

Pengembangan metoda elisa dan teknik deteksi cepat dengan imunostik terhadap antibodi anti aeromonas hydrophila = Development of elisa method and rapid detection using imunostick to detect antibody against aeromonas hydrophila / Tatik Mufidah

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Abstrak

[ABSTRAK

Aeromonas hydrophila merupakan foodborne dan waterborne patogen, yang banyak ditemukan pada lingkungan perairan. Bakteri ini dapat menginfeksi manusia, hewan teresterial dan hewan air seperti ikan mas, Infeksi A. hydrophila dapat mengakibatkan komplikasi gastrointestinal dan non-gastrointestinal pada manusia dengan penularan terjadi secara oral maupun luka yang terinfeksi bakteri. Sedangkan infeksi A. hydrophila pada ikan mas dapat menjadi sumber penularan ke manusia dan mengakibatkan kematian ikan mas budidaya yang berdampak pada kerugian ekonomi. Hingga saat ini informasi mengenai infeksi A. hydrophila pada manusia masih jarang dilaporkan. Hal tersebut dapat terjadi karena hingga saat ini metode diagnosa antibodi anti A. hydrophila belum banyak berkembang, sedangkan uji kekebalan penting bagi skrining, diagnosa banding dan uji konfirmasi terhadap infeksi A. hydrophila. Untuk itu penelitian ini bertujuan untuk mengembangkan metode ELISA dan uji deteksi cepat berdasarkan modifikasi ELISA menggunakan imunostik untuk mendeteksi antibodi anti A. hydrophila. Sebagai hewan uji digunakan enam ekor kelinci (New Zeland White) dan enam ekor ikan mas (Cyprinid carpio) yang diimunisasi dengan antigen sel utuh bakteri A. hydrophila yang diaktivasi dengan formalin 0,3%. Imunisasi pada ikan mas dilakukan secara intraperitoneal, diulang satu minggu setelah imunisasi pertama, sedangkan imunisasi pada kelinci dilakukan satu kali dengan emulsi antigen dan Freund's complete adjuvant kemudian dilanjutkan dengan dua kali booster menggunakan emulsi antigen dan Freund's incomplete adjuvant. Koleksi serum hewan uji dilakukan setiap minggu hingga minggu ke-6 dari koleksi serum pertama. Hasil optimasi terhadap uji ELISA menunjukkan bahwa uji ELISA yang dikembangkan mampu mendeteksi antibodi anti A. hydrophila, demikian pula dengan imunostik yang dirakit mampu mendeteksi antibodi anti A. hydrophila pada serum ikan mas dan kelinci.

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ABSTRACT

Aeromonas hydrophila is foodborne and waterborne pathogens. The bacteria that occur ubiquitously and autochthonously in aquatic environments. These bacteria can infect humans, animals terrestrial and aquatic animals such as goldfish, infection of A. hydrophila can lead to complications of gastrointestinal and non-gastrointestinal infection in humans and transmitted by oral and infected wounds contamination. The

infected carp with *A. hydrophila* is a source of transmission to humans, resulting in the death of farmed fish that have an impact on economic disadvantage. Till now there are lacking information of *A. hydrophila* infection in humans reported. This can be occur because to the current diagnostic methods antibody *A. hydrophila* undeveloped, while the immunity test is important for screening, differential diagnosis and confirmation test of *A. hydrophila* infection. Therefore, the aims of this research is to develop ELISA methods and rapid detection test based on the modified ELISA using immunostick to detect antibodies against *A. hydrophila*. For animals models, 6 rabbits (New Zeland White) and 6 carp (Cyprinid carpio) were immunized with whole cell antigen *A. hydrophila* bacteria which inactivated using 0.3% formaldehyde. Carp immunized intraperitoneally with antigen, and repeated one week after the first immunization, whereas immunization in rabbits done once with antigen emulsion and Freund's complete adjuvant followed by two booster using emulsion of antigen and Freund's incomplete adjuvant. Collection of animal serum done every week, till the sixth week from the first serum collection. The results of the optimization of the ELISA test showed that the developed ELISA test is able to detect antibodies against *A. hydrophila*, as well as the assembled immunostick capable to detect antibodies against *A. hydrophila* both in carp and rabbit serum respectively, *Aeromonas hydrophila* is foodborne and waterborne pathogens. The bacteria that occur ubiquitously and autochthonously in aquatic environments. These bacteria can infect humans, animals terrestrial and aquatic animals such as goldfish, infection of *A. hydrophila* can lead to complications of gastrointestinal and non-gastrointestinal infection in humans and transmitted by oral and infected wounds contamination. The infected carp with *A. hydrophila* is a source of transmission to humans, resulting in the death of farmed fish that have an impact on economic disadvantage. Till now there are lacking information of *A. hydrophila* infection in humans reported. This can be occur because to the current diagnostic methods antibody *A. hydrophila* undeveloped, while the immunity test is important for screening, differential diagnosis and confirmation test of *A. hydrophila* infection. Therefore, the aims of this research is to develop ELISA methods and rapid detection test based on the modified ELISA using immunostick to detect antibodies against *A. hydrophila*. For animals models, 6 rabbits (New Zeland White) and 6 carp (Cyprinid carpio) were immunized with whole cell antigen *A. hydrophila* bacteria which inactivated using 0.3% formaldehyde. Carp immunized intraperitoneally with antigen, and repeated one week after the first immunization, whereas immunization in rabbits done once with antigen emulsion and Freund's complete adjuvant followed by two booster using emulsion of antigen and Freund's incomplete adjuvant. Collection of animal serum done every week, till the sixth week from the first serum collection. The results of the optimization of the ELISA test showed that the developed ELISA test is able to detect antibodies against *A. hydrophila*, as well as the assembled immunostick capable to detect antibodies against *A. hydrophila* both in carp and rabbit serum respectively]