

## Uji Sensitivitas dan Spesifisitas beberapa Metode Diagnosis *Brucella abortus* dan Kajian Epidemiologi *Brucellosis* di Polewali Mandar, Sulawesi Barat

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### INTISARI

Pengendalian dan pemberantasan *brucellosis* membutuhkan uji diagnostik yang akurat dengan nilai sensitivitas (se) dan spesifisitas (sp) tinggi serta analisis faktor risiko yang mempengaruhi keberadaan *brucellosis* di wilayah endemis. Penelitian ini bertujuan untuk isolasi dan identifikasi *B. abortus* dari cairan *hygroma*, mengukur nilai Se dan Sp uji PCR, RBT, CFT, dan *i*-Elisa, mengukur nilai *true prevalence brucellosis* dan mendeteksi faktor risiko *brucellosis* di Kab. Polewali Mandar (Polman).

Sebanyak 32 ekor sapi bergejala *hygroma* diambil cairan *hygroma* untuk isolasi dan PCR *Brucella abortus* serta serum diuji RBT, CFT, dan *i*-Elisa. Hasil uji diagnostik dibandingkan dengan isolasi bakteri sebagai *gold standar* dalam tabel 2x2. Kajian lintas sektoral digunakan di Kabupaten Polman dengan target sampel 365 ekor. Analisis data kuisioner dilakukan dengan statistik univariat, bivariat dan logistik multivariat.

Hasil penelitian menunjukkan 16/32 (50%) positif isolasi dengan nilai Se dan Sp setiap uji terhadap isolasi : PCR (Se 93,75%; Sp 62,5%), RBT (Se 100%; Sp 18,75%-25%), CFT (Se 68,75%; Sp 75%), dan *i*-Elisa (Se 62,5%; Sp 18,75%). Seroprevalensi Kab. Polman tingkat ternak sebesar 27,1% dengan *true prevalence* 4,8%. Analisis bivariat menunjukkan faktor risiko signifikan di tingkat ternak, seperti riwayat abortus, umur ternak, gejala *hygroma*, dan gejala abortus akhir kebuntingan, sedangkan pada tingkat peternakan yaitu penanganan induk abortus, penanganan sisa abortus, densitas penggembalaan yang tinggi, pemasukan ternak baru, kandang kotor, dan cara penggembalaan. Hasil analisis multivariat menunjukkan variabel yang dapat meningkatkan seropositif *brucellosis* di Kab. Polman di tingkat ternak : umur ternak, gejala *hygroma*, serta gejala abortus akhir kebuntingan dan pada tingkat peternakan : penanganan induk abortus. Penelitian ini membuktikan bahwa *B. abortus* dapat diisolasi dari cairan *hygroma*. Nilai Se dan Sp terbaik yaitu pada uji PCR (Se 93,75%; Sp 62,5%). Prevalensi *brucellosis* di Kab. Polman cukup tinggi (seroprevalensi 27,1% dan *true prevalence* 4,8%). Model kasus *brucellosis* di tingkat ternak :  $Brucellosis (Y) = -2,212 + 1,075 \text{ umur ternak} + 3,150 \text{ gejala hygroma} + 2,091 \text{ abortus akhir kebuntingan}$  sedangkan tingkat peternakan :  $Brucellosis (Y) = 0,3481 + 2,134 \text{ penanganan induk abortus}$ .

Kata kunci : *brucellosis*, sensitivitas, spesifisitas, *hygroma*, Polewali Mandar

## Sensitivity and Specificity Tests of Several Diagnostic Methods for *Brucella abortus* and Epidemiological Studies of *Brucellosis* in Polewali Mandar, West Sulawesi

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### ABSTRACT

*Control and eradication of brucellosis require accurate diagnostic tests with high sensitivity (Se) and specificity (Sp) values and analysis of risk factors that influence the presence of brucellosis in endemic areas. This study aims to isolation and identification B. abortus from hygroma liquid, measure the value of Se and Sp test PCR, RBT, CFT, and i-Elisa, measure the value of true prevalence brucellosis, and detect risk factors of brucellosis in Polewali Mandar (Polman) District.*

*A total of 32 cows with symptomatic hygroma is taken of hygroma liquid for isolation and PCR Brucella abortus as well as serum tested for RBT, CFT, and i-Elisa. Diagnostic test results compared with bacterial isolation as the gold standard in a 2x2 table. A cross-sectional study was used in Polewali Mandar (Polman) Regency with a target sample of 365 cows. Questionnaire data analysis was performed using univariate, bivariate, and multivariate logistic statistics.*

*The results showed that 16/32 (50%) were positive for isolates with Se and Sp values for each isolation test: PCR (Se 93.75%; Sp 62.5%), RBT (Se 100%; Sp 18.75%-25 %), CFT (Se 68.75%; Sp 75%), i-Elisa (Se 62.5%; Sp 18.75%). Seroprevalence of Kab. Polman is 27.1% with a true prevalence of 4.8%. The result of bivariate analysis indicating the significant risk factor in cattle level such as history of abortion, age of cattle, hygroma, and abortion at the end of pregnancy, and in farm level are handling of the abortion cattle, handling of residual abortions, grazing density, new livestock entry, dirty pens, and grazing methods. The results of multivariate analysis that can increase seropositivity of brucellosis in Polman District in cattle level are age of cattle, hygroma, and symptoms of abortion at the end of pregnancy history of abortion, and in farm level is handling the abortion cattle. This study proves that B. abortus can be isolated from hygroma liquids. The best values of Se and Sp were PCR test (Se 93.75%; Sp 62.5%). Prevalence of brucellosis in Polman District is quite high (seroprevalence 27.1% and true prevalence 4.8%). The case model of brucellosis in cattle level:  $Brucellosis (Y) = -2,212 + 1,075 \text{ age of cattle} + 3,150 \text{ hygroma} + 2,091 \text{ abortion at the end of pregnancy}$  and in farm level :  $Brucellosis (Y) = 0,3481 + 2,134 \text{ handling the abortion cattle}$ .*

*Keywords: brucellosis, sensitivity, specificity, hygroma, Polewali Mandar*