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## ELISA and Other Tests in Diagnosis of *Pasteurella multocida* Infection in Camels in Egypt

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### Abstract

The bacteriological examination of internal organs from 14 dead camels had severe respiratory symptoms revealed the isolation of *Pasteurella multocida* (PM) from 86.6 % of the collected organs (52 out of 60) *P. multocida* subspecies *multocida* (PMM) (serotype B) represented 85 % of the isolates, while *P. multocida* subspecies *septica* (PMS) (serotype A) was isolated only from one lung specimen (1.7 %). Nasal swabs and blood specimens from clinical cases and contact apparently healthy camels showed similar isolation patterns. PMM serotype (B) was isolated in 85.9 %, 65.6 % and 30.4 %, 8.1 % respectively, while PMS serotype (A) was isolated from clinical cases only, 3.1 % and 1.6 % respectively. PMM serotype (A) was also isolated from nasal swabs of contact apparently healthy camels (3 %).

Indirect hemagglutination test (IH) showed higher PM antibody titers in the serum of clinical cases reached 1:512 in 17.2 % of the clinical cases against 0 % in contact apparently healthy camels. In Dot immunobinding assay (DIA), 95.3 % of serum samples from the clinical cases were tested positive with an optical density (OD) range from 0.59 to 1.17, whereas only 4.7 % were tested negative. Serum samples from contact apparently healthy animals showed 72.6 % positive results, whereas 27.4 % were negative. Serum IgG-ELISA revealed PM antibodies in 96.9 % of the clinical cases with OD range from 0.66 to 1.63. Two clinical cases were tested negative (3.1 %). In contact apparently healthy camels, 75.6 % of the samples were tested positive with a lower OD range, while 24.4 % of the samples were negative. Nasal secretion ELISA revealed the presence of PM antibodies in 95.3 % of the nasal secretions from clinical cases with OD range from 0.62 to 1.27 while 4.7 % of the samples were negative. Contact apparently healthy camels showed positive results in 74.1 % of the samples, with OD range from 0.62 to 1.03, whereas the negative represented 25.9 %.

Serum biochemical analysis showed significant decrease in total protein, albumin as well as A/G ratio, while the globulin fraction was increased. The enzyme activity of ALT, AST, alkaline phosphatase as well as the values of creatinine, urea and uric acid were significantly increased. Minerals profiles were also altered, calcium, phosphorus, magnesium, sodium, chloride were significantly decrease, whereas potassium increased. It was concluded that serum IgG-ELISA was superior to nasal secretion IgG-ELISA, DIA and IH which can also assess in the diagnosis of PM infection in camels in conjunction with serum biochemical parameters.

**Keywords:** Camel, Dot immunobinding assay, indirect hemagglutination, nasal discharge ELISA, *Pasteurella multocida*, serum ELISA