INTISARI

Monitoring Antibodi *Non-Structural Protein* (NSP) dan *Structural Protein* (SP) pada Sapi Perah yang Terinfeksi Penyakit Mulut dan Kuku di Kabupaten Boyolali

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Penyakit mulut dan kuku kembali mewabah dan menyerang ternak di Indonesia pada pertengahan April 2022 termasuk sapi perah di Kabupaten Boyolali. Hewan yang terinfeksi virus PMK akan menghasilkan antibodi *non-structural protein* (NSP) yang dapat digunakan sebagai indikator infeksi virus PMK dan antibodi *structural protein* (SP) yang berhubungan dengan tingkat kekebalan terhadap infeksi dan serotipe virus PMK. Deteksi antibodi pasca terinfeksi PMK melalui pengujian serologis menjadi hal penting dalam pelaksanaan program vaksinasi. Penelitian ini bertujuan untuk mendeteksi gen 3D virus PMK, mendeteksi mengukur dan membandingkan S/N% antibodi NSP dan SP pada sapi perah setelah 1 sampai 6 bulan menunjukkan gejala PMK. Penelitian ini menggunakan dua puluh tujuh sapi perah setelah menunjukkan gejala PMK dan tidak divaksin PMK di Dusun Bendosari, Desa Karangkendal, Kecamatan Musuk, Kabupaten Boyolali. Sapi perah yang terinfeksi PMK dideteksi dengan teknik *realtime RT-PCR* dari swab oral dan susu serta deteksi antibodi NSP dan SP dengan teknik *competitive ELISA* dari sampel serum 1 bulan pasca menunjukkan gejala PMK. Monitoring antibodi dilakukan setiap bulan sampai enam bulan pasca bergejala PMK dan diuji menggunakan ELISA antibodi NSP dan SP serotipe O dari serum sapi perah 1-6 bulan pasca terinfeksi PMK dan tidak divaksin PMK. Hasil deteksi gen 3D virus PMK menunjukkan bahwa gen 3D virus PMK terdeteksi pada swab oral sebanyak 18% (5/27) dan pada susu sebanyak 20% (1/5). Antibodi spesifik NSP dan SP serotipe O masih terdeteksi 100% (27/27) pada sapi perah sampai enam bulan setelah menunjukkan gejala PMK. Data penelitian ini menunjukkan bahwa gen 3D dari virus PMK terdeteksi pada 1 bulan setelah menunjukkan gejala PMK, antibodi NSP setelah menunjukkan gejala PMK yang terdeteksi pada 1 sampai 6 bulan menunjukkan perbedaan yang tidak signifikan, tetapi antibodi SP serotipe O menunjukkan perbedaan yang signifikan.

Key words: *non-structural protein* (NSP), *structural protein* (SP), PMK.

ABSTRACT

Monitoring *Non-Structural Protein* (NSP) and *Structural Protein* (SP) Antibodies in Dairy Cattle Infected with Foot and Mouth Disease in Boyolali Regency

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Foot and mouth disease is again endemic and attacking livestock in Indonesia in mid-April 2022 including dairy cattle in Boyolali Regency. Animals infected with the FMDV will produce non-structural protein (NSP) antibodies which can be used as an indicator infection and structural protein (SP) antibodies which are related to the level of immunity to infection and FMDV serotypes. Antibody detection after being infected with FMD through serological testing is important in implementing the vaccination program. This study aims to detect the 3D gene of the FMD virus, detect, measure and compare Non-SP (NSP) FMD antibodies and SP FMD antibodies in dairy cattle after 1 to 6 months showing symptoms of FMD. This research used twenty-seven dairy cattle after being showing simptoms FMD and not vaccinated againts FMD in Bendosari Subvillage, Karangkendal Village, Musuk District, Boyolali Regency. Dairy cattle infected with FMD were detected using the real-time RT-PCR technique from oral swabs and milk samples and detection of NSP and SP antibodies using ELISA technique from serum samples 1 month after being showing simptoms with FMD. Antibody monitoring every month until six months after symptoms with FMD and tested using ELISA for NSP and SP serotype O antibodies from dairy cattle serum 1-6 monts after being infected with FMD and not vaccinated againts FMD. The results of 3D gene FMDV detection showed that the 3D gene FMDV was detected in 18% (5/27) of oral swabs and 20% (1/5) in milk. Specific antibodies for NSP and SP serotype O were still detected in 100% in dairy cattle up to six months after showing simptoms of FMD. The data of this study indicate that 3D gene FMDV detected at 1 month after showing simptoms of FMD, NSP antibodies after FMD infection detected at 1 to 6 months showed no significant difference, on the contrary, SP serotype O antibodies showed a significant difference.

Key words: antibodies, non-structural protein (NSP), structural protein (SP), FMD.