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The Thesis Submitted for the Degree of M.sc

In the of bacteriology

Investigation of contamination of Fecal *Escherichia coli* in vegetables collected from Sistan

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Abstract

Fruits and vegetables are important items in the food basket, which are usually used raw and without cooking. Despite the acceptable hygiene techniques used to wash and process of fruits and vegetables, microbial contamination is not completely eliminated. Therefore, fresh fruits and vegetables can act as carriers of pathogenic bacteria. The population of microorganisms present in food, especially vegetables, can be very large and diverse. *Escherichia coli* is a member of the Enterobacteriaceae family, which contributes significantly to food-borne outbreaks. *Escherichia coli* is an important indicator to demonstrate the contamination of the food media (i.e., vegetable) with human or animal feces.

The aim of this study was to investigate the presence of fecal *Escherichia coli* in vegetables collected from Sistan region and to estimate the contamination of these vegetables in the study area.

Methods: In this study, 100 samples of vegetables were collected from standing vendors and markets for leafy vegetables in Sistan. The contamination of samples with fecal *Escherichia coli* was examined by the most probable number (MPN) method.

Out of 100 samples collected from vegetables, 32 samples (32%) contained fecal *E. coli* of which one sample (3.1%) and 31 samples (96.9%) contained 23 MPN / g and 100 MPN / g or more of fecal *E. coli*, respectively.

According to the standards, more than a quarter of the vegetables in the study area were dangerously contaminated with Fecal *E. coli*, which may resulted from could be due to various conditions such as poor hygiene, improper farming methods, and so on. The use of effective disinfection methods is recommended.

Keywords: Heat Resistant Coliforms, Most probable Count, Vegetables, Sistan