

Detection test for avian influenza virus antigen in poultry in Kirkuk

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ABSTRACT

Keywords:

Avian flu, Chicken,
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Rapid avian influenza virus antigen test kit and were used to detect avian influenza antigens by examine 954 samples taken from broilers, layers, house chickens, local poultry markets and poultry slaughters houses_in period from January to June 2014 in Kirkuk city. Cloacae feces swab method was used for all samples and results showed that all tested samples were negative for AIV. In conclusion Kirkuk city was free from avian influenza virus till June 2014 and this test is rapid, easy and a reliable field test and can be done frequently.

التحري عن مستضد فايروس انفلونزا الطيور في الدواجن في كركوك

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الخلاصة

تم استخدام عدة الاختبار السريع لمستضد فايروس انفلونزا الطيور للكشف عن مدى انتشار مستضد فايروس انفلونزا الطيور بفحص 954 نموذج مأخوذ من فروج اللحم، الدجاج البياض، الدجاج المنزلي، الاسواق المحلية للدواجن، مجازر الدواجن، مجازر الدواجن للفترة من كانون الثاني الى حزيران 2014 في مدينة كركوك وقد استخدمت طريقة المسحات من المجمع البرازي لاختذ جميع العينات وقد أظهرت النتائج بان جميع العينات المفحوصة كانت سالبة للاختبار السريع. يستخلص من ذلك بان مدينة كركوك خالية من مرض انفلونزا الطيور لغاية كانون الاول 2014 وعدة التشخيص المستخدمة كانت سريعة و سهلة ويمكن استخدامها حقليا بشكل مستمر.

الكلمات المفتاحية:

التحري ، مستضد ، فايروس ،
انفلونزا الطيور، الدواجن ،
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Introduction:

Avian influenza virus belongs to the Orthomyxoviridae family, which is divided into hemagglutinin (HA) and neuraminidase (NA) subtypes based on the cell surface antigens. There are now 18 known HA and 11 known NA subtypes when including those recently found in bats (Tong et al.,2013), H5 and H7 virus subtypes are highly virulent in poultry (Madsen et al.,2013) Avian influenza is a highly contagious disease that affects many animals, including pigs, chickens, turkey, guinea fowls, and other avian species, specially migratory water fowl (Clavijo et al.,2003, Woo et al., 2008, Obon et al.,2009, ICDDR,B, 2011). Human had infected highly pathogenic avian influenza (H5N1) virus in Hong Kong during 1997 (Chan, 1997) and again in 2003 (Peiris et al., 2004). Most human cases had resulted from sporadic avian-to-human transmission of H5N1 virus during direct or close contact with sick or dead poultry (Dinh et al., 2006, Timothy et al., 2012). This study was carried out to detect the presence of AIV Ags in chickens in Kirkuk city which can be considered as reservoir or carrier of most subtypes of AIV.

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 954 samples during January till June 2014 in Kirkuk city.

Detection of Avian Influenza virus antigen:

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

- 1- Rapid AIV antigen test devices.
- 2- sample collection tubes containing 1 ml of assay diluents.
- 3- sample collection swabs.
- 4- 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.

Results

All tested samples in both types of kit for (AIV) type A 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 (AIV) type A	Results
Broilers	218	- ve
Layers	254	- ve
House chickens	161	- ve
Local poultry markets	173	- ve
Poultry slaughters	148	- ve
Total	954	- ve

Discussion

The highly pathogenic avian influenza (HPAI) virus has been a considerable problem in Asia and more recently in Europe. Repeated outbreaks of HPAI (H5N1) in Southeast Asia that resulted in the death of poultry in the hundreds of millions pose a pandemic threat to human health (Li et al., 2004, Subbarao et al., 1998). Since HPAI (H5N1) was first shown to infect humans in 1997, more than 417 confirmed human infections (257 resulting in death) have been reported (WHO, 2009) . Even though few cases resulting from human-to-human transmission have been reported, most HPAI (H5N1) infections in humans have been due to exposure to infected poultry (Ungchusak et al., 2005), especially as other subtype (H9N2) of AIV was isolated in Iraq (Khamas, 2008, Al-Kelaby, 2014).

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 which is till now not detectable in kirkuk city as this study was the first study in kirkuk 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 color 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.

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