IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

TO ASSESS THE MICROBIOLOGICAL QUALITY OF STREET VENED PINEAPPLE JUICES AVAILABLE IN LOCAL MARKET AT DEHRADUN

Aakriti Mattoo & Dr. Garima Kumari
Student & Assistant Professor
Department of Microbiology
BFIT Group of Institution, Dehradun, India

Abstract : This study assessed microbial load and source of contamination of unpacked fruit juices served in Dehradun market. The microbial analysis of freshly prepared pineapple juice sold in the market of Dehradun. The bacterial and yeast count has been done by spread plate method and pour plate method. Globally, unpacked fruit juices are consumed daily as part of our meal or alone. The most commonly served fruit juices are mango, pineapple, watermelon etc. however these juices are beneficial to consume, their safety is public health concern due to their suitability in supporting bacterial growth. Food borne disease caused by improper food handling practices bring about dreadful disease that has an adverse effect on human life. The study was conducted to assess the microbial quality of street vendors fruit juice and investigate the knowledge, attitude and practice of the street vendors who sell fruit juices. Microbial population of selected juices were assessed by total viable count and total coliform count. Street vendors should take food safety training given by the government, so that they will gain knowledge about hygienic practices consumer should be made aware of foodborne illness like hepatitis, typhoid, cholera etc. Our result clearly, suggest that juice at local market contained various type of contamination and such type of pineapple juice is not good for health.

INTRODUCTION

Fruits are a part of our daily consumptions. All over the world, in everyone's diet chart it is always included as a whole fruit, juice, beverage or still drink etc. The world consumed 117.7 billion gallons of industrialized still drinks. Of the total volume, 77% were consumed in 40

countries, with 23.5 million litres in the juice category, 42 million in the category of still drinks, and 35 million in the category of powdered and concentrated juices. Fruit juices contain antioxidants, vitamins, and minerals that are essential for human being and they play important role in the prevention of heart diseases, cancer, and diabetes. Fruit juices contain essential nutrients which support the growth of acid tolerant bacteria, yeasts, and molds. In recent years, the increasing consumer awareness has emphasized the need for chemically and microbiologically safe food.

The causative agents of microbiological spoilage in fruits and fruit juices can be bacteria, as well as yeasts and molds. The main spoilage agents can be considered as due to the low pH of most fruits. Some bacteria such as Campylobacter spp., E.coli, Salmonella spp., Listeria monocytogenes, Staphylococcus aureus, Shigella spp, Erwinia spp., Enterobacter spp., Alicyclobacillus spp., Propionibacterium cyclohexanicum, Pseudomonas spp., and lactic acid bacteria can cause spoilage in fruit and fruit juices (Walker and Phillips, 2008). Certain common molds such as Penicillium spp., Aspergillus spp., Eurotium spp., Alternaria spp., Cladosporium spp., Paecilomyces spp., and Botrytis spp. have been shown to be involved in the spoilage of fresh fruits (Lund and Snowdon, 2000).

So, aim of present study is comparative study of microbial contamination in fruit juices in local market at Dehradun.

RESEARCH METHODOLOGY

Local market juice samples were purchased from Premnagar and Suddhowala at Dehradun city. These samples were collected in air tight containers and putted in refrigerator into the laboratory where they were immediately examined for microbiological analysis.

Beakers were rinsed with water and ethanol, dried and labelled. After rinsing the pH meter with distilled water it was dipped into beaker poured with juice sample. After thirty second the reading of pH meter was noted down and the pH meter was rinsed with distilled water and ethanol, dried and switched off.

1ml of juice sample was serially diluted were placed on nutrient agar plates by spread plate method and pour plate methods. The NAM plates were then incubated at 37ºC for 24 hours. The total colony counts were determined on plate count agar (PCA) by spread plate method for bacteria and plates were incubated at 37ºC and the colonies were counted after 48 hours of incubation.

Isolated strains were characterized on the basis of biochemical tests (Holt et al., 1994).

RESULTS AND DISCUSSION

Although fruit juices are potential for human health, but over their hygiene, safety and quality much concerns have been raised in present scenario. In local market as well as in home people only think about the nutritional benefits but not quality of the juice.

Pineapple juice at suddhowala showed more microbial count as compared to premnagar, Dehradun. Total viable count of microorganisms in pineapple juice was variable in suddhowala and premnagar. Suddhowala total viable count was 420 bacteria, 240 yeasts. But less total viable count of microorganism in juice which was collected at premnagar i.e. 200 bacteria, 145 yeasts. These strains were characterized on the basis of microscopy and biochemical tests.

Result suggest that pineapple juice collected at suddhowala may contain Pseudomonas aeruginosa, Escherichia coli and Staphylococcus aureus. But Salmonella sp. was isolated from pineapple juice at premnagar.

Similarly aneja et al. (2014) examined 30 juice samples and isolated 25 species including 9 bacterial isolates, 5 yeast isolates and 11 mold isolates. Aspergillus flavus and rhodotorula mucilaginosa were observed in the maximum number of juice samples. Among bacteria, Bacillus cereus and Serratia were dominant. Escherichia coli and Staphylococcus aureus were detected in few samples (Aneja et al.,m 2014). Similarly, other report confirmed that fruit juice contained various microorganisms (Raybaudi-Massila et al., 2009, Castillo et al., 2016, Ogodo et al., 2016, Nma et al. 2017, Beuchat (1996), Beuchat, 2002, Brayant, 2007).

Table 1. pH Measurement

Sample	pH Measurement
Pineapple 1	2.51
Pineapple 2	3.91

ACKNOWLEDGMENT

I take this opportunity to thank the Almighty GOD. I would like to express my sincere and warm hearted gratitude to my mentor Dr. Garima Kumari, Assistant Professor, Microbiology, BFIT Group of Institutions, Dehradun for professional guidance, advice and immense support throughout my research work.

I would also like to express warm hearted gratitude to IJNRD Publications for publishing my research paper.

Also, I would like to pay my regards and gratitude to my beloved family for their moral and financial support.

REFERENCES

[1] Aneja, K.R. (2014). Microbes associated with freshly prepared juices of citrus and carrots. International Journal of Food Microbiology, 14: 1-7.

[2] Hariyadi, R.D. (2013). Microbiological Quality and Safety of Fruit J uices. Food Review International, 1:54-57.

[3] Sandeep, M., Diwakar. A. and Abhijit, G. (2002). Microbiological Analysis of Street Vended Fresh squeezed Carrot and Kinnow-Manderian Juices in Patiala City, India. International Journal of Food safety, 3: 1-3.