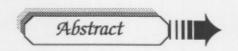# 1. ABSTRACT

Escherichia coli is the causative agent of both intestinal and extra-intestinal infection. Extra-intestinal infection in man include urinary tract infection (UTI), newborn sepsis and meningitis while in animals is a cause of septicemic colibacilosis and diarrhoea (**Gyles, 1994**). The role of E. coli as apathogen is well known and many E. coli isolates have been associated with a wide variety of diseases. These pathogenic E. coli include enteropathogenic E. coli (EPEC), enterotoxogenic E. coli (ETEC), enteroinvassive E. coli (EIEC), enterohaemorrhagic E. coli (EHEC) and enteroaggregative E. coli (EAggEC) (**Lior, 1994 and Levin, 1987**).

It has become clear that only a limited number of E. coli strains possessing virulence factors. These factors are usually complex and mainly associated with the capacity of E. coli to attach and colonize at the site of infection with elaboration of enterotoxin or by subsequent damage to the host which is promoted by aggresins that interfer with the host defense (**Burrows, 1985**).

Several virulence factors of E. coli are encoded by plasmids (**Orskov and Orskov, 1966**). Such plasmids often carry gene for antimicrobial resistance. The presence of resistance and virulence plasmids in bacterial cell can led to the formation of hybrid plasmids (**Gyles et al., 1977**).

In Egypt, enteric colibacillosis caused by E. coli is an important component of the neonatal scour complex in young animals and human

infants. Neonatal coli bacillosis often affect over 50% newborn calves and death rates of 10 to 20% are common (**Gyle 1994**).

Enteropathogenic strains causing colibacillosis are usually confined to alimentary tract and often harbour conjugative plasmids specifying enterotoxins (**Smith and Halls, 1968**) and K99 antigen (**Orskov and Orskov, 1966**) which enhance the pathogenicity.

The interesting goal of this work was to determine virulence determinants of E. coli isolates associated with colibacillosis of calves.

For this purpose the following plan was designed:

1. Isolation and identification of E. coli enteric bacterial pathogen from young calves.

2. Comparison between the plasmid profile analysis of obtained E. coli isolates as a modern techniques.

3. Detection of the virulence factors such as:

   a. Enterotoxin.

   b. Verotoxin.

   c. Haemolysin production.

4. Identification of K99 antigen.

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