INTRODUCTION:
Food is a substance that is devoured to keep up life and development of the body. Food contains the nutrition that people and animals need to be healthy. Food can make people sick if it is contaminated by microorganisms, bad metals, or chemicals. Spoilage may occur if there is improper handling, cooking, cooling, using unhygienic utensils, and unnecessary time lag between the preparation and consumption. Bacterial food spoilage is any sensory change (tactile, visual, olfactory or flavor) which makes the food to be unacceptable for consumption. Symptoms of food borne illnesses include: diarrhea, vomiting, abdominal cramp and nausea which are caused by Staphylococcus aureus, Salmonella spp, Clostridium perfringens, Clostridium botulinum, Campylobacter, Vibrio parahaemolyticus, Bacillus cereus and Entropathogenic Escherichia coli. This work investigated for the most common bacterial species present and causative for the spoilage of the food from selected food samples. Isolated and identified bacterial species associated with food contamination and their microbial loads were determined and pursued by biochemical tests and confirmed that among 10 isolates 8 belongs to Bacillus cereus, 2 belongs to Escherichia coli. The isolated bacterial species were identified as Bacillus cereus. This investigation uncovered that road nurishments are potential vehicles for transmitting food borne diseases and their microbial loads were determined.
The public health implications of consumption of such foods were established.

**METHODS AND MATERIALS:**

**COLLECTION AND SCREENING OF RICE DEGRADING BACTERIA:**

The Rice samples containing the bacteria were collected from different areas of Guntur, Guntur District Andhra Pradesh. The rice samples were collected in sterile bags and sealed and the sample was brought to the Malineni Pharmaceutical Biotechnology laboratory. 10g portion of each food sample was homogenized and serial dilution made and examined using pour plate method (Fig-1 & Fig-2). Tenfold serial dilution of the samples was made in distilled water and 0.1ml of 10^-5 to 10^-9 dilutions were plated on different media (Fig-3). The plates were incubated at 37°C for 24 hours and observed for clearance of surrounding the colonies after incubation. The isolated colonies were streaked on Nutrient agar slants for growth and maintenance. Stock cultures were sub cultured monthly and stored at 4°C (Fig-4).

**RESULTS & DISCUSSION:**

**A. IDENTIFICATION OF RICE DEGRADING BACTERIA**

In the present study, a total of 10 isolates, which belongs to one species of bacteria were isolated from Rice sample collected from Guntur, Guntur (Dist) Andhra Pradesh. The isolated bacteria species were identified as *Bacillus cereus*. Among 10 isolates 8 belongs to *Bacillus cereus*, 2 belongs to *Escherichia coli*. The morphological and biochemical characters exhibited by bacteria are presented in Table-1.

**Table 1: morphological and biochemical tests of Bacillus cereus.**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Test</th>
<th>Bacillus cereus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Simple staining</td>
<td>Rod Shaped</td>
</tr>
<tr>
<td>2</td>
<td>Gram staining</td>
<td>Gram positive Bacilli</td>
</tr>
<tr>
<td>3</td>
<td>Motility Test</td>
<td>Motile</td>
</tr>
<tr>
<td>4</td>
<td>Indole production Test</td>
<td>Negative</td>
</tr>
<tr>
<td>5</td>
<td>Methyl Red test</td>
<td>Positive</td>
</tr>
<tr>
<td>6</td>
<td>Voges-Proskauer Test</td>
<td>Positive</td>
</tr>
<tr>
<td>7</td>
<td>Citrate utilization Test</td>
<td>Positive</td>
</tr>
<tr>
<td>8</td>
<td>Starch Hydrolysis Test</td>
<td>Positive</td>
</tr>
<tr>
<td>9</td>
<td>Gelatin Hydrolysis Test</td>
<td>Negative</td>
</tr>
<tr>
<td>10</td>
<td>Catalase Test</td>
<td>Positive</td>
</tr>
<tr>
<td>11</td>
<td>Caesin Hydrolysis</td>
<td>Negative</td>
</tr>
<tr>
<td>12</td>
<td>Oxidase Test</td>
<td>Negative</td>
</tr>
</tbody>
</table>

**B. MORPHOLOGICAL TESTS:**

**BACILLUS CEREUS:**

From morphological examination shows it is found that *Bacillus cereus* is a rod shaped gram positive bacterium with square ends and it is motile. All biochemical characters are identified through various tests which gave positive results to starch hydrolysis test, vogesproskauer, catalase test, citrate utilization and negative results to indole production test, methyl red test, gelatin hydrolysis test, casein hydrolysis and oxidase test and catalase negative. (Fig-5).

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</tbody>
</table>
C. BACTERIAL GROWTH CURVE DETERMINATION
In the present study, bacterial growth curve was determined at different intervals. Bacterial growth curve studies indicate that *Bacillus cereus* (0.95), were shows maximum growth between 2 to 4 hrs. (Table -2 & Fig-10).

Table-2 Showing the O.D (600nm) Values at different time interval of the growth of *Bacillus cereus*,

<table>
<thead>
<tr>
<th>Sample</th>
<th>No. of Time</th>
<th>O.D at 600 nm</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Bacillus cereus</em></td>
<td>0</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0.89</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0.94</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0.96</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>0.98</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>0.74</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>0.63</td>
</tr>
</tbody>
</table>

Fig-10 Showing O.D values at different time intervals of the growth of *Bacillus cereus*

D. EFFECT OF DIFFERENT PHYSICO - CHEMICAL PARAMETERS ON THE GROWTH OF BACTERIAL SPECIES
Effect of various physico-chemical parameters such as temperature, P and NaCl were studied on the growth of degrading bacteria involved was carried out during the present investigation. The results obtained indicates the effect of physico-chemical parameters on the growth of the four bacteria involved in degrading lead and mercury, namely, *Bacillus cereus*.

D.1 EFFECT OF TEMPERATURE
The bacteria *Bacillus cereus* of the present study when cultured on growth medium, have shown good growth at temperature ranging between 5 to 40 degrees C. (Table -3).

D.2 EFFECT OF P
The bacteria *Bacillus cereus* are susceptible to the pH ranging between 5.0. (Table -3)

D.3 EFFECT OF NaCl
Good growths of *Bacillus cereus* were obtained in 0 to 0.5% of NaCl solution. Growth was not observed in 2.5 and above concentration of NaCl solution. (Table -3)

Table 3: Studies on the effect of Physico-chemical parameters (Temperature, pH and NaCl) on the growth of degrading bacteria

<table>
<thead>
<tr>
<th>Factor</th>
<th>Varied Volume</th>
<th>Rice Bacillus cereus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>25</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>28</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>37</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>+</td>
</tr>
</tbody>
</table>

*Bacillus cereus* is common in soil and on vegetation and has been isolated in several countries from a wide variety of routine samples of food For example, reported an isolation rate of 47-8 % after examination of 3,888 samples of food and food ingredients in Sweden. In food poisoning outbreaks in this country the most likely source of B. cereus is the uncooked rice. The heat resistance of B. cereus during the boiling, frying or reheating of rice is important and the data presented show that organisms, presumably spores, survive cooking and are capable of germination and outgrowth. The D 1000 values of the nine spore suspensions of B. cereus studied were in the range 1-2-7-5 min., similar to those reported by 0-8-14-2 min.,5-5 min. and reported by 8-0 min., for spores heated in aqueous suspension or phosphate buffer.

The experiments described in this paper were designed to simulate the times and methods of cooking and the storage conditions used by some Chinese restaurateurs. It appears to be the practice in many Chinese restaurants and 'take-away' shops to save portions of boiled rice from bulk cooking until required for frying. The boiled rice is allowed to 'dry off' at room temperature for varying periods of time from a few hours to about 3 days, but usually overnight. The rice is then either reheated or more usually fried for a very short time with beaten egg and a small amount of oil before serving; the beaten egg is not always freshly prepared and may itself be highly contaminated with a variety of bacteria. The Chinese are reluctant to store boiled rice in a refrigerator because they say the rice grains stick together and it becomes difficult to ‘toss them’ in beaten egg during frying. In some instances the fried rice is stored at room temperature and ‘flash’ fried again before serving.

The situation is made worse by the preparation of large bulks of boiled rice which take several hours to cool down, and there are reports of the practice of adding fresh batches of boiled rice to the remains of old, which are sometimes left over from the previous day. Whether the boiled rice is allowed to dry off for varying periods of time at kitchen temperature or is left in or near a warm oven, conditions may be ideal for the germination and outgrowth of spores which have survived the boiling process.

CONCLUSION:
In the present study variations in sporulation medium and incubation conditions had little effect on the heat resistance of the spores produced and none of the spore suspensions showed any evidence of exceptional resistance to heat. Results from growth experiments in boiled rice inoculated with spore suspensions of B. cereus (BC 2, 9 or 25) showed that the optimum temperature for vegetative cell growth was between 300 and 370 C. The minimum temperature for vegetative growth was between 100 and 150 C. reported that B. cereus would grow in yeast extract phosphate broth when stored at 120 C. for a few days but not at 80 C. when held as long as 4 months. Until the methods described in this paper for the preparation and in particular the storage of cooked rice.
rice is discontinued, outbreaks of food poisoning will occur. Boiled or fried rice must not be stored under warm conditions and never at a temperature between 150 and 500 C. Under no circumstances, therefore, should cooked rice be stored at kitchen temperature for more than 2 hrs. The boiled rice is allowed to ‘dry off’ at room temperature for varying periods of time from a few hours to about 3 days, but usually overnight. The rice is then either reheated or more usually fried for a very short time with beaten egg and a small amount of oil before serving; the beaten egg is not always freshly prepared and may be highly contaminated with a variety of bacteria. This investigation uncovered that road nourishments are potential vehicles for transmitting nourishment borne diseases in and nearby surrounding areas in Guntur.

REFERENCES