Development of immobilization of streptavidin on polystyrene plate

Wanpen Boonwanich*, Wiyada Charoensiriwatana*

สถาบันวิจัยวัถิยาศาสตร์สาธารณสุข

Abstract

Currently, streptavidin-biotin interaction can develop more efficiency of many assays. This research carried out to coupling streptavidin on polystyrene microtiter plate in order to beneficially apply the streptavidin plate for any assay especially immunoassay. This experiment, 0.2M 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide (EDAC) was used as a coupling reagent and the optimal condition for streptavidin immobilization on polystyrene microtiter plate was 2:1 volume ratio of 1*g/ml of streptavidin and 0.2 M EDAC. These streptavidin plates were tested in immunoassay, enzyme-linked immunosorbent assay (S-B ELISA) and immunoradiometric assay (S-B IRMA), for the detection of HBsAg. It was found that they could be successfully applied in both methods. Moreover, the S-B ELISA was compared its efficiency of HBsAg detection with ELISA using commercial kit from Abbott (AUSZYME) and home made ELISA using the same pair of antibodies to HBsAg. The detectable concentrations of HBsAg which could be detected by S-B ELISA, AUSZYME, and home made ELISA were 1, 1 and 25 ng/ml, respectively. It was shown that the efficiency of S-B ELISA for the detection of HBsAg was better than home made ELISA and equal to