SUMMARY

1. A total of 293 (79.8%) ***Clostridial*** isolates were recovered from surveyed rabbit's farms, from 367 samples representing 329 weaned rabbits and 38 environmental ones. Single infection with suspected ***Clostridial*** spp. was 289 (78.7%), while mixed infections with different ***Clostridial*** spp. was 4 (1.08%).
2. Out of 357 examined rabbits and environmental samples, 293 ***Clostridial*** strains were identified as 93 (26%) ***C. perfringens***, 92 (25.7%) ***C. tertium***, 51 (14.2%) ***C. sporogens***, 34 (9.5%) ***C. bifermentans***, 14 (3.9%) ***C. septicum*** and 9 (2.5%) ***C. difficile***.
3. Out of the 93 isolated ***C. perfringens***; 89 (95.69%) were toxigenic strains and 4 (4.3%) were non toxigenic ones.
4. The 89 toxigenic ***C. perfringens*** strains were differentiated into single types representing 15 (16.12%) type (A), 4 (4.3%) type (B), 15 (16.12%) type (D) and 4 (4.3%) type (E) while mixed types of ***C. perfringens*** were 32 (34.4%) types (A and D), 4 (4.3%) types (A and E) and 15 (16.12%) types (B and D).
5. The incidence of ***Clostridial*** strains at Port Said, Giza, Cairo, Beni Suef, Fayoum, El-Qaliubiya, Al-Sharkia and Menoufia were 36.5, 36.5, 43.7, 42.5, 42.7, 43.2, 43.4 and 38.9%, respectively.
6. Out of 38 environmental (20 feed and 18 water) samples, 6 (15.78%) and 1 (2.63%) ***C. perfringens*** strains were recovered respectively. However, no ***Clostridial*** spp. other than ***C. perfringens*** was detected in above mentioned environmental samples.
7. The result of conventional PCR revealed that ***C. perfringens*** types (A, B, D and E) were positive for *Cp* alpha toxin at 324bp., while the multiplex PCR

revealed that ***C. perfringens*** type (A) was positive for *Cp* alpha toxin at (324bp), type (B) was positive for *Cp* alpha toxin at (324bp), beta (196bp) and epsilon (655bp), ***C.*** type (D) was positive for *Cp* alpha toxin at (324bp) and epsilon (655 bp) and type (E) was positive for *Cp* alpha toxin at (324b) and iota (446bp).

8. The mortality rates of experimentally infected early weaned rabbits at the 1st day post infection were 20 and 40% in ***C. perfringens*** type (A) after oral and S/C infection, respectively, 80% in ***C. perfringens*** type (B) (S/C infection) and 60% in ***C. perfringens*** type (D) (S/C infection), 20% in ***C. perfringens*** type (D) oral infection, 40% in ***C. perfringens*** type (E) (S/C infection) and 20% in ***C. perfringens*** type (E) oral infection, while rabbits challenged with ***C. difficile*** either in oral or S/C route showed no mortalities along the observation period except light diarrhea appeared 3 days post challenge at orally infected group.

9. The observed clinical signs in the most of challenged groups were diarrhea and bloat; however the post-mortem findings were enteritis, typhlitis, hepatitis and kidney and spleen congestion.

10. The histopathological changes were observed in liver, kidney, small and large intestine and these changes confirmed the post-mortem findings.

11. The performance parameters showed significant decrease in all ***Clostridial*** challenged groups when compared with control group.

12. The *in-vitro* sensitivity of the most prevalent types of ***C. perfringens*** and ***C. difficile*** to different antibiotics were high sensitivity of all types of ***C. perfringens*** and ***C. difficile*** for Amoxicillin / Clavulanic acid and Ampicillin. Strains of ***C. perfringens*** types (E, A and E), (A and D) and (B and D) as well as ***C. difficile*** were highly sensitive to Tylosin. For ***C. perfringens*** types (D, E, A and E), (A and D) and (B and D) and ***C. difficile***, Nalidixic Acid was highly effective. All strains of ***C. difficile*** were very sensitive to Gentamicin,

Oxytetracycline, Penicillin G, Enrofloxacin, Doxycycline, Tetracycline and Chlorotetracycline. On the other hand, all types of ***C. perfringens*** and ***C. difficile*** were resistant to Colistine, Erythromycin and Lincomycine.