INTESTINAL BACTERIAL FLORA OF CALVES FROM BIRTH TILL WEANING

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بسم الله الرحمن الرحيم

سبحانك لا علم لنا إلا ما علمتنا

إنك أنت العليم الحكيم

صدق الله العظيم

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FIRST OF ALL GREAT THANKS FOR OUR GOD
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Abbreviation		Indication
α-Hly	:	Alpha haemolysin
β-Hly	:	Beta haemolysin
bp	:	Base pair
cfu	:	Colony forming unit
cGMP	:	Cyclic guanosine monophosphate
$C1^-$	:	Chloride ions
CNF	:	Cytonecrotizing factor
Da	:	Dalton
DNA	:	Deoxyribonucleotide triphosphate acid
eae	:	Attaching and effacing gene
EAST1	:	Enteroaggregative stable toxin 1
EHEC	:	Enterohaemlytic *E.coli*
E.HLY	:	Enterohaemolysin
EIEC	:	Enteroinvasive *E.coli*
ELISA	:	Enzyme–linked immunosorbent assay
EPEC	:	Enteropathogenic *E. coli*
ETEC	:	Enterotoxigenic E. coli
F (4, 5, 17, 41, or 156)	:	Fimbrial antigen (4, 5, 17, 41 or 156)
fg	:	Femtogram
Gb3	:	Globotriosylceramid (gkycolipid receptor)
GMP	:	Guanosine 5-monophosphate
H	:	Flageller antigen
Hela	:	Human cervix carcinoma cells
Hly	:	Haemolysin
HUS	:	Haemolytic uremic syndrome
K	:	Capsular antigen
K_{99}	:	Fimbrial antigen 99
kDa	:	Kilo Dalton
LB broth	:	Luria – Bertani broth
LT, LT_1, LT_2, LT_s	:	Heat labile toxins
MRHA	:	Mannose–resistant haemagglutination test
MR	:	Methyl red
Na^+	:	Sodium ions
NM	:	None motile
O	:	Somatic antigen
PBS	:	Phosphate buffered saline
PCR	:	Polymerase chain reaction
PI-3	:	Parainfluenza-3
RBCs	:	Red blood cells
RPLA	:	Reversed passive latex agglutination test
SDS	:	Sodium–dodecy1–sulphate
SLT	:	Shiga–like toxin

Abbreviation		Indication
ST, ST_a, ST_b, ST_{ap}, ST_{ah}	**:**	Heat stable toxins
TAE	**:**	Tris-Acetate – EDTA buffer
TB	**:**	Tubercle bacilli
TE buffer	**:**	Tris – EDTA buffer
TEMED	**:**	N,N,N,N-tetramethylenediamine
tRNA	**:**	Transfer ribonucleic acid
TSI	**:**	Triple sugar iron agar
VT	**:**	Vero cytotoxin
VTEC	**:**	Verocytotoxin producing *E. coli*

Introduction

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1. INTRODUCTION

The newly born calves represent an important source in animal production either for meat or breeding, Infection is a common cause of morbidity and mortality in neonates (El-Hamamy et al., 1999).

Calf diseases represent a major problem in the world leading to great economic losses. The statistical data recorded in animal reports of the Egyptian General Organization for Veterinary Service showed high mortality rates 74.2% among calves, and 75% of total mortalities were due to enteric infections (Abo-Zaid and Nasr, 1995).

Therefore, diarrhea was considered as one of the major problem facing live stock production not only in Egypt, but also all over the world (Faird et al., 2001).

In Egypt, Ibrahim (1974) found that the mortality of Friesian calves due to enteritis was 2.7% which representing 33.7% of the total death.

In the British Isles, a morbidity of 8-36% and mortality of 3% due to calves' diarrhea have been reported. Similar proportions occurred in France and Germany. In USA, mortality of 10–20% and morbidity of 35–40% due to diarrhea have been reported (Reynolds et al., 1986).

The aetiological agents of diarrhea are great complexity in addition to the influence of varied environmental, managemental, nutritional and physiological factors. The infectious agents that capable of causing diarrhea in neonatal calves are numerous. Although, some investigators consider that they are part of the normal enteric flora of ruminants (Snodgrass et al., 1986).

The most important infectious agents are rotavirus, coronavirus, enterotoxigenic *E. coli*, Salmonella species and Cryptosporidium (Sondgrass et al., 1986).

Among the most important bacterial causes of diarrhea in calves, *E. coli,* Salmonella species*, CL. perfringens,* Proteus species*, Pseudomonas aeruginosa and* Campylobacter species (Holland, 1990; Quinn et al., 1994 and Sadiek and Hussien, 1999) there were.

E. coli is being a normal gastrointestinal inhabitant; it is also associated with a variety of pathological conditions in animals (Smith, 1963). In calves, the infection takes form of scour which could be watery or bloody (Seleim et al., 2003). *E. coli* have been distinctively identified into six major pathogenic groups namely, enterohemorragic *E. coli* (EHEC), enteroaggregative *E. coli* (EAEC), enteroadherent