

Research article

SCREENING OF PATHOGENIC MICROORGANISMS IN EGGS AND TAP WATER SAMPLES COLLECTED FROM DIFFERENT LOCALITIES OF LAHORE

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Contamination of food and water is very common in Pakistan due to unhygienic conditions. Present work was based on the study of bacterial contamination (human pathogenic *E. coli*) of eggs and tap water. Egg and food prepared by the eggs especially raw eggs are important vehicles for *Salmonella* infection. Eggs contents may be contaminated with *Salmonella* by 2 routes transovarion or trans-shell. Drinking water contamination occurred due to mixing of sewage water. In Pakistan, older cities with aging infrastructure may have leaky sewage collection system which can cause sanitary sewage overflows. This sewage water mixed with drinking water and can cause dangerous diseases. Samples of eggs and water collected from different localities of Lahore and were tested for the presence of human pathogenic bacteria. Developed detection methods can detect more than 10,000 pathogenic *E. coli* in food and water samples while ten pathogenic *E. coli* are enough to cause human infections like diarrhea and other complicated diseases. Microbial screening of all the samples were done. Bacteria grew on the Trypticase soy broth media and MacConkey agar media after incubation period of one day. Novobiocin containing media was used for the detection of pathogenic *E. coli* in eggs and water samples. Growth were observed on petriplates. Gram staining of these bacteria confirmed the presence of pathogenic *E. coli*. Gram negative bacteria were observed under electron microscope. The present study will be helpful for creation of knowledge about these pathogenic bacteria and diseases they caused among people. So the hygienic conditions should be prevailed in order to prevent contamination of pathogenic bacteria. Clean water and pasteurized eggs should be used.

Key words: Pathogens, Microorganisms, Eggs, Tap water, *Salmonella*, *E. coli*, Gram staining.

Introduction

Eggs are important part of our diet, it is a rich source of protein and tap water is important source of drinking water in our daily life. But they have large amount of microbial organisms in them. As the food contamination is vary common in Pakistan so we worked on the human pathogens of eggs and water. Eggs and its products that are improperly handled can be a source of foodborne diseases, such as salmonellosis. *Salmonella* serotypes

are readily found in poultry house environments (Humphrey et al., 2003). *Salmonella* is a genus of rod-shaped, Gram-negative, non-spore forming, predominantly motile enterobacteria with diameters around 0.7 to 1.5 μm , lengths from 2 to 5 μm , and flagella which project in all directions (Ryan and Ray, 2004). *Salmonella* are closely related to the *Escherichia* genus and are found worldwide in warm- and cold-blooded animals, in humans, and in nonliving habitats. They cause illnesses in humans and many animals, such as typhoid fever, paratyphoid fever, and the foodborne illness salmonellosis (Braden, 2006; CDC, 2001).

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