MICROBIOLOGICAL QUALITY EVALUATION ON POTATO CHIPS IN VARANASI
CITY OF UTTAR PRADESH

National Facility for Tribal and Herbal Medicine, Institute of Medical Sciences, Banaras Hindu University, India.

*Corresponding Author: Dr. Satya Prakash.
National Facility for Tribal and Herbal Medicine, Institute of Medical Sciences, Banaras Hindu University, India.

ABSTRACT
Microbial analysis is an essential part of food safety. Confidence in the safety and integrity of the food supply is an important requirement for consumers. In the present study an attempt was made to assess the bacteriological quality of potato chips. The objective of the study is to determine the bacteriological quality of the market available potato chips collected from Varanasi city. For microbiological test sample were used in triplicate form. Specific culture media were used for identification of microbes (Bacteria). For the identification and microbial analysis culture media were used and for confirmation of gram positive bacteria gram staining have done. Number of gram positive seen in potato chips. The selected isolates were characterized based on morphological, biochemical and physiological characteristics. Aim of find out microbial quality evaluation in all market available potato chips.

KEYWORDS: Bacteria, Potato chips, Gram positive, Gram negative.

INTRODUCTION
In the Global food market, confectionary industry play essential role. It represent wide array of confectionary such as potato chips Candies, Jam, Jelly, Toffee, Fudge etc. today, most of the people depend on snacks for a significant portion of their nutritional requirements. This is common among young generations – “the youths” (singles and students) with our young ladies occupying the greatest proportion of this class. A snack is seen in western culture as a type of food not meant to be eaten as a main meal of the day like breakfast, lunch or dinner but rather to assuage a person’s hunger between meals, providing a brief supply of energy for the body (James, A. S., 2005). Snacks are ready-to-eat food, raw or cooked, hot or chilled but ready for immediate consumption at the point of sale without further treatment (Tsang, O. 2002).

The street food is a growing sector in many developing countries in the last decades with linked to urbanization. It is now widely recognized by food and health agencies to possess a huge socio-economic power. The sector therefore, has an immense employment and income generating potential (Thilde, 2006).

Most street vended foods are snack items (foods that are consumed especially between lunch and dinner). One of the more popular snacks is potato chips. Potato chips are piece of potato which have been sliced extremely thin and then fired or baked until they become crisp and ready to eat (Tambeker et al., 2011). Hygienic and quality potato chips preparation is vary from processor to processor (Jackson and Berga, 2003; Ndungu, 2007). Food hygiene requires clean environment at every stage of the food preparation process because microbes can be found in every where (Peter and Martin, 2011).

Since potato chips can be found easily with cheap cost and sours of income, it has important role in snack times. But the biological safety of street vended foods are always in doubt and most of ready to eat foods do not fulfill bacteriological quality standards (Mirriam et al., 2012) This is as a result of the traditional processing methods that are used in the preparation, packaging and personal hygiene of food handlers (Felglo and Sakyi, 2012). The objective of our study was microbial analysis of different confectionary product on different media and assures quality of confectionary product.

MATERIAL AND METHOD
This study has been completed in Centre for National Facility for Tribal and Herbal Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India.

SAMPLE COLLECTION AND ANALYSIS
The samples were collected aseptically in sterilized plastic bags, transferred and preserved in microbiology laboratory at 4°C refrigerator for further analysis. Ten grams of potato chips were added in to sterile stomacher...
bag containing 90 ml of buffered peptone water (13g/L peptone, 3.56g/L KH₂PO₄, 7.23g/L Na₂HPO₄, 4.3g/L NaCl) and mixed together using stomacher blander. One milliliter of each sample was taken and added into test tube containing 9 ml of normal saline (0.85% w/v) and was mixed well using vortex. Then, the serial dilution was made up to 10-15 using test tubes. After mixing each tube, 0.2 ml suspension was transferred and spread on to a sterile solid agar plates in duplicate for total viable count of bacteria respectively. The plates were incubated at 37°C for 24 hrs for bacteria. After the incubation period completed, the results of each plate having colonies were recorded and pure colonies having different morphology were subculture to test tubes containing nutrient agar slant. All the test tubes containing selected cultures were incubated for 24hrs in 37°C and after incubation; slants were preserved at 4°C for further analysis (Feglo and Sakgi, 2012).

DATA ANALYSIS
The collected and recorded data were analyzed using Excel office 2007 to determine the average cfu/g of the sample and to make tables.

Table:

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Junk Food Article (status in market)</th>
<th>No. Of Aerobic Colonies/gm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Local Chips 1 (Packed)</td>
<td>&gt;10⁹/gm</td>
</tr>
<tr>
<td>2</td>
<td>Local chips 2 (Open)</td>
<td>&gt;10¹²/gm</td>
</tr>
<tr>
<td>3</td>
<td>Local chips 3 (Packed)</td>
<td>&gt;10¹⁰/gm</td>
</tr>
</tbody>
</table>

RESULT AND DISCUSSION
Out of three samples of potato chips, the exploration of aerobic colony count reveals that all three samples were beyond the WHO permissible limits (>10⁷/gm). The detail results are shown in Table. Local Chips samples inoculate have microbial growth of rod shaped in purple colour (Gram Positive). The oval shaped microbial growth was also found in all three inoculated samples. The present Study was conducted on markets available packed potato chips and revealed that almost all the samples are in unacceptable sanitation. As the result indicated that the required quality and safety levels of the potato chips is not acceptable.

REFERENCES