

Immobilisation of cyclodextrin glucoamylase into polyvinyl alcohol (PVA) nanofibres via electrospinning

Abstract

Immobilisation of cyclodextrin glucoamylase (CGTase) on nanofibres was demonstrated. CGTase solution (1% v/v) and PVA (8 wt%) solution were mixed followed by electrospinning (-9 kV, 3 h). CGTase/PVA nanofibres with an average diameter of 176 ± 46 nm were successfully produced. The nanofibres that consist of immobilised CGTase were crosslinked with glutaraldehyde vapour. A CGTase/PVA film made up from the same mixture and treated the same way was used as a control experiment. The immobilised CGTase on nanofibres showed superior performance with nearly a 2.5 fold higher enzyme loading and 31% higher enzyme activity in comparison with the film..