

1. INTRODUCTION

Rabbit industry is one of the small livestock industries that play a considerable role in solving the problem of meat shortage in developing countries (**Lepas *et al.*, 1977**). The domestic rabbits when compared with other livestock animals are characterized by early sexual maturity, high prolificacy, relatively short gestation length, short generation interval, high productive potential, rapid growth, good ability to utilize forages and fibrous plant materials, more efficient feed conversion, lower cost per breeding female and its profitability for small-scale production system (**Cheecke, 1986 and Finzi and Amici, 1991**). Also, the rabbit meat has many advantages as it is nearly white, fine grained, palatable, mild flavored, high in good quality protein content, low fat and caloric contents, contains a higher percent of minerals than other meats, nearly of the same nutritive value as beef meat, good meat-to-bone ratio and it is acceptable to the general consumer in most countries of the world (**Reddy *et al.*, 1977 and Lukefahr *et al.*, 1989**).

Enteritis in rabbits mainly after weaning is the major cause of economic losses in commercial rabbitaries as it induces sudden death and high mortalities about 27-50% at five to seven weeks of age (**Scharmann and Wolff, 1985**). Many causes are claimed in induction of enteritis in rabbits as *Clostridium* spp., *Escherchia coli*, coagulase positive *Staphylococcus aureus*, *Salmonella* spp. and *Vibrio* spp. (**Hara-Kudo *et al.*, 1996**). *Clostridium* spp. are the most important one (**Szemerédi *et al.*,**

1983) as they adversely affecting rabbit's industry all over the world (Diab *et al.*, 2003).

Clostridial organisms are widely distributed pathogens commonly isolated from the environment and the gastrointestinal tract of rabbits (Hein and Timms, 1972).

Clostridium perfringens (*C. perfringens*), *C. piliformis*, *C. spiroforme* and *C. difficile* are the most common bacterial causes of enteritis complex in rabbits (Tzika and Saoulidis, 2004).

C. perfringens is one of the most widely distributed and the most dangerous species (spp.) members of the genus *Clostridium* that affecting rabbit's farms (Timoney *et al.*, 1988).

C.perfringens are divided into five types (A, B, C, D and E) on the basis of production of four major toxins namely alpha, beta, epsilon and iota (Songer, 1996). *C. perfringens* type A produces alpha toxin which is the principle lethal toxin producing enterotoxaemia in rabbits (Kunstyr *et al.*, 1975 and Molloy, 1978).

From the above mentioned, this study was designed to:

- 1- Surveillance study for monitoring rabbit farms suffered from severe diarrhea with high mortality rate in early weaned rabbits in different Egyptian governorates.
- 2- Isolation and identification of possible recovered *Clostridial* spp. from surveyed rabbit farms located in different Egyptian governorates by:

- Using conventional methods for isolation and identification *Clostridial* isolates recovered from rabbits farms suffered from severe diarrhea with high mortality rate at different Egyptian governorates.
 - Serotyping of the most prevalent recovered *Clostridial* spp.
 - Using of Polymerase Chain Reaction (PCR) as a method for typing of the possible isolated *Clostridial* spp.
 - Determining the *in-vitro* sensitivity of the most prevalent isolated *Clostridial* strains against different antimicrobial agents.
- 3- Experimental infection of susceptible early weaned rabbits with the most predominant pathogenic isolated *Clostridial* spp.