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# ROLE OF RATS IN SPREADING OF BRUCELLA INFECTION IN CATTLE .

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# الملخص العربى

# 1- INTRODUCTION

Brucellosis is a major zoonotic disease of domestic and wild animals which is facultative intracellular pathogens that have the ability to survive and multiply in professional and non professional phagocytes and cause undulant fever in human. Manifested itself as a systemic febrile and illness, most human disease is caused by Brucella melitensis but Brucella abortus and Brucella suis are also highly pathogenic .The disease exists worldwide especially in the Mediterranean Basian, the Arabian peninsula, the Indian subcontinent , parts of Mexico and central and south America (Young 1999). This infection is considered to be a problem because Brucella abortus vaccines don't protect effectively against Brucella melitensis infection emerges as an increasingly serious public health problem in some countries (Corbel 1997).

The disease is recognized in more than 100 countries, with an estimated one million new cases per year , most cases occur as a result of occupational exposure to animal or ingestion of non pasteurized products . laboratory workers exposed to the agent are also at high risk of infection . Brucellosis can be acquired through ingestion and through breaks in the skin and aerosol transmission also occur (Buchanan et al .,1974) .

Brucella is a cocco bacillus, gram negative , non sporing and non motile aerobic bacterium whose hosts are mostly animals (Alton et al .,1988) .

The bacterium possesses an unconventional non endotoxic lipopolysacharide that confers resistance to antimicrobial attacks and modulates the host immune response.

Brucellosis affect both human and animals such as cattle, sheep, goats, swine and dogs (Xiang et al .,2006) wild life including rats are also susceptible and may play a role in transmission to domestic animals and humans (Moore et al.,(1981) , (Monir and Deniss 2001) , currently . There are six recognized species of Brucella based on phenotypic characteristics , antigenic variation and prevalence of infection in different animals hosts, Brucella abortus (cattle) , Brucella canis (dogs) , Brucella melitensis (goat& sheep) Brucella neotomae (desert wood rat) , Brucella ovis (sheep) , and Brucella suis (pigs,reindeer and hares) (corbel, 1997; Moreno et al., 2002). Recently, two Brucella strains from marine mammals have been reported (Bricker et al., 2000; Cloeckaert el al., 2000). And the names Brucella pinnipediae (Seal / otter) and Brucella cetaceae (Porpoise / whale) have been proposed (Cloeckaert et al., 2003).

In Egypt , brucellosis has been reported and recorded as early as 1939, however, attention was directed to the disease only during the 1960 . The incidence of brucellosis in cattle on some farms became very high , the disease was also reported in buffaloes , sheep , goat , swine ,camels , horses , donkeys , dogs , rats which cause major problem due to the economic losses. These losses , are due to abortion, drop in milk yield , Infertility as well as disturbance in breeding system beside its zoonotic importance.(Refai.,1988)

Brucella abortus has been isolated from rats and the rat infections occurs in areas with large numbers of infected cattles which suggests that the cattle are important source of infection for rats (Moore and Schnurrenberger.,1981).