Comparison of E. coli Contamination of Ground Meat (In Packaging Made From Butchers) in Urmia City Market

Amin Hashempour¹, Mostafa Gorbanzadeh², Sasan Jalil Jamshidi³*, Zahra Rasaeifar³, Morteza Taravat²
¹Young Researcher and Elite Club, Urmia Branch, Islamic Azad University, Urmia, Iran
²Veterinary faculty, Islamic Azad University, Urmia Branch, Urmia, Iran
³Department of microbiology, Islamic Azad University, Urmia Branch, Urmia, Iran

*Corresponding Author
Name: Sasan Jalil Jamshidi
Email: sasan.jj92@gmail.com

Abstract: Microbes Desirable and undesirable changes in food has been Create. Adverse changes due to food contamination and food spoilage will eventually. Many types of microbial contamination of foods under conditions that provide prepared or produced. Growth of microbes in food and material composition depends on the storage conditions. Microbes that are able to grow food, metabolic characteristics, change the taste, smell, texture and appearance to transform their products. The aim of this study is Comparison of bacterial contamination of ground meat (in packaging made from butchers) in Urmia city market. From 100 sample of Mince 50 sample are Packed and 50 samples are Prepared by the butcher of the city of Urmia In 4 ml of lactose broth medium enriched, XLD agar medium and then transferred. The following results were obtained after 24 hours. From 100 samples 21% is Salmonella, 59 percent Escherichia coli, 11 percent staphylococcus aureus and 9 percent were negative (do not grow), respectively Were isolated. Today, the proportion of red meat, poultry and eggs in human nutrition, health products is also important. One factor that would endanger the health of poultry food products, especially Salmonella is a bacteria of the Enterobacteriaceae family. On the slaughterhouse meat may be contaminated with feces and stored improperly or incompletely cooked it, survive and even reproduce it. Material and animal products like bone meal, meat meal, feather meal and blood meal fundamental role in the spread of Salmonella.

Keywords: Pollution, Ground meat, Urmia, Bacterial

INTRODUCTION

Food borne Escherichia coli O157:H7 infections continue to be a significant public health problem in the United States, causing an estimated 61,153 illnesses and 20 deaths per year [10].

Substantial monetary costs are also associated with food borne E. coli O157:H7 infections[5].

In numerous outbreak investigations and evaluations of sporadic E. coli O157:H7 infection cases, consumption of ground beef has been identified as a leading cause of infection [1, 4, 9, 10, and 12].

Approximately half of the average American’s food budget is spent on meals away from home [3, 13], and the National Restaurant Association (13) estimated that restaurant sales account for approximately 4% of the U.S. gross domestic product. More than 80% of Americans report eating out at least once per week [9, 11].

In 2004, 8.2 billion hamburgers were served in commercial food establishments in the United States [12].

E. coli O157:H7 was first recognized as a human pathogen in 1982, when it was associated with two outbreaks of bloody diarrhea in Oregon and Michigan involving the consumption of hamburgers from a fast-food chain. Since then, E. coli O157:H7 has become a public health concern worldwide, causing outbreaks in the United States, Japan, Canada, Scotland, and Argentina [16]. In 1999, the Centers for Disease Control and Prevention (CDC) estimated that 76 million food borne illnesses occur annually in the United States [17]. An estimated 62,000 cases of symptomatic E. coli O157:H7 infections occur annually in the United States due to food borne exposures, resulting in approximately 1,800 hospitalizations and 52 deaths [16]. As many as 3,000 cases may develop hemolytic uremic syndrome annually. Surveillance data indicate that the highest incidence of illness from E. coli O157:H7 occurs in children under 5 years of age [16].

The primary reservoir for E. coli O157:H7 is healthy cattle. E. coli O157:H7 can be transmitted to humans by contaminated food or water or directly from person-to-person. Food borne E. coli O157:H7 cases in the United States have been linked to contaminated
cattle-derived products such as ground beef or milk [16]. Increasingly, fresh produce (such as alfalfa sprouts or lettuce) or related products (such as unpasteurized or untreated cider or juice) have been implicated in disease outbreaks [18]. It is possible that the raw produce and related products are contaminated in the field with the feces or by water contaminated with the feces of infected animals [19].

The aim of this study is Comparison of E. coli contamination of ground meat (in packaging made from butchers) in Urmia city market.

MATERIAL AND METHODS

From 100 sample of ground meat, 50 samples are packed and 50 samples are prepared from butcher of the city of Urmia. Enriched in 4 ml of lactose broth medium and then transferred to XLD agar medium. The following results were obtained after 24 hours.

Grown colonies and harvested in the differential medium: SIM, TSI, Simmons citrate and urea agar and VP_MR act was done. After performing a differential culture medium for 24 to 48 hours incubation at 37 ° C was taken.

RESULTS

From 100 samples, 59 percent Escherichia coli, 9 percent were negative (do not grow) and 32 percent other bacteria respectively were isolated.

Table 1: Bacteria isolated from 100 ground meat (in packaging made from butchers) samples in Urmia city market

<table>
<thead>
<tr>
<th>E. coli</th>
<th>Negative</th>
<th>Other bacteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td>Made from butchers</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Total samples</td>
<td>59</td>
<td>9</td>
</tr>
</tbody>
</table>

Fig. 1: Bacteria isolated from 100 ground meat (in packaging made from butchers) samples in Urmia city market

CONCLUSION

In this study isolation of E. coli from ground meat 59 percent was reported. From this 59 percent, 36 percent from packaging and 23 percent from made from butchers isolated.

Beef fat may be added to "hamburger," but not "ground beef." A maximum of 30% fat is allowed in either hamburger or ground beef. Both hamburger and ground beef can have seasonings, but no water, phosphates, extenders, or binders added [14].

The labeling of meat food products must comply with the Federal Meat Inspection Act (FMIA) and the meat inspection regulations and labeling policies [15]. Bacteria are everywhere in our environment; virtually any food can harbor bacteria. In foods of animal origin, pathogenic (illness-causing) bacteria, such as Salmonella, Shiga-toxin producing Escherichia coli (STECs), Campylobacter jejuni, Listeria monocytogenes, and Staphylococcus aureus, cause illness [14]. These harmful bacteria cannot be seen or smelled. If the pathogens are present when meat is ground, then more of the meat surface is exposed to the harmful bacteria [14]. Also, grinding allows any bacteria present on the surface to be mixed throughout the meat.

Concluding from this study pathogen bacteria can transmitted to food and make an infection in human. For prevention from this problem can Package Hygiene and sanitation workers considered.
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