

Abstract**Comparison Of Antibody Titre Anti *Brucella abortus* Using CFT And iELISA To Cattle With Positive of RBT**

The purpose of this research was aimed to compare the performance of indirect ELISA (iELISA) test using LPS antigen of *B.abortus* S19 and Complement Fixation Test (CFT) using whole cell antigen of *B.abortus* S99 to detect antibody *B.abortus* in serum of cattle in Belu Regency. A total of 251 serum samples were collected randomly from cattle ranches in Belu Regency which includes of 42 males and 209 females. The sera have been analyzed using Rose Bengal Test (RBT). All 17 RBT positive results were further tested by iELISA test using LPS antigen of *B.abortus* S19 and CFT using whole cell antigen of *B.abortus* S99. The results showed that the direct and indirect regression coefficients (β coefficients) from RBT to iELISA test (0.839 and 1.128) were stronger than the direct and indirect regression coefficients from RBT to CFT (0.580 and 0.998), and that there was an ideal agreement (Kappa = 1) of iELISA test using LPS antigen of *B.abortus* S19 with CFT using whole cell antigen of *B.abortus* S99.

Keywords: Brucella, LPS, iELISA, CFT, RBT

DAFTAR PUSTAKA

DAFTAR PUSTAKA

- Adone R, P.Pasquali, 2013. Epidemiosurveilance of Brucellosis. *Rev.sci.tech.Off.int.Epiz.*, 2013, 32 (1), 199-205.
- Apan T Zafer, Murat Yildirim, Ersin Istambulluoglu, 2007. Seroprevalensi of Brucellosis in Human, Sheep, and Cattle Population in Kirikkale (Turkey). *Turk. J. Vet. Anim. Sci.* 2007; 31 (1): 75-79
- Aparicio, E.D, 2013. Epidemiology of Brucellosis in Domestic Animals caused by *Brucella melitensis*, *Brucella suis* and *Brucella abortus*. *Rev.sci.tech.Off.int.Epiz.*, 2013, 32 (1), 53-60.
- Austyn J M, Wood K I, 1994. Principles of Cellular dan Molecular Immunology. Oxford University Press. Oxford. New York. Tokyo.
- Baratawidjaja K G, Rengganis I, 2010. Immunologi Dasar. Edisi Ke-9. Balai Penerbit Fakultas Kedokteran Universitas Indonesia. Jakarta.
- Bbalitvet, 2012. Mini Review Brusellosis pada sapi. Balai Besar Penelitian Veteriner (Bbalitvet) Badan Penelitian dan Pengembangan Pertanian. Kementrian Pertanian Republik Indonesia.
- BPS Kabupaten Belu, 2009. Kabupaten Belu dalam Angka. Belu Regency in Figures 2009. Katalog BPS: 1403.5306. ISSN.0215.6962. Badan Statistik Kabupaten Belu. Atambua
- Burgess, G. W, 1995. Teknologi ELISA dalam Diagnosis dan Penelitian. Terjemahan Artana, W. T., Gajah Mada University Press, Yogyakarta.
- BPS Kabupaten Belu, 2013. Angka Sementara Hasil Sensus Pertanian 2013. St2013 Sensus Pertanian. Badan Statistik Kabupaten Belu. Atambua.
- Cardoso P G, GC Macedo, V Azevedo, SC Oliveira., 2006. *Brucella Spp* Noncanonical LPS: Structure, Biosynthesis, and Interaction with Immune System. *Bio Med Central. Microbial Cell Factories* 2006, 5:13
- Chappel, R J., 1989. Diagnosis of Bovine Brucellosis: Principles, Practice and Problems. Surveillance Vol. 16 No.2. 1989. Departement of Agriculture and Rural Affairs, Victoria Veterinary Research Institute. Atwood and Parkville. Victoria. Australia.

- Chothe Shubhada., Hari M Saxena, Mudit Chandra, 2014. Enhancement of the Efficacy of Complement Fixation Test. Research Article. A Simple innovative Modification to Enhance the Efficacy of the Complement Fixation Test. Advance in Animal and Veterinary Science. 2 (IS): 13-16.
- Christopher S, Umapathy B.L, Ravikumar K.L, 2013. Evaluation of Sonicated and Heat Extrated Lipopolysaccharide *Brucella abortus* Antigen by Direct Heamagglutination and Enzyme Linked Immunosorbant Assays. National Journal of Basic Medical Sciences. Vol-II, Issue-4.
- Corbel, M.J, 1997. Brucellosis: an Overview. 1st International Conference on Emerging Zoonoses Jerusalem, Israel. Vol. 3, No.2, April-June 1997. National Institute of Biological Standars and Control, Heartfordshire. United Kingdom.
- Cruse J M , Lewis R E, 2004. Atlas of Immunology.2nd Edition. CRC press LLC. USA
- Ekgatat Monaya., Reka Kanitpun, Pittaya Khunchit, Surre Thammasart, and Surapong Wongkasemjit, 2009. The Accuracy of an Indirect ELISA for Diagnosis of *Brucella spp.* Infection in Cattle and Goats. Kasetsart Veterinarians. Vol. 19 No.1. 2009.
- Danardono, 2014. Modul 13 Ukuran Sampel. Biostatistik. Program Studi Statistik. Jurusan Matematika. FMIPA Universitas Gadjah Mada. Jogjakarta. www.danrdono.staff.ugm.ac.id/.../m13.
- Gall, D., Neilsen K, 2004. Serological Diagnosis of Bovine Brucellosis: a review of test performance and cost comparison. Rev.sci.tech.Off.int.Epiz., 2004, 23 (3), 989-1002.
- Glen, M.E, 2012. "Choosing a Methode for Epitope Mapping. "Methods in Moleculer Biology.1996. Epitop Mapping Protocols.
- Godfroid, J., B.Garin-Bastuji, C.Saegerman, J.M.Blasco., 2013. Brucellosis in Terrestrial Wildlife. Rev.sci.tech.Off.int.Epiz., 2013, 32 (1), 27-42.
- Hassan Jabbar S, Haidar F Ghazi, Haidar A Shamran, 2011. Comparative Study of Enzyme Linked Immunosorbant Assay and Agglutination Test in Dignosis of Human Brucellosis in Baghdad. Dept. of Microbiology, Medical Research Unit, College of Medicine, Al-Nahrain University. Iraq JMS.

- Hernández-Mora G, J.D. Palacios-Alfaro, R.Gonzalez-Barrientos, 2013. Wildlife Reservoirs of Brucellosis Brucella in Aquatic Enviromentals. *Rev.sci.tech.Off.int.Epiz.*, 2013, 32 (1), 89-103.
- Hewitt, W G and Payne D J., 2015. Estimation of IgG and IgM Brucella Antibodies in Infected and Non-Infected Persons by a Radioimmune Capture. *J Clin Pathol* 1984 37; 692-696
- Hurley, D.J, 2014. The Immunology of Large Animals. Associate Professor of Population Health and Large Animal Medicine, and Molecular Microbiologist, Food Animal Health and Management Program . College of Veterinary Medicine. University of Georgia. Athens
- Kaiser Gary E., 2010. The Adaptive Immune System. [Doc Kaiser's Microbiology Home Page](#)
- Lipman, N.S, L.R.Jackson, L.J.Trudel, F.Weis-Garcia, 2014. Monoclonal Versus Polyclonal Antibodies: Distinguishing Characteristics, Application, and Information Resources. *ILAR Journal*.
- Lubroth J, Rweyemamu M.M, Viljoen G, Diallo A, Dungu B, Amanfu W, 2007. Veterinary Vaccine and Their Use in Developing Countries. *Rev.sci.tech.Off.int. Epiz*, 2007, 26 (1), 179-201.
- McGiven, J.A., 2013. New Development in The Immunodiagnosis of Brucellosis in Livestock and Wildlife. *Rev.sci.tech.Off.Int.Epiz.*, 2013, 32 (1), 163-176.
- Molavi MA, HS. Sajjadi, AA. Nejatizade, 2014. Effective Methods For Appropriate Diagnosis Of Brucellosis In Humans And Animals (Review Article). *Online Journal of Animal and Feed Research Volume 4, Issue 3: 60-66*
- Moriyón I, I.López-Goñi., 1998. Structure and Properties of The Outer Membranes of Brucella abortus and Brucella mellitensis. *Internal Microbial* (1998) 1:19-26.
- Munir R, UR Rehman,S.T, Kausar R, Saqlan Naqwi, S.M, Farooq, U.,2008. Indirect Enzyme Linked Immunosorbent Assay for Diagnosis of Brucellosis in Buffaloes. *ACTAVET.BRNO* 2008, 77: 401-406;
- Nielsen K, P.Smith, W.Yu, P.Nicoletti, P.Elzer, C.Robles, R.Bermudez, T.Renteria, F.Moreno, A.Ruiz, C.Massengill, Q.Muenks, G.Jurgensen, T.Tollersrud, L.Samartino, S.Conde, L.Forbes, D.Gall, B.Perez, X.Rojas, A.Minas., 2005. Toward Single Screening Test for Brucellosis. *Rev.Sci.Tech.Off.Int.Epiz.*,2005,24 (3), 1027-1038.

- Nielsen K, Yu WL., 2010. Serological Diagnosis of Brucellosis. Contribution, Sec. Biol. Med. Sci., MASA, XXXI, 1, p. 65-89.
- OIE, 2009. Bovine Brucellosis. OIE Terrestrial Manual. Version Adopted by The World Assembly of Delegates of The OIE in May 2009.
- Olsen, S.C, 2013. Recent Development in Livestock and Wildlife Brucellosis Vaccination. Rev.sci.tech.Off.int.Epiz., 2013, 32 (1), 207-217.
- Özdemir Mehmet, Bahadır Feyzioğlu, Muhammed G Kurtoğlu, Metin Doğan, Hatice T Dağı, Şerife Yüksekaya, Recep Keşli, Bülent Baysal, 2011. A Comparison of Immuncapture Agglutination and ELISA Methods in Sero-logical Diagnosis of Brucellosis. *International Journal of Medical Sciences* 2011; (5):428-432.
- Pemerintah Kabupaten Belu, 2014. Gambaran Umum Wilayah Kabupaten Belu. Pemerintah Kabupaten Belu. Pemerintah Provinsi Nusa Tenggara Timur. www.belukab.go.idwww.nttprov.go.id Atambua.
- Perkins, N, Ian P, Mahomed P, 2007. Assesment of Zoonotic Disease in Indonesia. Final Report. Small Research and Development Activity. Australian Government. Australain Centre for International Agriculture Research. ACIAR. Australia.
- Poester, F.P, L.E.Samartino, R.L.Santos, 2013. Pathogenesis and Pathobiology of Brucellosis in Livestock. Rev.sci.tech.Off.int.Epiz., 2013, 32 (1), 105-115.
- Poester, F.P, K Nielsen, L.E.Samartino, Wei Ling Yu.,2010. Dianosis of Brucellosis. The Open Veterinary Science Journal, 2010, 4, 46-60.
- Praktiknya, A.W, 2001. Dasar Dasar Metodologi Penelitian Kedokteran dan Kesehatan. Ed.1. Cet.4. PT.Raja Grafindo Persada, Jakarta.
- Ragan, V., G. Vroegindewey, S.Babcock, 2013. International Standars for Brucellosis Prevention and Management. Rev.sci.tech.Off.int.Epiz., 2013, 32 (1), 189-198.
- RAGS, 2001. Appendix A. Sensitivity Analysis: How Do We Know What's Important?. RAGS Volume 3 Part A-Process for Conducting Probabilistic Risk Assesment. Appendix A-December 31, 2001.
- Ramos-Sanches M.C, A.Orduna-Domingo, A.Rodriguez-Torres, F.J. Martin-Gil, J.Martin-Gil 1993. Low Temperature Thermal Behaviour of

Lipopolysaccharides from *Brucella* and Other Gram Negative Bacteria. *Thermochimica Acta*, 215 (1993) 227-233.

Rantam, F.A., 2003. *Metode Immunologi. Cet.1.* Airlangga University Press. Surabaya.

Reny1 Septyawati , Nyoman Sadra Dharmawan2, Nyoman Suartha1, 2013. Serodeteksi *Brucella abortus* pada Sapi Bali di Timor Leste. Indonesia Medicus Veterinus 2013 2(5) : 504 - 514

Research indonesia, 2012. Uji Konsistensi Cohen's Kappa. Research-Indonesia.blogspot.com

Rojas X, Alonso, O., 2014. ELISA for Diagnosis and Epidemiology of *Brucella abortus* Infection in Cattle in Chile. Instituto de Microbiologia, Universidad Austral de Chile, Valdivia, Chile.

Rojas, A P C, Gerhardt.G.S, Chair S, A.A, Stephen M.B, Joseph O.Falkinham III, Nammalwar S, Ramesh V., 2004. *Brucella abortus* RB51 Vaccine: Testing its Spectrum of Protective and Curative Characteristics. Dissertation Submitted to The Faculty of The Virginia Polytechnic Institute and State. University in Partial Fulfilment of Requirement for The Degree of Doctor of Philosophy in Veterinary Medical Sciences. Blacksburg, Virginia.

Skendros P, P.Baura, 2013. Immunity to Brucellosis. *Rev.sci.tech.Off.int.Epiz.*, 2013, 32 (1), 137-147.

Smith, H.L, 2013. Brucellosis in Pastoral and Confined Livestock: Prevention and Vaccination. *Rev.sci.tech.Off.int.Epiz.* , 2013, 32 (1), 219-228

Stagg Danrew J, Knight Stella C, 2001. Antigen-Presenting Cells. *Encyclopedia of Life Sciences/@2001 Nature Publishing Group/www.els.net*

Tae Lake, P.R.M, Asmarini K, Setyawan B., 2010. Faktor Resiko Bovine Brucellosis pada Tingkat Peternakan Di Kabupaten Belu , Provinsi Nusa Tenggara Timur. *J.Sain Vet.* Vol.28 No.1 Th.2010

The Center for Food Security and Public Health, Institute for International Cooperation in Animal Biologics, 2009. Bovine Brucellosis: *Brucella abortus*. Undulant Fever, Contangious Abortion, Bang's Disease. P:1-5. College of Veterinary Medicine. Iowa State University.

Vorster. J.H., P.H.Mapham, S Chisi, 2014. Brucellosis Diagnostics. *Vetdiagnostix Veterinar, Patholog, Service, Cascades. Veterinary House Hospital,*

Pietermaritzburg. Allerton Provincial Veterinary Laboratory,
Allerton.

Walker, R L, 1999. Brucella. In. Dwight C.H and Yuan Chunh Zee. Veterinary Microbiology. Blackwell Science. School of Veterinary Medicine. University of California. Davis, California.