence of this organism observed in the area of Aadhar Tal where, 20 out 60 samples were found positive for *E. coli* followed by Medical (16) and Vijay Nagar (12) localities. Whereas, lower rate of contamination with this pathogen was observed in samples from South Civil Lines i.e. 6 samples out of 60 were positive for this organism while, only 2.5% of the total (54) isolates of *E. coli* were discovered from this area.

Results for *E. coli* (22.5%) obtained in this study are in agreement with the results of Mohanti *et al*., 2013 [5] i.e. who reported prevalence of 21 % for *E. coli*. whereas, lower rate of contamination (11%) than this study, of milk samples with *E. coli* was observed by Kumar *et al*., (2010) [6] from Pantnagar. Higher results for isolation rates of *E. coli* (more than 50%) were also reported by Naqvi, (1972) [7]; Martin *et al*., (1986) [8]; Hanjra *et al*., (1989) [9]; Ahmed and Sallam, (1991) [10]; Sharma and Joshi, (1992) [11]; Adesiyun, (1994) [12]

Table 1: Area wise distribution of prevalence of *E. coli*

S. No.	Areas	Number of samples collected	No. of +ve samples of *E. coli*	Percent of positive samples
1	Vijay Nagar	60	12	5%
2	South civil lines	60	06	2.5%
3	Medical	60	16	6.6%
4	Adhartaal	60	20	8.33%
	Total	240	54	22.5%

Conclusion

Present study was aimed to know the prevalence rate of e.coli in different areas of Jabalpur city. South Civil Lines area observed the lowest contamination rate where Adhar Tal observed the highest. So from This study, it can be concluded that milk market in south Civil Lines areas is comparatively better than the rest of the area, however, it is not free from this pathogenic organism. Overall contamination rate was 22.5% which indicates fecal contamination either through polluted water adulterant or any other sources. It is very important to keep quality check on production, handling and storage of milk by various regulating authorities to ensure safe consumption of milk.

References

1. Steele ML, Mcnab WB, Poppe C, Griffiths MW, Chen S, Degrandis SA *et al*. Survey of Ontario bulk tank milk for foodborne pathogens. Journal of Food Protection. 1997; 60:1341-1346.
2. Thapaliyal DC. Diseases of animals transmissible to man, 1st Edn., International Book Distributing Co., India, 1999, 136-138
3. Agrawal RK, Bhelgaonkar KN, Singh DK, Kumar A, Rathore RS. Laboratory manual for the isolation and identification of food borne pathogens 1st Edn., Jai Ambey publishing Co., UP, 2003, 30-37.
4. Cruishank R, Duguid JP, Marmion BP, Swain RHA. Medical Microbiology, 12th Edn., Cruchill Living stone., Edinburgh, 1975, 207-215.
5. Mohanty NN, Das P, Pany SS, Sarangi LN, Ranabijuli S, Panda HK. Isolation and antibiogram of Staphylococcus, *Streptococcus* and *E. coli* isolates from clinical and subclinicalcases of bovine mastitis, Vet. World. 2013; 6(10):739-743.
6. Kumar R, Prasad A. Detection of *E. coli* and *Staphylococcus* in milk and milk Products in and around Pantnagar, Vet. World. 2010; 3(11):495-496.
7. Naqvi ZH. Studies on the microflora composite samples of milk routinely supplied to market with particular emphasis on their identification and source of origin. M.Sc. Thesis W.P.A.U., Lyallpur, 1972.
8. Martin ML, Shipman LD, Potter ME, Wachsmuth LK, Wells JG, Hedberg K *et al*. Isolation of *Escherichia coli* O157:H7 from dairy cattle associated with two cases of hemolytic uraemic syndrome. Lancet. 1986; 8514:1O43.
9. Hanjra SHMA, Khan BB. Market quality of milk in Pakistan, Dairy Technology in Pakistan. PARC, Islamabad, 1989, 58.
10. Ahmed AM, Sallam SS. Prevalence of *E. coli* serotypes in raw milk and some dairy products. Assiut. Vet. Med. J 1991; 25:93-97.
11. Sharma DK, Joshi DV. Bacteriological quality of milk and milk products with special reference to Salmonella and itspublic health significance. J Food Sci. and Tech. Mysore. 1992; 29:1O5-1O7.
12. Adesiyun AA. Bacteriological quality and associated public health risk of pre-processed bovine milk in Trinidad. Intr. J Food Microbiol. 1994; 21:253-261.