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## Full Length Article

## Sero-diagnosis of brucellosis in sheep and humans in Assiut and El-Minya governorates, Egypt

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## ABSTRACT

Egypt is an endemic area with brucellosis, so whenever herd problem associated abortion is present, brucellosis should be suspected, and its sero-diagnosis is needed. The present study aimed to estimate the seroprevalence of brucellosis in sheep and their contact humans in Assiut and El-Minya Governorates where a history of abortion in sheep was the chief complaint of the farmers; besides, the appearance of signs of undulant fever among some contact humans. Also, to identify the risk factors for brucellosis seropositivity at human and animal level. Serum samples were collected from 189 sheep and 53 in contact humans in Assiut and El-Minya Governorates, Egypt, during 2017. Antibodies against brucellosis were measured in the serum samples using Rose Bengal Plate test (RBPT) and were further confirmed using Serum Tube Agglutination Test (STAT). The overall seroprevalence of brucellosis using RBPT was 15.87% in sheep and that in humans was 9.44% (5 of 53), respectively. STAT confirmed that 40% of the RBPT-positive reactor sheep were infected by *Brucella abortus*, 16.67% were containing *Brucella melitensis* and 20% were experiencing a mixed infection of both *Br. abortus* and *Br. melitensis*. Additionally, 80% of the RBPT-positive reactor humans were infected with *Br. abortus* only and 20% were having both species of *Brucella*. Among different analyzed variables in this study, the age and farming system of the examined sheep were statistically significant. There was no significant effect in relation to gender, abortion history and pregnancy status of the examined animals, however, higher exposure rates were found among males, abortive animals, and recently calved animals. Gender of the tested humans and presence of seropositive sheep in contact differed significantly in acquiring the infection. Nevertheless, other factors, including age, education, and profession were statistically insignificant on getting human brucellosis. These results indicate the high seroprevalence of brucellosis in humans and sheep in the study areas and generally in Egypt, and therefore, control programs should be implemented.

## 1. Introduction

Brucellosis is a common neglected zoonosis with a global geographical distribution, and as such jeopardizes human health and animal production [1]. The etiological agents causing brucellosis belong to genus *Brucella*, and the classical disease in humans is mainly caused by *Br. abortus* (from cattle), *Br. melitensis* (from goats and sheep), and *Br. suis* (from pigs) [2]. Human can acquire brucellosis via contact with infected animal secretions and carcasses or consumption of their products, mostly unpasteurized milk and milk products [3].

In sheep, brucellosis causes late abortion, stillbirth, reduced fertility and decreased milk production resulting in significant economic losses

while in humans, it has a variety of clinical manifestations such as undulant fever, malaise, insomnia, arthralgia, sexual impotence, nervousness and depression [4]. Human brucellosis is also known for multiple organ involvement causing encephalitis, meningitis, endocarditis, arthritis, orchitis, and prostatitis [4]. Additionally, brucellosis can induce spontaneous abortions in pregnant women [5].

In Egypt, brucellosis is still endemic and the true incidence of human brucellosis is underestimated [6]. In a hospital based survey conducted over two-years in two large hospitals in Cairo, 5% of the admitted patients were positive for brucellosis [7]. Between 1999 and 2003, out of 10,130 Acute febrile illness (AFI) patients from 13 infectious disease hospitals in different regions of Egypt, 3% and 11%

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# Diseases Of Sheep Assiut University

**Karin Nielsen-Saines**



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