

RINGKASAN

Penelitian yang berjudul “Analisis Homologi dan Karakteristik Filogenetik Gen Pengkode Protein Fusion (F) Regio 4607-4718 bp Virus Newcastle Disease pada Isolat Ayam Kampung (*Gallus gallus domesticus*) di Surabaya” dibawah bimbingan Prof. Dr. Fedik A. Rantam, drh. selaku pembimbing utama dan Dr. Tjuk Imam Restiadi, drh.,M.Si. selaku pembimbing serta.

Penelitian ini telah mengisolasi 36 sampel yang terduga terinfeksi ND dari burung lokal yang berada didaerah sekitar Surabaya. Sampel tersebut terdiri dari Burung pipit, Burung Blekok Sawah, Ayam Kampung, Ayam Ketawa, Burung Dara, dan Ayam Kate. Selanjutnya dilakukan uji HA dan HI, dari 36 sampel yang terlihat hasil positif hanya tiga sampel, salah satunya adalah sampel Ayam Kate (*Gallus gallus domesticus*), dengan titer 2^7 . Sampel Ayam Kate (*Gallus gallus domesticus*) diberi label “KT”. Kemudian dilakukan *One Step* RT-PCR untuk amplifikasi DNA spesifik menjadi banyak kopi sekuen DNA. Hasil elektroforesis menunjukkan terdapat *band* pada marker 112 bp. Sekuensing nukleotida dilanjutkan untuk menganalisis homologi dan filogenetik. Hasil sampel KT dibandingkan dengan referensi sekuen strain LaSota, Komarov, dan isolate dari GenBank. Isolat tersebut terdiri dari Kulonprogo 2017, Tabanan 2017, Belitung 2015, Tangerang 2012, Bogor 2012, Tangerang 2011, Tangerang2 2011, Bali 2010, Sragen 2010, dan Kudus 2010.

Hasil perbandingan homologi menunjukkan sampel Ayam Kate (*Gallus gallus domesticus*) dengan Refseq memiliki perbandingan 88%. Hasil tersebut sama dengan perbandingan strain LaSota. Perbandingan dengan isolate dari GenBank memiliki nilai 68%-71%. Hasil filogenetik sampel Ayam Kate (*Gallus gallus domesticus*) memiliki satu clade dengan strain LaSota dan komarov. Sedangkan hubungan sampel dengan isolate dari GenBank berbeda cluster.

Homology Analysis and Phylogenetic Characteristic of Fusion Protein Coding Gene 4607-4718 bp Newcastle Disease Virus from Native Chicken (*Gallus gallus domesticus*) in Surabaya

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ABSTRACT

Newcastle Disease caused by Newcastle Disease Virus genus avulavirus, family *Paramyxoviridae*, which had seven genetic code protein. One of them is Fusion (F) protein. Fusion (F) protein play an important role to enveloped virus with membrane tissue infection. Therefore, this study was to analyze the homology of nucleotide sequence, homology percentage, and determine of phylogenetic relation from fusion (F) protein coding gene of Newcastle Disease (ND) from Bantam Chicken (*Gallus gallus domesticus*) in Surabaya comparison isolate from GenBank. Sample have three of thirty-six samples isolated from domestic avian in Surabaya were positive ND. One of these samples were Bantam Chicken (*Gallus gallus domesticus*) sample. Titre of HA and HI the Bantam Chicken (*Gallus gallus domesticus*) show 2^7 . Then, sample were identified using One Step RT-PCR with primer forward and reverse with target 112 bp. The sequence of PCR product was analyse using BioEdit ver.7.0. The result of homology was analyzed using Needle-Wunsch Global Align Nucleotide Sequence on NCBI. These score 88% were compared with LaSota strain and show 85% with Komarov strain. The score 68-71% were compared to reference sequences from GenBank. The conclusion was Bantam Chicken has quite high similarity with LaSota strain and Komarov strain and Phylogenetic analysis from isolates in this research relate to more isolates of vaccine and more isolates in Indonesia.

Key word: Fusion Protein, Homology, Newcastle Disease, Phylogenetic.