Iraqi Journal of Veterinary Sciences, Vol. 22, No. 2, 2008 (77-79)

Screening test for avian influenza virus antigen in poultry in Mosul

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(Received April 2, 2008; Accepted December 16, 2008)

Abstract

Rapid avian influenza virus antigen test kit and rapid H_5 avian influenza virus antigen test kit were used to detect avian influenza antigens by examine 1143 samples taken from broilers, layers, house chickens, local poultry markets and poultry slaughters houses in period from January to December 2007 in Mosul city. Cloacae feces swab method was used for all samples and results showed that all tested samples were negative for both AIV and H_5 antigens. In conclusion Mosul city was free from avian influenza virus till Dec 2007 and this test is rapid, easy and a reliable field test and can be done frequently.

Keywords: Avian flu, Chicken, Influenza virus, Antigen.
Available online at http://www.vetmedmosul.org/ijvs

التحري عن مستضد فايروس أنفلونزا الطيور في الدواجن في الموصل

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الخلاصة

تم استخدام عدة الاختبار السريع لمستضد فايروس أنفلونزا الطيور وعدة الاختبار السريع لمستضد H_5 لفايروس أنفلونزا الطيور للكشف عن مدى انتشار مستضد فايروس أنفلونزا الطيور بفحص ١١٤٣ نموذج مأخوذ من فروج اللحم, الدجاج البياض, الدجاج المنزلي, الأسواق المحلية للدواجن, مجازر الدواجن للفترة من كانون الثاني لغاية كانون الأول ٢٠٠٧ في مدينة الموصل وقد استخدمت طريقة المسحات من المجمع ألبرازي لأخذ جميع النماذج وقد أظهرت النتائج بان جميع العينات المفحوصة كانت سالبة لكل من الاختبار السريع والمستضد H_5. يستخلص من ذلك بأن مدينة الموصل خالية من مرض أنفلونزا الطيور لغاية كانون الأول ٢٠٠٧ وعدة التشخيص المستخدمة كانت سريعة وسهلة ويمكن استخدامها حقليا بشكل مستمر.

Introduction

Avian influenza disease (AID) is a zoontic viral disease caused by avian influenza virus (AIV) type A which is classified under the family orthomyxoviridae (1). The virus varies widely in its pathogenecity and its ability to spread among the birds, which usually act as carriers, and some strains of (AIV) cause fever, illness or death in poultry (2,3).

H_5N_1 has been proved to be more virulent and caused 100% morbidity and mortality in poultry (4). This subtype H_5N_1 found to be associated with death in human creating aserious public health concern (5).

This study was carried out to detect the presence of AIV Ags in chickens in Mosul city which can be considered as reservoir or carrier of most subtypes of AIV (6).

Materials and methods

Sampling: cloacae fecal samples were taken from poultry (broilers, layers, house chickens, local poultry markets and poultry slaughters house) at total number of 1143 samples during January till December 2007 in Mosul city.

Detection of Avian Influenza virus antigen:

1-Avian influenza virus antigen test kit (Antigen animal genetics, Inc. Korea) which contains:

- Rapid AIV antigen test devices.
- sample collection tubes containing 1 ml of assay diluents.
- sample collection swabs.
- disposable droppers.

Cloacae fecal swab method was used by inserting the swab inside the cloacae several times then insert the swab into the sample collection tube containing assay diluents. Then mixing until the sample has been dissolved in the assay diluents, and left the tube until the large particles have settled down in the bottom of the tube (approximately 1 minute). Then five drops of supernatant was taken by disposable dropper and added to the sample hole on the test device. As the test begins to work, purple color will move across the result window in the center of the test device and the interpretation of the results at 30 minutes in comparison with positive control according to the kit manufacturer instructions.

Positive result indicate presence of AIV antigen type A only.

2-Anigen rapid H_5 Avian Influenza virus antigen test kit:-

The same method mentioned above using (AIV) antigen against H_5 only according to kit manufacturing instruction (Antigen animal genetics, Inc. Korea)

Results

All tested samples in both types of kit for (AIV) type A and H_5 antigen were negative in all source of testing samples (Table 1**).**

Table 1: Results of avian influenza virus antigens detection

Source of samples	Number of tested samples		Total number	Results
	(AIV) type A	(AIV) type H_5		
Broilers	129	145	274	- ve
Layers	155	95	250	- ve
House chickens	104	54	158	- ve
Local poultry markets	129	84	213	- ve
Poultry slaughters	137	111	248	- ve
Total	654	489	1143	- ve

Discussion

Avian influenza disease is well known as very dangerous disease in poultry (7). The subtype H_5N_1 was proved to be the most virulent in poultry and human (5). There fore it is very important to check the appearance of this disease in poultry before it becomes a source of infection in human, especially as other subtype (H_9N_2) of AIV was isolated in Iraq (8-9). Other studies were done in Mosul and detect (AIV) antibodies in poultry serum (10-11) which indicated that 78% examined serum were positive against H_9N_2 in poultry and 81.8% in pigeons respectively. In this study rapid AIV antigen test kit was used which is chromatographic immunoassay for the qualitative detection of (AIV) type A. In this kit selected AIV antibodies were used as both capture and detector materials to identify (AIV) Ags in avian with high degree of accuracy as well as Anigen rapid H_5 (AIV) Ag test kit to detect only H_5 which is till now not detectable in Mosul city as this study was the first study in Mosul to detectable AIV Ag using these types of rapid tests which can be used as screening tests that it is easy, reliable and its interpretation need not more than thirty minutes when the reaction colour change to purple in positive result and remain no change in negative result according to the coloured positive and negative control provided with the kits information.

Acknowledgments

This study was supported by the College of Veterinary Medicine, University of Mosul and Mosul Veterinary Hospital.

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