

Production and Characterization of Monoclonal Antibody against Pirimiphos Methyl

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Monoclonal antibodies against organophosphate insecticide pirimiphos methyl (PMM) was successfully generated by hybridoma technology and characterized. Ten monoclonal antibodies (MAbs) were produced from two times fusion of myeloma cells and spleen cells isolated from BALB/c mice immunized with haptenPMM-KLH. To evaluate sensitivity of MAbs, competitive indirect ELISA was used. MAb 2E10-24 exhibited the highest sensitivity and selectivity toward pirimiphos methyl. In order to increase the sensitivity and selectivity of the competitive indirectELISA, several ELISA conditions such as antibody dilution times, coating antigens dilution times, antigen and coating antigen competitive incubation time etc. were optimized. With the optimum conditions, the competitive indirect ELISA method can detect PMM in the range of 1-1000 ppb, with an IC₅₀ value of 7.4 ppb and a detection limit of 0.1 ppb. Therefore, monoclonal antibody 2E10-24can be used to develop immunoassay and applied to rapid and sensitive detect pirimiphos methyl from various samples.