# INTRODUCTION

Fowl cholera (FC) is one of the most important contagious world-wide diseases adversely threatens poultry production **(Heddleston and Rhoades, 1978, Rimler and Glisson, 1997, OIE, 2008 and Xiao et al., 2015)**. In chickens, FC is an acute septicaemic disease causing high morbidity and mortality or chronic infections **(David et al., 1991, Glisson et al., 2008 and Furian et al., 2016)**. The disease severely affects layers and breeders flocks **(Salami et al., 1989, Christiansen et al., 1992, Rimler et al., 1998, Kumar et al., 2004, Happer et al., 2006 and Wang et al., 2009)**. FC is caused by *Pasteurella multocida* (*P. multocida*) bacterium which is belonging to Family *Pasteurellaceae*. *P. multocida* is a Gram-negative coccobacilli, non-motile and non-spore former capsulated microorganism **(Mutters et al., 1985, Eigaard et al., 2006 and Levy et al., 2013)**. Avian *P. multocida* capsular sero-group are A, B, D, E and F, while somatic serotypes are 1 to 16. Serotypes A:1, A:3 and D are considered as the most common cause of outbreaks of FC in most countries **(Ranjan et al., 2011 and Zahoor et al., 2014)**. Diagnosis of FC is still depends on clinical and pathological conditions as well as traditional identification of *P. multocida* morphologically, biochemically **(Rimler and Glisson, 1997)** and serologically **(Carter, 1955 and Rimler and Rhoades, 1987)**. Conventional diagnostic methods for *P. multocida* detection is not effective in all cases since it is time consuming and less sensitive as compared to molecular technique like polymerase chain reaction (PCR) **(Kamp et al., 1996)**. For more specific and rapid detection of *P. multocida*, PCR is used **(Kasten et al., 1997, Townsend et al., 1998, Sellyei et al., 2008 and Panna et al., 2015)**.

Vaccination against FC is considered as one of the most important worldwide strategy to decrease the incidence of infection **(Perelman et al., 1990 and Kardos and Kiss, 2005)**. Bacterins that are used for prevention of FC using usually afford homologous but not heterologous protection **(Heddleston, 1962**

**and Petersen et al., 1991)**. Immunogenic local strain of *P. multocida* should be selected as the ideal strain to prepare effective bacterin **(Akhtar et al., 2016)**.

Antimicrobials resistance of bacteria has become a great problem in human and veterinary Medicine **(Levy, 1998)**. Therapy using antimicrobials has been widely used for the treatment of *P. multocida* with varying results depending on species, time, geographical origin and the kind of drug used **(Rimler and Glisson, 1997 and Caprioli et al., 2000)**. Strains of *P. multocida* are susceptible to most of the widely used commercial antimicrobial agents. However, haphazard, indiscreet and prolonged use of antimicrobials for treatment of *P. multocida* accelerates the emergence of multidrug resistance to commonly used chemotherapeutic agents **(Arora et al., 2005)**. The antibiotic resistance increases the incidence of *P. multocida* infection and subsequently affects the economy of the locality.

So, the aim of this work was:

1. A trial for isolation, biochemical and serological identification of *P. multocida* strains in chickens layers and breeders flocks from various Egyptian governorates.
2. Molecular identification of the *P. multocida* isolates using PCR.
3. A trial for preparation of locally inactivated vaccine from the predominant *P. multocida* isolated strains and determination of its efficacy.
4. Antibiogram for detection of the *In-vitro* antibiotic sensitivity of *P. multocida* local strains to different antimicrobials.