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List of Abbreviations

Abbreviation	Full Name
DPI	Days post infection
G.	*Gallibacterium*
P.	*Pasteurella*
SPF	Specific pathogen free
IgG	Immunoglobulin G
RBCS	Red blood cells
ELISA	Enzyme linked immunosorbent assay
AGPT	Agar gel precipitation test
PCR	Polymerase chain reaction
q PCR	Quantitative Polymerase chain reaction
MLST	Multi-locus sequence typing
BHI	Brain heart infusion
HIB	Heart infusion broth
GaIF-A	Fimbrial subunit protein from *G. anatis*
FifA	Fimbrial subunit protein
GC	Guanine Cytocin
MG	*Mycoplasma gallisepticum*
IV	Intravenous
IN	Intranasal
RTX	Repeat In Toxin
GTXA	*Gallibacterium* Toxin
Kda	Kilo Dalton
Bp	Base Pair
Salp	Salpengitis
OMVs	Outer Membrane Vesicles

PI	**Post Infection**
AFLP	**Amplified fragment length polymorphism**
S/C	**Subcutaneous**
ITS-PCR	**Internally Transcribed Spacer**
PFGE	**pulsed-field gel electrophoresis**
MIC	**Minimum Inhibitory Concentration**
M	**Mycoplasma**
Tet (31)	**Tetracycline Resistance Determinant 31**
ORT	**Ornithobacterium rhinotracheale**
MALDI-TOF MS	**Matrix-Assisted Laser Desorption Ionization–Time of Flight mass spectrometry**
AHL	**Animal Health Laboratory**
PCOECs	**primary chicken oviduct epithelial cells**
Fig	**Figure**

VII. ENGLISH SUMMARY

*G.anatis*is now considered to be an important bacterial disease responsible for respiratory problems in commercial broiler chickens and decreased egg production in commercial layers, since it causes pathological changes in the reproductive tract (salpingitis, oophoritisand peritonitis).

This study is designed to investigate the effect of mixed experimental infection with *G. anatis* and *M.gallispticum* in chickens.

PCRrevealed that the examined three isolates provided by faculty of veterinary medicine, Damanhour university were *G. anatis* at 1032bp.

Sequencing of 3 *G. anatis* isolates according to the GenBank database,revealed a closely related sequence analysis of the examined isolates which indicated that no genetic diversion between the Egyptian *G. anatis* isolates till now.

The in-vitro sensitivity of *G. anatis* isolates to 15 different antimicrobials revealed that these isolates were highly sensitive to cefotaxime, doxycycline,florfenicol, amoxicillin and ampicillin, moderately sensitive to norfloxacin, gentamycin and ciprofloxacin, fairly sensitive to cephradine, as well as resistant to erythromycin, oxytetracyclin, sulpha.trimethoprim, streptomycin, lincomycinandspectinomycin.

PCR revealed that the *M. gallisepticum* isolate provided by Animal Health Research Institute, Dokki, Giza was *M.gallisepticum* at 300 bp.

Sequencing of *M. gallisepticum* isolate according to the GenBank database,revealed relatedness between our isolate and other Egyptian and foreign *M. gallisepticum*isolates.

-Mixed experimental infection of commercial broiler chickens with *G. anatis* and *M.gallispticum*isolates revealed that:

- Clinical signs were observed more prominent in mixed infected group.
- Post mortem lesions were observed astracheitis, congested lungs, pneumonia and hepatitis and were prominent in mixed infected group.
- There were significant difference in body weights between infected groups in comparison with control non infected group.

- Histo-pathological examination of trachea, lung and air sac of infected groups were observed and revealed high severity of lesions in mixed infected group.
- Re-isolation of *G. anatis* and *M.gallispticum* from infected groups by PCR showed positive resultat 3,7 and 14 dpi.