

Deteksi dan Variasi Genetik *Leptospira* sp. pada Sapi Asal Rumah Potong Hewan Kediri dan Yogyakarta

Tito Suprayoga
19/448633/PKH/00718

INTISARI

Leptospirosis merupakan penyakit zoonosis yang disebabkan oleh *Leptospira* sp. Distribusi penyakit ini sangat luas terutama pada daerah tropis dan subtropis. Tikus, anjing, babi, sapi, dan kambing berperan sebagai reservoir *Leptospira* sp. di Indonesia. Keanekaragaman secara serologis maupun genetik yang tinggi dan minimnya informasi mengenai spesies/serovar *Leptospira* sp. yang menginfeksi sapi-sapi di Indonesia, menjadikan pentingnya identifikasi spesies/serovar yang beredar pada sapi-sapi di Indonesia guna meningkatkan strategi pencegahan dan pengendalian leptospirosis. Penelitian ini bertujuan untuk mendeteksi dan menganalisis variasi genetik *Leptospira* sp. yang menginfeksi sapi-sapi di Kediri dan Yogyakarta. Total sampel berjumlah 28 ekor sapi (18 ekor asal Yogyakarta dan 10 ekor asal Kediri). Uji serologis *microscopic agglutination test* (MAT) dilakukan terhadap serum 15 sapi (asal Yogyakarta) yang direaksikan dengan antigen *Leptospira* sp. serovar bangkinang, grippotyphosa, icterohaemorrhagiae, canicola, pyrogenes, hardjo, hebdomadis, pomona, djasiman, robinsoni, bataviae, mini, sarmin, manhao dan rama. Uji molekuler *polymerase chain reaction* (PCR) dilakukan terhadap sampel ginjal (15 sampel Yogyakarta dan 10 sampel Kediri) menggunakan primer dengan gen target *LipL32*. Pengamatan histopatologi dilakukan terhadap 18 ginjal sapi asal Yogyakarta dan 10 ginjal sapi asal Kediri. Ginjal positif *Leptospira* sp. dilakukan pewarnaan Gram. Hasil penelitian menunjukkan 5 sapi asal Yogyakarta seropositif terhadap *Leptospira interrogans* serovar Bangkinang. Pengujian PCR menunjukkan 5 sapi asal Yogyakarta dan 1 sapi asal Kediri positif terinfeksi *Leptospira interrogans*. Pengecatan Gram menunjukkan 2 ginjal asal Yogyakarta dan 1 ginjal asal Kediri terinfeksi *Leptospira* sp. berbentuk batang terwarnai ungu di lumen tubulus. Nefritis interstitialis, perivaskulitis, glomerulonefritis, nefrosis dan fibrosis tampak pada ginjal sapi yang positif terinfeksi *Leptospira interrogans*. Sapi dari Yogyakarta yang diamati secara serologis dan molekuler 33% (5/15) terinfeksi *Leptospira interrogans* serovar Bangkinang. Sapi asal Kediri yang diamati secara molekuler 10% (1/10) terinfeksi *Leptospira interrogans*. Variasi genetik *Leptospira* sp. antara sapi asal Kediri dan Yogyakarta sangat kecil sebesar 0,2-0,6%.

Kata Kunci : Histopatologi, *Leptospira* sp., *LipL32*, MAT, Variasi Genetik.

Detection and Genetic Variation of *Leptospira* sp. in Cattle from the Slaughterhouse of Kediri and Yogyakarta

Tito Suprayoga

19/448633/PKH/00718

ABSTRACT

Leptospirosis is a zoonotic disease caused by *Leptospira* sp. This disease distribution is a wide-large, especially in tropical and subtropical areas. Rat, dog, pig, cow, and goat act as reservoirs for *Leptospira* sp. in Indonesia. High diversity both serologically nor genetically, yet the information about *Leptospira* species/serovar which infects cattle in Indonesia is limited, makes it urgent to identify species or serovar existing in Indonesia to improve prevention and control strategy of leptospirosis. The aim of this study was to detected and analysed *Leptospira* sp. genetic variations which infected cattle in Kediri and Yogyakarta. The total sample was 28 cattles (18 from Yogyakarta and 10 from Kediri). Serological microscopic agglutination test (MAT) was carried out on the serum of 15 cattles (from Yogyakarta) which were reacted with antigen *Leptospira* sp. serovar bangkinang, grippotyphosa, icterohaemorrhagiae, canicola, pyrogenes, hardjo, hebdomadis, pomona, djasiman, robinsoni, bataviae, mini, sarmin, manhao and rama. Kidney from 15 Yogyakarta cattle and 10 Kediri cattle were evaluated using polymerase chain reaction (PCR) targeting the *LipL32* gene. Histopathological observations were carried out on 18 kidneys from Yogyakarta and 10 kidneys from Kediri. Positive kidney samples infected with *Leptospira* sp. were stained with Gram stain. The results showed that 5 cows from Yogyakarta were seropositive to *Leptospira interrogans* serovar Bangkinang. Polymerase chain raction testing showed 5 cattles from Yogyakarta and 1 cattle from Kediri were positively infected with *Leptospira interrogans*. Gram stain showed 2 kidneys from Yogyakarta and 1 kidney from Kediri were infected with *Leptospira* sp. rod-shaped stained purple in the tubule lumen. Interstitial nephritis, perivascularitis, glomerulonephritis, nephrosis and fibrosis were observed in bovine kidney organs that were positively infected with *Leptospira interrogans*. The results of this study can be concluded that serologically and molecularly 33% (5/15) of leptospirosis in cattle in RPH Yogyakarta was caused by *Leptospira interrogans* serovar Bangkinang and molecularly 10% (1/10) of cattle slaughtered in Kediri were infected by *Leptospira interrogans*. The genetic variation of *Leptospira* sp. in cattle from Kediri and Yogyakarta is very small at 0,2-0,6%.

Key word : Histopathology, *Leptospira* sp., *LipL32*, MAT, Genetic Variation,