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Amyloid-like protein membrane: A natural polymer based biosensing material

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Electrospinning has been a popular technique to obtain nanofibrous membranes from synthetic and natural polymer sources. In contrary to synthetic polymers, the production capabilities of natural polymer membranes failed at some extend by means of electrospinnability and efficiency also biocompatibility. In this paper, we introduced an enzyme immobilization platform from a natural polymer membrane. For this purpose, a model protein bovine serum albumin (BSA) was chosen mainly for enhanced supporting property. To procure electrospinnable solution of BSA, beta-mercaptoethanol (β-ME) was used to induce tertiary structure and low ratio (1.5:1.0 TFE:PBS (pH: 7.4)) of 2,2,2-triflouroethanol (TFE) was added as a stabilizing agent, respectively. The electrospun membranes were activated with RF plasma treatment by employing ethylenediamine (EDA) as a precursor to incorporate amino (-NH2) groups on the surface. Those surfaces were cross-linked with glutaraldehyde aqueous solutions at concentrations between 0.01 and 5% wt. which followed by the covalent attachment of glucose oxidase (GOD). The performance of enzyme immobilized membranes was tested by employing amperometric measurements against various glucose concentrations in terms of response time, enzymatic activity and linearity. The effects of plasma parameters and cross-linking conditions on the performance of protein membrane based enzyme electrode were also studied.

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Phenotypic and genotypic characterization of *Staphylococcus aureus* strains from some food stuff of animal origin

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Methicillin resistant *Staphylococcus aureus* (MRSA) is one of the most important public health problems in many countries. In recent years, the existence of MRSA in foodstuff of animal origin and its transfer among farm animals, foodstuff of animal origin and human beings have been shown with molecular typing studies. The objective of this study was to investigate existence, methicillin resistance (MR) and clonal relationship of *Staphylococcus aureus* (*S. aureus*) strains from foodstuff of animal origin consumed in the Samsun region of Turkey. In this study, a total 175 coagulase positive staphylococci (CPS) strains were isolated from meat (n=110), milk (n=56) and fishery products (n=9). From these, 62 *S. aureus* strains were identified from meat (n=44), milk (n=9) and fishery products (n=9). Identification and MR properties of the isolates were confirmed by PCR technique in which appropriate primers for *nuc* and *mecA* gene were used. For detection of MR, we also used minimal inhibitory concentration (MIC) technique. We compared two techniques; although 21 isolates were determined as MRCPS using MIC (≥12 μg), 18 isolates were detected MRCPS using PCR assay. Among these, 15 isolates were identified as MRSA using PCR technique. We investigated only MRSA isolates for the clonal relationship using PFGE method. PFGE typing of the 15 MRSA strains yielded 6 PFGE patterns. Pattern A and E were found to be dominant types in our study. Pattern E consisting of 7 strains was from fishery products. Pattern A consisting of 4 strains was from meat and fishery products. Patterns B, C, D and F were single isolates from milk, meat and milk products, respectively.

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