



ISOLATION OF *ESCHERICHIA COLI* FROM SKIN WOUNDS IN COW

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Abstract

Skin infections, consider the most frequent infections by several bacteria such as *E. coli* and could be develops to abscesses, septicemia and fistula. One hundred swab samples were collected from surfaces of skin lesions in cow were collected during the period from May, 2019 to July, 2019 from different areas at the Babylon governorate. Microbiological parameters biochemical tests were done to identification of *E. coli* isolates. The percentage of infection was 8% from total swab that have been taken from different skin lesions. The results of this study were taken to highlight the presence of *E. coli* in skin lesion to facilitate the work of a preventive and therapeutic programs to reduce the risk of these bacteria and improve the health status of cow.

Key words: Skin wounds, Isolation, *E. coli*, Cow, Iraq.

Introduction

Ruminants, particularly cow and sheep, have been implicated as a common reservoir of *E. coli* species that can be a potential source of human infection (Osman *et al.*, 2013). Skin infections consider the most frequent infections in all age groups, the infections mostly are self limited or can be treated with antibiotics (Petkovšek *et al.*, 2009). However, moderate or severe cases may require hospitalization and parenteral therapy (Moet *et al.*, 2007).

These pathogens are responsible for large mortality and different morbidity changes at the same time constitute a risk to public health (Bolton *et al.*, 2012). Affected of skin such as contaminations of wound are complicated mostly following slashes, injuries, entering injury and fights of animals, in ordinary creature raising practices, wounds were for the most part left overlooked to act naturally heal until they affect the general health and efficiency of the production such as calfskin quality, meat, or economy of the proprietor (Tiwari *et al.*, 2015).

Whenever treated without correct determination, target treatment and imprudent utilization of allopathic medications, offers approach to development resistance to antimicrobial medication (Tiwari *et al.*, 2013). Skin that contaminated superficially, which at first show up as agonizing, ulcerations red colour are trailed by clear to overcast release or may advance as patches of male pattern baldness, redness and scale. wounds are presumably the common well-known reasons for upgraded powerlessness of diseases, as they are inclined to contamination of bacteria. skin inflammation and affections is a typical condition particularly in little creatures and pets and highly causes are bacterial and contagious diseases separated from mechanical wounds and viral (Talan *et al.*, 1996). Despite the fact that forecast of skin contamination isn't impossible yet may antagonistically affect the working activity, inside abscesses, fistula and once in a while septicemia (Tyler *et al.*, 1999).

Materials and Methods

Samples collection: One hundred swab samples were

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Table 1: Percentage of isolated *E. coli* from skin lesions.

Bacterial name	No. of skin samples	No. of positive samples	%
<i>E. coli</i>	100	8	8

collected from surfaces of skin wound, lesions and ulceration were collected during the period from May, 2019 to July, 2019 (two months) from different areas at the Babylon governorate, Iraq. The collected samples were examined for the determine of *E. coli* that can be contaminated of skin lesions. Aseptically, all samples were collected, then, transferred to sterile plastic bag, then directly send to the lab under cold conditions. Samples were analysed within one hour at the lab of microbiology at college of veterinary medicine, AL-Qasim Green University.

Microbiological parameters: The swab samples were homogenized with sterile 100 ml of normal saline and cultured into MacConkey and Eosin Methylene Blue (EMB) agar, media that cultured were incubated at 37°C for 24 hours and biochemical tests were using as further analyses. The Gram stain was used as a primary identification of suspected *E. coli* from colonies according technique mentioned by (Hall, 2013). Morphological examination and more methods for identification were done to colonies that productive lactose fermentor and metallic sheen (Hall, 2013).

Gram staining, various sugar fermentation tests, Indole, Catalase, Methyl red, Urease production, Nitrate reduction and Simon citrate agar, Voges Proskauer tests were used as confirmatory tests for *E. coli* isolates.

Results

The results revealed isolated of *E. coli* from skin wound in different areas of Babylon in cow. A total one hundred skin lesions (wounds, laceration, trauma, ulceration etc...), just 8 isolates were detection as *E. coli* depending on morphological characteristic (Table 1) and confirmatory detection by biochemical tests (Table 2).

Table 2. The reaction results of biochemical tests for *E. coli*.

Biochemical test	Results
Voges Proskauer	-
Methyl Red	+
Simmon's Citrate	-
Urease	-
Nitrate Reduction	+
Indole Production	+
Catalase	+
Mannitol	+
Glucose	+
Lactose	+
Lactose fermentation	+

Discussion

The presence of *E. coli* in skin wound cause large problems regarding wound healing and health. The contamination of skin lesions could transmitted the infection to all body organs, so that detection of *E. coli* contaminated of skin lesions to facilitated the ways of control and treatment and improvement wound healing. This study to highlight the role of *E. coli* infection in skin lesions beside another bacteria such as *Staph. aureus*. In this study, the percentage of infection with *E. coli* in skin lesions were 8%, this results agreed with Khalil and Eraky, (2012) recorded the isolated of *E. coli* from skin swab in cattle to be 8.7%. However, this results disagreed with study of Tiwari *et al.*, (2015) in animals in Pakistan who mention the percentage of skin wound contamination with *E. coli* to be 34.59%.

This can be ascribed to factors variation which can possibly influence skin infection, including farming systems, fecal contamination, related conditions, duration of transport and hygiene condition (Abdissa *et al.*, 2017). Isolation of *Staph. aureus* was the first common isolate followed by *E. coli* in skin wounds (Tiwari *et al.*, 2015).

This results in line with the microbiological analysis of another studies showed isolation of bacteria other than *E. coli* strains such as *Staph. aureus*, *Streptococcus*, *Pseudomonas aeruginosa*, *Micrococcus*, *Klebsiella* spp., *Fusobacterium*, *Bacillus*, *Protius* and *Clostridium* from different skin lesions in animals (Abrahamian and Goldstein, 2011).

However, our results in according with Silva *et al.*, (1980), who reported the different biochemical test was need to isolation and identification of the *E. coli* as confirmatory analyse from skin lesion.

Conclusions

Skin lesions are contaminated by different bacteria and there are few studies about the *E. coli* infection in the skin lesions that consider one of the important bacteria that affect wounds and other skin lesions.

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