

REPORT ON VALUE ADDED PROGRAM 2024

Ramaiah College of Arts, Science and Commerce under the department of Microbiology conducted value added programme for 2nd semester students from June -august 2024 under the title FOOD QUALITY CONTROL – QUALITY ASSURANCE OF FOODS, FOOD ADULTERANTS, HACCP AND FOOD AUDITING.

OBJECTIVES

1. To learn about Biosafety labs, HACCP and Containments levels in food industry.
2. To analyze chemical adulterants in food and microbiological food contaminants
3. To study Standard Food safety limits and basic Food auditing techniques

Modules included under this program:

Module 1- Biosafety in Microbiology Laboratory

Module 2- Microbiological standards of unprocessed foods and crudely processed foods

Module 3 - Methods for Detection of common Adulterants in foods:

Module 4 - HACCP, Quality Control and Quality Assurance:

Module 5 : Microbiological Standards for processed foods

Module 6 - Food Auditing :

This program consisted of multiple experiments from 6 groups with approximately 5 members from each group. Each group had specific methodology, sample space and specific media. Diverse range of samples were collected from various outlets, air exposure was also conducted at different outlets using air exposure plates the plates were incubated and checked for the results

Group 1

sample set 1 included condiments such as jam, ketchup, and mayonnaise, which were cultured on potato dextrose agar (PDA) to assess fungal growth. Potential fungal contaminants in these products include molds like *Aspergillus*,

Penicillium, and yeasts. Additionally, bacteria such as Bacillus spp. (Gram-positive bacilli), Staphylococcus spp. (Gram-positive cocci), and Enterobacteriaceae (Gram-negative bacilli) were present, especially products were not stored or handled properly.

Sample set 2 consisted of equipment from a butcher shop, including chopping boards, storing utensils, and knives. These samples were cultured on Salmonella Shigella media to detect potential bacterial pathogens. Common bacterial contaminants in such settings include (Gram-negative bacilli), Escherichia coli (Gram-negative bacilli), Staphylococcus aureus (Gram-positive cocci), (Gram-positive bacilli). Fungal contaminants like Aspergillus, Penicillium, and yeasts were present, especially if the equipment is not cleaned and sanitized regularly.

Group 2

The samples analyzed, including cutlery and chatni from Shiv Sagar and Zeal restaurants, and oil from a local shop, were cultured on nutrient agar (NA) for bacterial growth and potato dextrose agar (PDA) for fungal growth. The bacterial isolates predominantly consisted of Gram-negative cocci and Gram-positive bacilli, indicating diverse microbial populations. Fungal analysis revealed the presence of Rhizopus, Aspergillus, and Penicillium species, common contaminants in food and environmental settings. These findings underscore the significance of stringent hygiene and food safety practices to prevent microbial contamination and associated health risks.

Group 3

Group 4 collected samples of different flavoured pani puri, including normal pani, lemon pani, garlic, royal raj, and jeera pani, from street vendors. These samples were cultured on both Potato Dextrose Agar (PDA) and Nutrient Agar to assess microbial growth. The results were compared to established standards

and interpreted accordingly. Microscopic examination revealed the presence of microorganisms such as Lactobacillus and E. coli, and their characteristic features were studied. Additionally, fungal contaminants like Aspergillus, Penicillium, and yeast species were observed, highlighting the potential for microbial contamination in street food. The study emphasizes the importance of maintaining hygienic practices in food preparation and handling to minimize the risk of foodborne illnesses.

Group 5 collected milk-based sweet samples from various outlets, including Kanti Sweets, a local shop, a bakery, and Nandini Sweets. These samples were cultured on both Potato Dextrose Agar (PDA) and Nutrient Agar to assess microbial growth.

Microscopic examination revealed the presence of bacteria such as Lactobacillus and Lactococcus. While these bacteria are commonly found in dairy products and can contribute to fermentation, excessive growth can lead to spoilage and potential health risks

Fungal contaminants, including Rhizopus and Aspergillus, were also identified. These fungi can produce mycotoxins, which are harmful compounds that can cause foodborne illnesses.





Fig: Salmonella-Shigella media (incubated for 24 hours at 37C) streaked with sample on the butchering board.



Gram negative rods were observed

