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Faculty of Veterinary Medicine
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*Molecular and conventional methods for detection of
Campylobacter Jejuni in marketed poultry products*

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7. SUMMARY

Part I:

A total of 200 random samples of chicken products represented by chicken breast with skin & without skin, thigh with skin & without skin, liver, gizzard, nuggets and luncheon (25 of each) were collected from different markets in Menofia Governorate, Egypt.

The results revealed that the incidence of *Campylobacter spp.* was positive for all samples except chicken luncheon. The highest incidence was found in chicken liver and gizzard (80 %) followed by thigh with skin (72 %), thigh without skin (68 %), breast with skin (60 %) breast without skin (48 %). and the lowest one was chicken nuggets (20 %).

It is evident from results that the incidence of *C. jejuni* , *C.coli* and *C.butziari* were 24 % , 20 % and 12 % in breast with skin; *C. jejuni* , *C.coli* and *C.lari* were 20 % , 16 % and 8 % in breast without skin; *C. jejuni* , *C.coli* and *C.lari* and *C.cinaedi* were 36 % , 16 % , 8% and 8 % in thigh with skin; *C. jejuni* , *C.coli* , *C.lari* and *C.upsaliens* were 28 % , 8 % , 12 % and 8 % in thigh without skin; *C. jejuni* , *C.coli* , *C.lari* and *C.cinaedi* were 52 % , 20 % , 8 % and 4 % in liver. *C. jejuni* ; *C.coli* and *C.lari* were 44 % , 24 % and 12 % in gizzard and *C. jejuni* & *C.coli* were 16 % and 4 % in nuggets, respectively.

Furthermore, the Occurrence of virulence genes of *C. jejuni* strains isolated from all the examined samples of chicken products except luncheon. Virulence genes *cdtA*, *cdtB* and *cdt C* , *cdtA* and *cdtC* , *cdtB* and *cdtC* , *CdtA*, *CdtB* and *CdtC* were present in 30% , 15% , 25% , 10% , 15 and 5 of examined of strain of *c.jejuni* respectively.

Part II:

A total of 1500 g of minced chicken breast meat were divided into 5 equal groups (300 g of each). *Campylobacter jejuni* was inoculated into each group with infective dose 2.5×10^7 cfu/g. Each group divided for (Sensory Examination - Chemical Examination and Bacteriological Examination) for each.

Thyme oil (2%) showed overall acceptability extended to 5th day of storage. While, lower concentration (1%) showed overall acceptability extended till 4th day. In comparison, coriander oil (2% and 1%) showed overall acceptability extended to 4th day. In contrast, the control group showed overall acceptability extended to 2nd day.

Thyme oil (1 and 2%) decreased count of *Campylobacter jejuni* (cfu/g) from 3.8×10^7 (initial load) to 7.3×10^5 , and 1.2×10^3 with reduction percentages 97.27% and 99.99% on 6th day of storage, respectively.

Coriander oil (1 and 2%) decreased count of *Campylobacter jejuni* (cfu/g) to 3.8×10^6 and 9.5×10^5 with reduction percentages 85.00% and 96.27% on 6th day of storage, respectively.

In conclusion, using of molecular methods like PCR, hipO gene and cytolethal distending toxin (cdt) is very important for accurate identification and characterization of *Campylobacter jejuni* and the virulence genes of *C. jejuni* strains, also thyme oils proved to be more efficient than Coriander in reduction of *Campylobacter jejuni* growth in minced chicken meat; therefore, it is recommended to improve safety of the chicken meat products by essential oils.