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Isolation and Identification of Microflora from Some Bakery Products in Lahore

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Abstract
The analysis of different samples of bakery products collected from different bakery outlets in Lahore was carried out to find out the microbes present in these products. A total of twenty five samples of five kinds of bakery products; Pizza, Pastry, Pettis, Biscuit, Nimko (5 samples each), from five different bakery outlets were collected into sterilized plastic bottles. Samples were analyzed for their fungal and bacterial content following colony morphology, microscopic and biochemical characters. The isolated microbes were *Bacillus thuringiensis*, *Bacillus subtilis*, *Pseudomonas aeruginosa*, *Escherichia coli* and yeast. The study also revealed the quality of raw materials used in the bakeries. Such studies can create awareness among people and authorities to minimize the production of waste which entered bakery products during their production process.
Keywords: Bakery products, bakery outlets, fungal and bacterial content.

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INTRODUCTION

The food industry is the complex organization that supplies much of the food products consumed by the global population. It is commonly used in a regular way to cover all aspects of food production and sale. Food processing is the method and technique used to transform raw ingredients into food for human utilization (Jelen, 1985). It is hard to know whether increases in food poisoning are due to improved monitoring or due to other factors such as changes in food supply chain or changes that may contribute to the increase in disease associated with the utilization of raw fruits and vegetables in industrialized countries (Hedberg, *et al*., 1994).

Bakery products are a significant part of a balanced diet and today, a wide variety of such products can be found on supermarket shelves. This includes unsweetened goods (bread, rolls, buns, crumpets, muffins and bagels), filled goods (fruit and meat pies, sausage rolls, pastries, sandwiches, cream cakes, pizza and quiche) and sweet goods (pancakes, doughnuts, waffles and cookies). Nonetheless, bakery products, like many processed foods, are subject to physical, chemical and microbiological spoilage. While physical and chemical spoilage limits the shelf life of low and intermediate moisture bakery products, microbiological spoilage by yeast, bacteria and molds is the concern in high moisture products i.e., products with a water activity (a_w) >0.85. Furthermore, several bakery products also have been implicated in foodborne illnesses involving *Salmonella* spp., *Listeria monoctyogenes* and *Bacillus cereus*, while *Clostridium botulinum* is a concern in high moisture bakery products packaged under personalized atmospheres (James, *et al.,* 2004).

Bakery products, in particular those with high moisture content (high water activity) are most likely to pose food safety concerns as they support the growth of a wide range of bacteria, yeast and mould. There are a number of inherent factors and practices in bakeries that increase the potential for these products to be considered as potentially unsafe. These include frequent handling of food, use of perishable ingredients and use of raw foods which might contain pathogens and the potential of cross contamination through the re-use of equipment such as piping bags. Finally, there are many small independent operators involved in the bakery industry and knowledge of hygienic practices may not always be sufficient (Legan, 1991).

