

**KAJIAN KEBERADAAN INFEKSI SUBKLINIS VIRUS AVIAN
INFLUENZA PADA BURUNG *LOVEBIRD* (*Agapornis spp.*)
DI SUKABUMI, JAWA BARAT**

INTISARI

Infeksi *avian influenza virus* (AIV) telah ditemukan di ayam yang tampak sehat tanpa adanya gejala klinis sakit. Hal ini diduga akibat vaksinasi yang tidak menghasilkan *sterilizing immunity*. Kondisi demikian menjadi suatu pertanyaan bagaimana untuk unggas yang tidak divaksinasi, antara lain burung peliharaan. Penelitian ini dilakukan untuk mendeteksi adanya infeksi subklinis AIV pada burung *lovebird* (*Agapornis spp.*) yang tampak sehat. Burung *lovebird* sebanyak 30 ekor berasal dari Sukabumi, Jawa Barat, dan akan dilalulintaskan digunakan sebagai sampel dalam penelitian ini. Sampel swab *oropharyngeal* dan serum darah dikoleksi untuk dilakukan pemeriksaan *real-time reverse transcriptase polymerase chain reaction* (rRT-PCR) dan uji hemaglutinasi (HA) dan hemaglutinasi inhibisi (HI). Burung *lovebird* dieutanasia dan dinekropsi untuk diambil sampel organ paru-paru. Pemeriksaan AIV di dalam organ paru-paru dengan metode rRT-PCR dan imunopatologis imunohistokimia *streptavidin biotin* (IHK SB). *Real-time RT-PCR* dilakukan dengan membuat *pooling* untuk mendeteksi matriks Influenza A, hasil uji positif dilanjutkan dengan pemeriksaan sub tipe H5, H7 dan H9. Hasil uji positif rRT-PCR dilanjutkan dengan isolasi dan identifikasi virus pada telur ayam berembrio kemudian dilanjutkan dengan sekuensing. Pemeriksaan patologis anatomis dan histopatologis dilakukan untuk melihat lesi yang ada pada paru-paru. Pemeriksaan imunopatologis IHK SB dilakukan dengan menggunakan antibodi primer poliklonal anti nukleoprotein AIV. Hasil positif dilanjutkan dengan deteksi menggunakan antibodi primer monoklonal anti H5N1 dan antibodi primer poliklonal anti H7N9. Hasil penelitian menunjukkan bahwa pada semua sampel tidak ditemukan antibodi terhadap H5N1, hasil uji HA dan swab *oropharyngeal* dengan rRT-PCR 100% negatif terhadap AIV. Pemeriksaan organ paru-paru dengan rRT-PCR menunjukkan hasil positif 2 dari 6 sampel *pooling* (33%). Hasil rRT-PCR terhadap H5, H7 dan H9 menunjukkan hasil negatif. Hasil isolasi dan identifikasi virus juga menunjukkan hasil negatif, sehingga tidak dapat dilakukan sekuensing. Gambaran lesi patologis organ paru-paru pada semua sampel menunjukkan paru-paru tampak membengkak, keruh dan terlihat adanya difusi kongesti yang parah serta adanya hemoragis *petechial* atau linear. Lesi histopatologis menunjukkan adanya difusi kongesti yang parah dan hemoragis di parenkim paru-paru. Hasil imunopatologis IHK SB menunjukkan bahwa semua sampel (100%) positif terhadap Influenza A, H5N1 dan H7N9. Kesimpulan dari penelitian ini ialah terjadi infeksi subklinis AIV secara alamiah pada burung *lovebird* yang secara klinis nampak sehat. Dengan menggunakan IHK SB dapat diketahui bahwa sub tipe AIV yang menginfeksi ialah H5N1 dan H7N9. Hal ini menunjukkan bahwa IHK SB bersifat sensitif dan spesifik sehingga dapat digunakan sebagai peneguh diagnosa pada pemeriksaan infeksi subklinis AIV pada unggas.

Kata kunci: AIV, infeksi subklinis, burung *lovebird*, rRT-PCR, IHK SB.

**STUDY OF AVIAN INFLUENZA VIRUS SUBCLINICAL
INFECTION IN LOVEBIRD (*Agapornis* spp.)
IN SUKABUMI, WEST JAVA**

ABSTRACT

Avian influenza virus (AIV) infection had been found in apparently healthy chickens without clinical signs of illness. It was suspected that vaccinations did not induce the sterilizing immunity. Now, it becomes a question for what happen in unvaccinated poultry, including the ornamental birds. This study was conducted to detect the presence of AIV subclinical infection in healthy looking lovebirds (*Agapornis* spp.). Thirty lovebirds, from Sukabumi West Java and will be trafficked, used as samples in this study. Oropharyngeal swab and serum samples were collected for real-time reverse transcriptase polymerase chain reaction (rRT-PCR) examination and hemagglutination (HA) and hemagglutination inhibition (HI) tests. The lovebirds were euthanized and necropsied for lung organ samples. Examination of AIV in the lungs using the rRT-PCR method and immunohistochemical immunohistochemistry of streptavidin biotin (IHC SB). The rRT-PCR samples were pooled to detect the Influenza A matrix, the positive results, then was followed by detection of H5, H7 and H9 subtypes. All the positive results of rRT-PCR test were followed by isolation and identification of the virus in embryonated chicken eggs and then continued with sequencing. Anatomical and histopathological examinations were performed to see the lesions in the lungs. Immunopathological examination with IHC SB using AIV anti-nucleoprotein polyclonal primary antibody. The positive results were continued with detection using anti H5N1 monoclonal primary antibody and anti H7N9 polyclonal primary antibody. The results showed that in all samples there were no antibodies to H5N1, the results of the HA test and oropharyngeal swab with rRT-PCR were 100% negative for AIV. Examination of the lungs by rRT-PCR showed positive results in 2 of 6 pooling samples (33%). The results of rRT-PCR against H5, H7 and H9 showed negative results. The results of virus isolation also showed negative results, so sequencing could not be carried out. Pathological lesions in all lung samples showed that the lungs appeared swollen, were opaque, and exhibited severe and diffuse congestion and petechial or linear hemorrhages. Histopathological lesions such as severe and diffuse congestion and hemorrhage in the lungs parenchyma. The immunopathological results of IHC SB showed that all samples (100%) were positive for Influenza A, H5N1 and H7N9. The conclusion of this study showed that healthy-looking lovebirds can be naturally infected by AIV without any clinical signs. By using IHC SB, it can be discovered that the infecting AIV were H5N1 and H7N9 subtypes. It showed that IHC SB was sensitive and specific, so it could be used as a confirmation of diagnosis in the an examination of subclinical AIV infection in poultry.

Keywords: AIV, subclinical infection, lovebirds, rRT-PCR, IHC SB.