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## Enteric Pathogen Bacteria in Non-Broiler Chicken Egg Shells from Traditional Market and Supermarket, Jatinangor Subdistrict, West Java

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### Abstract

**Background:** Around 1.5 million of children dying annually due to diarrhea. Contaminated food is one of the sources of the diarrhea incidence (food borne diseases). Eggs are one of the least expensive forms of protein which is affordable by the community and is easily to find in either traditional or modern market/supermarkets. The objective of this study was to identify enteropathogenic bacteria contamination on non-broiler (ayam kampung) egg shell and to compare the findings between eggs sold in traditional and modern markets.

**Methods:** This was a descriptive study performed at the Microbiology Laboratory of the Faculty of Medicine, Universitas Padjadjaran. A total of 40 eggs were used, 20 from two traditional markets and 20 from two modern markets. The eggs were swabbed using saline, dipped in tryptic soy broth and streaked on Mac Conkey agar. The collected data were analyzed and presented in tables.

**Results:** Out of 40 samples, there were 19 positive cultures found from the traditional market and 16 from the modern market. There were 30 pink colonies indicating that they were lactose fermented, 5 transparent colonies indicated non-lactose fermentation, 4 showed no colony growth, and 1 grew an unidentified colony. The most found bacteria were *Klebsiella sp.* and *Enterobacter sp.* in both market.

**Conclusions:** Eggs shells from traditional and modern markets are contaminated with Enteropathogenic microbes. [AMJ.2015;2(3):414-17]

**Keywords:** *Enterobacter sp.*, *Klebsiella sp.*, non-broiler (ayam kampung) eggs

### Introduction

Since a decade ago, there has been an increased rate of food illness being registered by Asian countries. Around 1.5 million of children were dying annually due to diarrhea. Food can be contaminated due to several factors, bacteria, followed by virus, parasites and toxins. According to World Health Organization (WHO) data, over the 10 years, 75% of infectious diseases are caused by bacteria and other pathogens.<sup>1</sup>

Food can be contaminated from farm to table, for instance, contaminated meat with fecal matter due to improper handling, inadequate food preparing, inappropriate personal hygiene and poor hygiene in the surrounding. Any of these factors can lead

to food contamination and resulting in food-borne diseases to consumers.

Food-borne diseases that carry microorganisms, examples such as bacteria and viruses or toxins. The common symptoms of food-borne diseases are diarrhea, vomiting, cramps and nausea.<sup>2</sup>

The most common symptom of food-borne disease is diarrhea caused by enteropathogenic bacteria. The examples of these bacteria are *Escherichia coli*, *Salmonella sp.* and *Shigella sp.* and others.<sup>3</sup> Enteropathogenic *Escherichia coli* is the main cause of diarrhea in infants these especially in developing countries. Each year, around 105 million of *Shigella* cases are reported worldwide.<sup>4</sup> Moreover, it is the most common cause of bloody diarrhea. More than 1 million cases of *Salmonella* are being reported and their infections are more common in

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