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The Thesis Submitted for the Degree of M. Sc
In the of bacteriology

Evaluation of *Escherichia coli* iron transporter genes in beef isolated in Zahedan

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Winter
2021

Abstract

Background and Aims: Iron is an important factor for many cellular biochemical activities such as electron transfer chain. The concentration of free iron in the body of ruminants is very low. The concentration of iron in the body is very low due to its binding to the proteins transferrin, lactoferrin, and hemoglobin, so many bacteria secrete iron with low molecular weight and high binding power to obtain the iron they need in the host body. Absorb proteins. Aerobactin, enterobactin, and fibromyalgia are iron-absorbing bacterial agents found in *Escherichia coli*. These virulence factors enable bacteria to obtain the iron they need from iron-deficient environments. The aim of this study was to investigate the frequency of *Escherichia .coli* iron transporter genes in beef

Materials and Methods: A total of 70 isolates isolated from packing beef were collected by Zahedan Veterinary Office. DNA was extracted from all isolates by boiling, and the frequency of iron transfer genes *prrA, hlyB, hlyC, modD, fyuA, feoB, .ireA,* and *fepC* was determined by multiplex-PCR

Results: Out of 70 *Escherichia coli* isolates studied, *feoB* gene with 35% had the highest frequency and *fyuA* gene with 1% had the lowest gene frequency for *hlyC, ireA, modD, prrA, hlyB, fepC* genes were 6%, 10%, 12%, 16%, 16% and 22%, respectively

Conclusion: The results of this study showed that *hlyC, feoB, modD, ireA* genes are the most common genes of pathogenic iron transporters in Zahedan region. This indicates good hygiene in meat packaging and the pathogenicity of iron-transmitting .genes

key words:
Escherichia coli, pathogenicity, iron transporter genes, beef packing.