Introduction

Cattle rearing in Sudan plays an important role in the country's economy and social welfare. In Khartoum State the greatest numbers of dairy farms, contain crossbred animals with varying percentages of foreign blood (Friesian breed).

Presence of infectious agents, poor management and poor nutrition are some of the factors that can be pointed out as causes of calf diseases and mortality. Mortality rate among calves in Sudan was estimated to be 10% and in some months it may reach 100% due to colibacillosis and diarrhoea which are considered the major cause of economic loss in intensive, modern and conventional farming systems (Ali, 2002).

In Sudan Ellaithi (2004) and Mohamed (2009) reported the involvement of *E. coli* as a cause of diarrhoeal disease in calves. *E. coli* also causes haemorrhagic colitis and dysentery. When scour outbreak occurs, producers often focus a great deal of labor and money on treatment of calves with fluids, and antibiotics, but the environment often becomes extremely contaminated very quickly. Calves with *E. coli* scours may be shedding billions of bacteria in single stool (Shulaw, 2000). Environmental survival of *E. coli* may play an important role in the persistence and dissemination of this organism (Lejeune *et al*., 2001). Many of the losses caused by scour can be prevented through good management practices (Radostits, *et al* 2007).

The general objective of the present study was to investigate the problem of diarrhoea among calves in dairy herd in Khartoum state and the specific objectives were as follows:

1- To investigate the occurrence of calf diarrhoea in dairy farms under different methods of husbandry in Khartoum State.

2- To isolate and identify the most important bacteria associated with diarrhoea in dairy calves with special reference to *E. coli*.

3- To characterize *E. coli* obtained from diarrhoeic dairy calves by using biochemical and serological methods as much as possible.

4- To study the pathogenesis of some of the isolated *E. coli* by bioassay and Immunoassay.

5- To determine the susceptibility of various *E. coli* isolates to the common antimicrobial drugs in use for treatment of calf diarrhoea.