INTISARI

Virus *Newcastle disease* merupakan virus patogen pada unggas yang tersebar luas dan mempunyai arti penting pada sektor ekonomi. Vaksin unggas pada umumnya digunakan untuk mencegah dan mengendalikan penyakit virus menular pada unggas. Pada penelitian sebelumnya telah berhasil dilakukan analisis filogenetik dan subkloning gen penyandi protein F virus ND dari ayam kampung isolat Galur, Kulon Progo (0663/04/2013). Studi ini difokuskan pada pengembangan vaksin rekombinan ND, dilakukan ekspresi dan purifikasi protein *fusion* (F) rekombinan ND. Protein F rekombinan *histidine (His)-tagged* dianalisis dengan SDS-PAGE 12% dan *Western blotting*. Imunogenisitas protein F pada ayam broiler dievaluasi menggunakan *indirect* ELISA untuk mendeteksi keberadaan antibodi anti-ND pada serum ayam. Sampel serum protein F rekombinan ND dibandingkan dengan vaksin inaktif komersial, adjuvant, dan kontrol. Hasil penelitian ini menunjukkan bahwa berat molekul protein F rekombinan ND adalah 25,6 kDa, hasil imunogenisitas dengan ELISA menunjukkan perbedaan yang signifikan antara protein F, adjuvant, dan kontrol. Namun, tidak ada perbedaan yang signifikan antara protein F dengan vaksin komersial. Hal ini terlihat dari titer antibodi ayam broiler yang divaksinasi dengan protein F rekombinan virus ND murni dari hasil ekspresi menunjukkan respon imun dan titer antibodi yang lebih tinggi dibandingkan dengan kelompok kontrol dan kelompok adjuvant serta titer antibodi yang hampir sama tingginya dengan kelompok ayam broiler yang divaksinasi dengan vaksin komersial inaktif.

Kata kunci: virus ND; rekombinan; protein *fusion*; *western blotting*; ELISA

ABSTRACT

Newcastle disease virus (NDV) is an avian virus with widespread and economically important poultry pathogen. Poultry vaccines were widely applied to prevent and control contagious viral diseases. Earlier study had analyzed the phylogenetic of the fusion protein-encoding gene NDV from the local isolate of native chicken Kulon Progo, Indonesia (0663/04/2013) and subsequently sub-cloning the gene in plasmid pBT7-N-His. The present study focused on the development of recombinant vaccines NDV, we expressed and purified the NDV recombinant fusion (F) protein. The recombinant histidine (His)-tagged F protein was analyzed by SDS-PAGE 12% and Western blotting. The immunogenicity of F protein was evaluated in broiler chicken by indirect ELISA to detect the presence of anti-NDV antibodies in chicken sera. Sera samples of recombinant F protein were compared to the commercial inactivated vaccine, adjuvant, and control. Our results indicate that molecular weight of recombinant F protein NDV was 25,6 kDa, exhibiting excellent immunogenicity as shown by ELISA and showed significant differences between F protein, adjuvant, and control. However, there is no significant change between F protein and commercial vaccines. It is described that broiler chicken antibody titer that vaccinated by the expression of recombinant F protein showed higher immune response and antibody titer compared with control and adjuvant group. Recombinant F protein NDV had similar response antibody titer to commercial inactivated vaccines NDV.

Keywords : NDV; recombinant; fusion protein; western blotting; ELISA