

Article

Prevalence and Antimicrobial Susceptibility of Bovine *Mycoplasma* Species in Egypt

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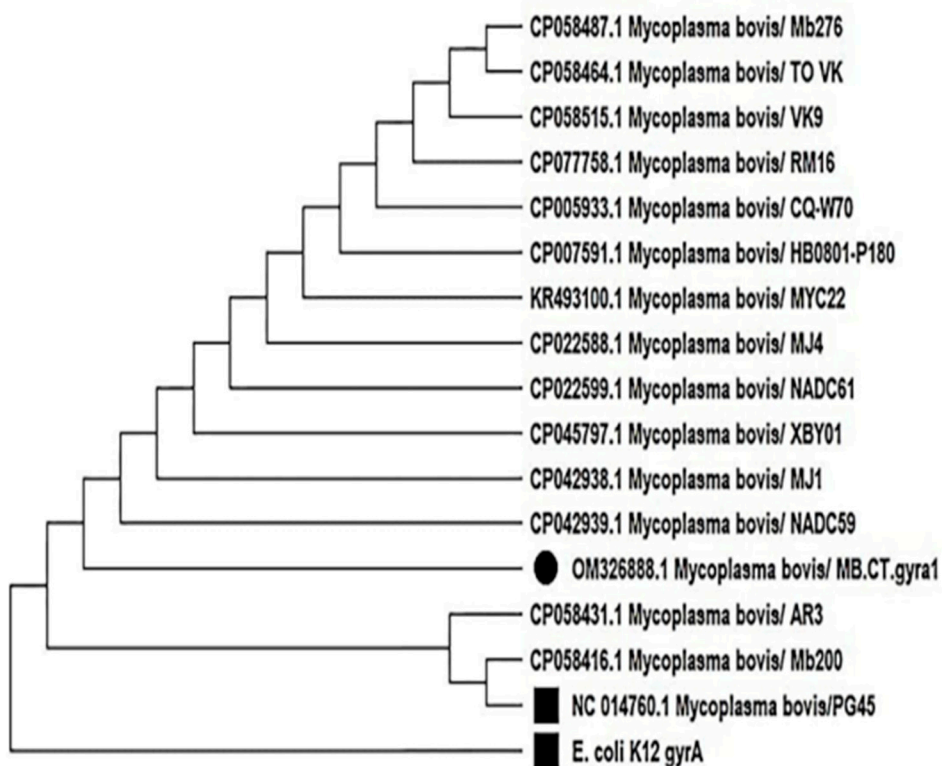
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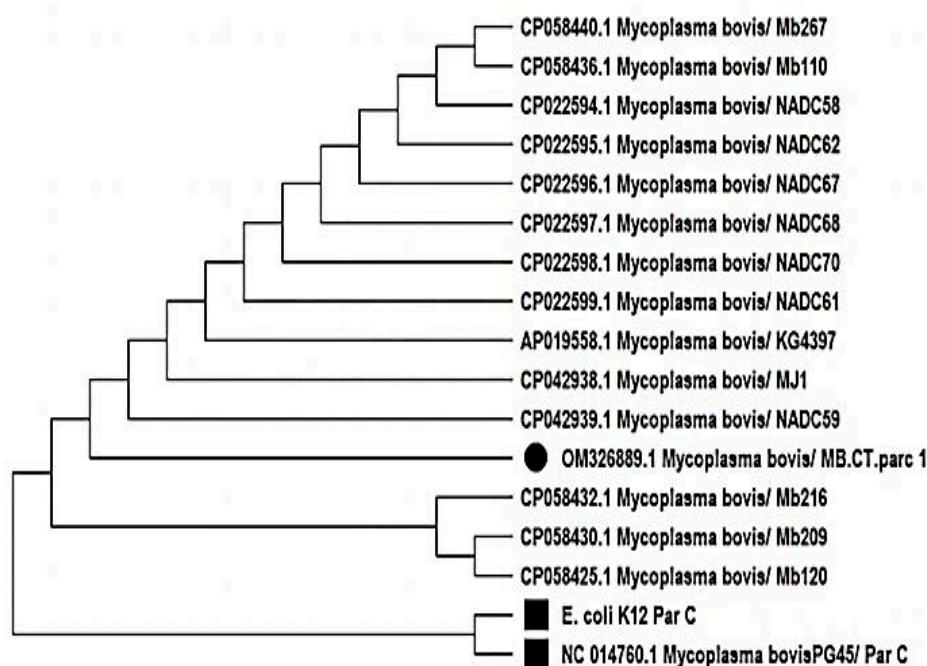
Supplementary Figure S1. Phylogenetic tree of the examined *M. bovis* isolate based on the *gyrA* sequence. ● Our examined *M. bovis* isolate, ■ Reference strains; *E. coli* K12 and *M. bovis* PG45 (control negative; enrofloxacin sensitive).

		10	20	30	40
E. coli K12 gyrA		.....|.....|.....|.....|.....|	KPKDSKSDDEDEDSFQNKPEYKVKQPKLVETEQGGIIFMQ		
OM326888.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP042939.1 Mycoplasma bovis/ N		.....|.....|.....|.....|.....|	.....
CP042938.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP045797.1 Mycoplasma bovis/ X		.....|.....|.....|.....|.....|	.....
CP022599.1 Mycoplasma bovis/ N		.....|.....|.....|.....|.....|	.....
CP022588.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
KR493100.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP007591.1 Mycoplasma bovis/ H		.....|.....|.....|.....|.....|	.....
CP005933.1 Mycoplasma bovis/ C		.....|.....|.....|.....|.....|	.....
CP077758.1 Mycoplasma bovis/ R		.....|.....|.....|.....|.....|	.....
CP058515.1 Mycoplasma bovis/ V		.....|.....|.....|.....|.....|	.....
CP058487.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP058464.1 Mycoplasma bovis/ T		.....|.....|.....|.....|.....|	.....
CP058431.1 Mycoplasma bovis/ A		.....|.....|.....|.....|.....|	.....
CP058416.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
NC_014760.1 Mycoplasma bovis/ P		.....|.....|.....|.....|.....|	.....
		50	60	70	80
E. coli K12 gyrA		.....|.....|.....|.....|.....|	ISKEMKVSFLDYAMSVIVSRALPDARDGLKPVHRIILYDM		
OM326888.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP042939.1 Mycoplasma bovis/ N		.....|.....|.....|.....|.....|	.....
CP042938.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP045797.1 Mycoplasma bovis/ X		.....|.....|.....|.....|.....|	.....
CP022599.1 Mycoplasma bovis/ N		.....|.....|.....|.....|.....|	.....
CP022588.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
KR493100.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP007591.1 Mycoplasma bovis/ H		.....|.....|.....|.....|.....|	.....
CP005933.1 Mycoplasma bovis/ C		.....|.....|.....|.....|.....|	.....
CP077758.1 Mycoplasma bovis/ R		.....|.....|.....|.....|.....|	.....
CP058515.1 Mycoplasma bovis/ V		.....|.....|.....|.....|.....|	.....
CP058487.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP058464.1 Mycoplasma bovis/ T		.....|.....|.....|.....|.....|	.....
CP058431.1 Mycoplasma bovis/ A		.....|.....|.....|.....|.....|	.....
CP058416.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
NC_014760.1 Mycoplasma bovis/ P		.....|.....|.....|.....|.....|	.....
		90	100	110	120
E. coli K12 gyrA		.....|.....|.....|.....|.....|	SELGITSGTQRRKSARIVGDLGKYHPHGDSSVYEAMVRM		
OM326888.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP042939.1 Mycoplasma bovis/ N		.....|.....|.....|.....|.....|	.....
CP042938.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP045797.1 Mycoplasma bovis/ X		.....|.....|.....|.....|.....|	.....
CP022599.1 Mycoplasma bovis/ N		.....|.....|.....|.....|.....|	.....
CP022588.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
KR493100.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP007591.1 Mycoplasma bovis/ H		.....|.....|.....|.....|.....|	.....
CP005933.1 Mycoplasma bovis/ C		.....|.....|.....|.....|.....|	.....
CP077758.1 Mycoplasma bovis/ R		.....|.....|.....|.....|.....|	.....
CP058515.1 Mycoplasma bovis/ V		.....|.....|.....|.....|.....|	.....
CP058487.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP058464.1 Mycoplasma bovis/ T		.....|.....|.....|.....|.....|	.....
CP058431.1 Mycoplasma bovis/ A		.....|.....|.....|.....|.....|	.....
CP058416.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
NC_014760.1 Mycoplasma bovis/ P		.....|.....|.....|.....|.....|	.....
		130	140	150	160
E. coli K12 gyrA		.....|.....|.....|.....|.....|	AQOFSMRYPLIDCHGNFGSIDGDAQAAAMRYTEARMSKVAT		
OM326888.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP042939.1 Mycoplasma bovis/ N		.....|.....|.....|.....|.....|	.....
CP042938.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP045797.1 Mycoplasma bovis/ X		.....|.....|.....|.....|.....|	.....
CP022599.1 Mycoplasma bovis/ N		.....|.....|.....|.....|.....|	.....
CP022588.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
KR493100.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP007591.1 Mycoplasma bovis/ H		.....|.....|.....|.....|.....|	.....
CP005933.1 Mycoplasma bovis/ C		.....|.....|.....|.....|.....|	.....
CP077758.1 Mycoplasma bovis/ R		.....|.....|.....|.....|.....|	.....
CP058515.1 Mycoplasma bovis/ V		.....|.....|.....|.....|.....|	.....
CP058487.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
CP058464.1 Mycoplasma bovis/ T		.....|.....|.....|.....|.....|	.....
CP058431.1 Mycoplasma bovis/ A		.....|.....|.....|.....|.....|	.....
CP058416.1 Mycoplasma bovis/ M		.....|.....|.....|.....|.....|	.....
NC_014760.1 Mycoplasma bovis/ P		.....|.....|.....|.....|.....|	.....

Supplementary Figure S2. Amino acid sequence alignments of the *gyrA* gene of the examined *M. bovis* isolate. The sequences are indicated by their accession numbers.

Seq>		E. coli K12 <i>gyrA</i>	OM326888.1 <i>Mycoplasma bovis</i> /MB.CT. <i>gyrA</i>	CP042939.1 <i>Mycoplasma bovis</i> /NADC59	CP042938.1 <i>Mycoplasma bovis</i> /MJ1	CP045797.1 <i>Mycoplasma bovis</i> /XBY01	CP022599.1 <i>Mycoplasma bovis</i> /NADC61	CP022588.1 <i>Mycoplasma bovis</i> /MJ4	KR493100.1 <i>Mycoplasma bovis</i> /MYC22	CP007591.1 <i>Mycoplasma bovis</i> /HB0501-P180	CP005933.1 <i>Mycoplasma bovis</i> /CQ-W70	CP077758.1 <i>Mycoplasma bovis</i> /RM16	CP058515.1 <i>Mycoplasma bovis</i> /VK9	CP058487.1 <i>Mycoplasma bovis</i> /Mb276	CP058464.1 <i>Mycoplasma bovis</i> /TO VK	CP058431.1 <i>Mycoplasma bovis</i> /AR3	CP058416.1 <i>Mycoplasma bovis</i> /Mb200	NC_014760.1 <i>Mycoplasma bovis</i> /PG45
E. coli K12 <i>gyrA</i>	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
OM326888.1 <i>Mycoplasma bovis</i> /MB.CT. <i>gyrA</i>	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CP042939.1 <i>Mycoplasma bovis</i> /NADC59	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CP042938.1 <i>Mycoplasma bovis</i> /MJ1	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CP045797.1 <i>Mycoplasma bovis</i> /XBY01	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CP022599.1 <i>Mycoplasma bovis</i> /NADC61	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CP022588.1 <i>Mycoplasma bovis</i> /MJ4	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
KR493100.1 <i>Mycoplasma bovis</i> /MYC22	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CP007591.1 <i>Mycoplasma bovis</i> /HB0501-P180	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%
CP005933.1 <i>Mycoplasma bovis</i> /CQ-W70	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%
CP077758.1 <i>Mycoplasma bovis</i> /RM16	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%
CP058515.1 <i>Mycoplasma bovis</i> /VK9	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%
CP058487.1 <i>Mycoplasma bovis</i> /Mb276	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%
CP058464.1 <i>Mycoplasma bovis</i> /TO VK	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%
CP058431.1 <i>Mycoplasma bovis</i> /AR3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%
CP058416.1 <i>Mycoplasma bovis</i> /Mb200	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%
NC_014760.1 <i>Mycoplasma bovis</i> /PG45	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%

Supplementary Figure S3. Amino acid identity percentages between the *gyrA* genes of *E. coli* K12, *M. bovis gyrA* (OM326888), *M. bovis* PG45 (control negative; enrofloxacin sensitive), and other *M. bovis* isolates on GenBank. ID: identity.



Supplementary Figure S4. Phylogenetic tree of the examined *M. bovis* isolate based on the *parC* sequence. • Our examined *M. bovis* isolate, ■ Reference strains; *E. coli* K12 and *M. bovis* PG45 (control negative; enrofloxacin sensitive).

E. coli K12 Par C	VQENLDTVVADRF SRY SKYV IQQALPDVRDGLKPVQRRI LYSMYD LG LQH NKPFKKSAR
NC_014760.1 Mycoplasma bovisPG	.....
OM326889.1 Mycoplasma bovis/ M	.R.....
CP042939.1 Mycoplasma bovis/ N	.R.....
CP042938.1 Mycoplasma bovis/ M	.R.....
AP019558.1 Mycoplasma bovis/ K	.R.....
CP022599.1 Mycoplasma bovis/ N	.R.....
CP022598.1 Mycoplasma bovis/ N	.R.....
CP022597.1 Mycoplasma bovis/ N	.R.....
CP022596.1 Mycoplasma bovis/ N	.R.....
CP022595.1 Mycoplasma bovis/ N	.R.....
CP022594.1 Mycoplasma bovis/ N	.R.....
CP058440.1 Mycoplasma bovis/ M	.R.....
CP058436.1 Mycoplasma bovis/ M	.R.....
CP058432.1 Mycoplasma bovis/ M	.R.....
CP058430.1 Mycoplasma bovis/ M	.R.....
CP058425.1 Mycoplasma bovis/ M	.R.....
	70 80 90 100 110 120
E. coli K12 Par C	VVGDI VICKYHPHCDI SIYNAMVRMCQEWKMGHTLVEMHGNVGSIDDDPAAAMRYTEARLS
NC_014760.1 Mycoplasma bovisPG	.....D.....
OM326889.1 Mycoplasma bovis/ M	.....S...D.....
CP042939.1 Mycoplasma bovis/ N	.....S...D.....
CP042938.1 Mycoplasma bovis/ M	.....S...D.....
AP019558.1 Mycoplasma bovis/ K	.....S...D.....
CP022599.1 Mycoplasma bovis/ N	.....S...D.....
CP022598.1 Mycoplasma bovis/ N	.....S...D.....
CP022597.1 Mycoplasma bovis/ N	.....S...D.....
CP022596.1 Mycoplasma bovis/ N	.....S...D.....
CP022595.1 Mycoplasma bovis/ N	.....S...D.....
CP022594.1 Mycoplasma bovis/ N	.....S...D.....
CP058440.1 Mycoplasma bovis/ M	.....S...D.....
CP058436.1 Mycoplasma bovis/ M	.....S...D.....
CP058432.1 Mycoplasma bovis/ M	.....S...D.....
CP058430.1 Mycoplasma bovis/ M	.....S...D.....
CP058425.1 Mycoplasma bovis/ M	.....S...D.....

Supplementary Figure S5. Amino acid sequence alignments of the *parC* gene of the examined *M. bovis* isolate. The sequences are indicated by their accession numbers.

Seq>	E. coli K12 Par C																		
	OM326889.1 Mycoplasma bovis/ MB.CT.parc 1																		
	CP042939.1 Mycoplasma bovis/ NADC59																		
	CP042938.1 Mycoplasma bovis/ MJ1																		
	AP019558.1 Mycoplasma bovis/ KG4397																		
	CP022599.1 Mycoplasma bovis/ NADC61																		
	CP022598.1 Mycoplasma bovis/ NADC70																		
	CP022597.1 Mycoplasma bovis/ NADC68																		
	CP022596.1 Mycoplasma bovis/ NADC67																		
	CP022595.1 Mycoplasma bovis/ NADC62																		
	CP022594.1 Mycoplasma bovis/ NADC59																		
	CP058440.1 Mycoplasma bovis/ Mb267																		
	CP058436.1 Mycoplasma bovis/ Mb110																		
	CP058432.1 Mycoplasma bovis/ Mb216																		
	CP058430.1 Mycoplasma bovis/ Mb209																		
	CP058425.1 Mycoplasma bovis/ Mb120																		
	NC_014760.1 Mycoplasma bovis/PG45/ Par C																		
E. coli K12 Par C	ID	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
OM326889.1 Mycoplasma bovis/ MB.CT.parc 1	98%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
CP042939.1 Mycoplasma bovis/ NADC59	98%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
CP042938.1 Mycoplasma bovis/ MJ1	98%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
AP019558.1 Mycoplasma bovis/ KG4397	98%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
CP022599.1 Mycoplasma bovis/ NADC61	98%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
CP022598.1 Mycoplasma bovis/ NADC70	98%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
CP022597.1 Mycoplasma bovis/ NADC68	98%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
CP022596.1 Mycoplasma bovis/ NADC67	98%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
CP022595.1 Mycoplasma bovis/ NADC62	98%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	100%	99%
CP022594.1 Mycoplasma bovis/ NADC59	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	100%	99%
CP058440.1 Mycoplasma bovis/ Mb267	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	100%	99%
CP058436.1 Mycoplasma bovis/ Mb110	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	100%	99%
CP058432.1 Mycoplasma bovis/ Mb216	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	100%	100%	99%
CP058430.1 Mycoplasma bovis/ Mb209	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	100%	99%
CP058425.1 Mycoplasma bovis/ Mb120	98%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	ID	100%	99%
NC_014760.1 Mycoplasma bovis/PG45/ Par C	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	99%	ID

Supplementary Figure S6. Amino acid identity percentages between the *ParC* genes of *E. coli* K12, *M. bovis* *ParC* (OM326889), *M. bovis* PG45 (control negative; enrofloxacin sensitive), and other *M. bovis* isolates on Genebank. ID: identity.