catalysts

Supplementary materials: Study of Prepared α-Chymotrypsin as Enzyme Nanoparticles and of Biocatalytic Membrane Reactor

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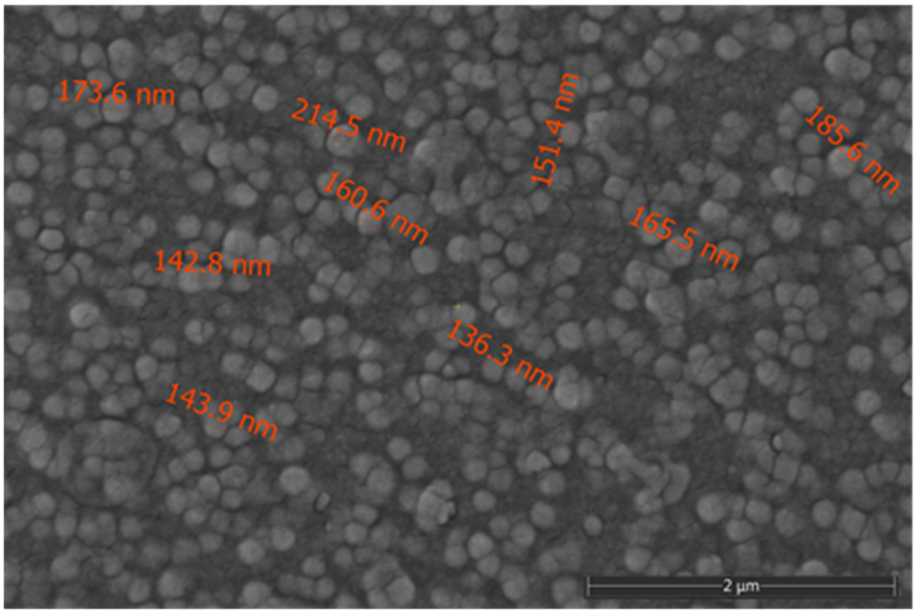

Figure S1. Scanning electron microscopic image of pores of polysulfone/polyamide membrane (support layer) used for enzyme immobilization. Red numbers show sizes of pores measured by directly of software of SEM.

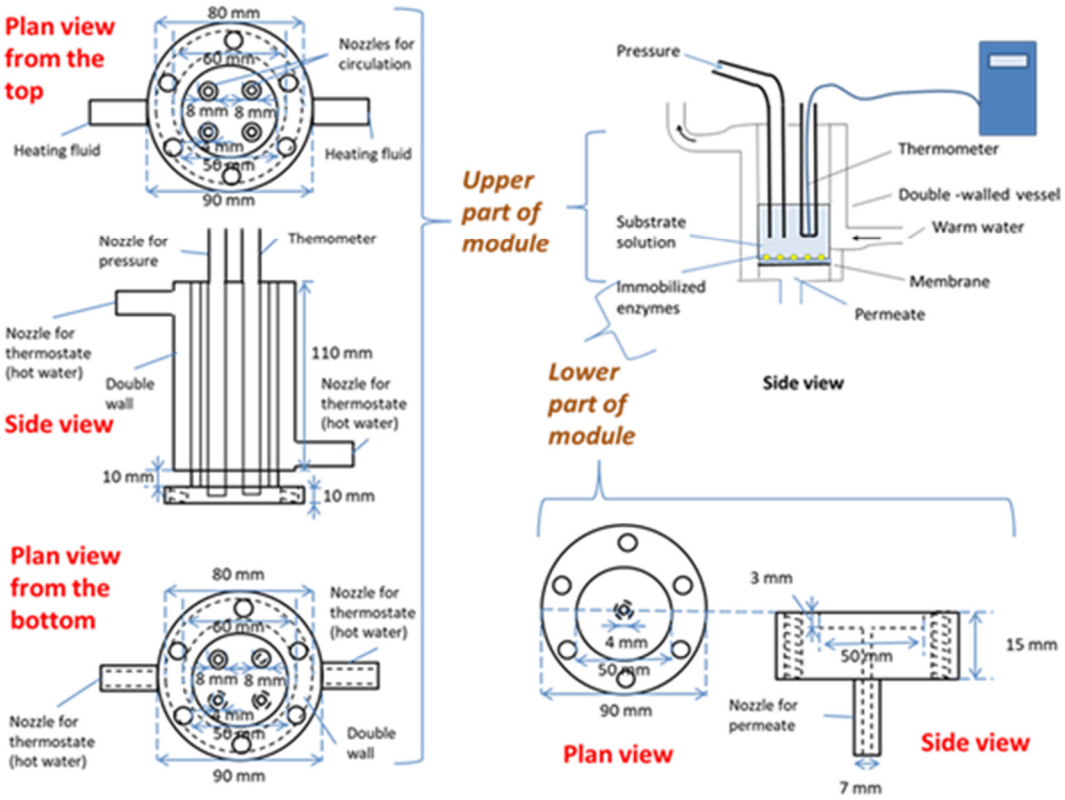

Figure S2. Schematic figure of the home-made membrane device, whose temperature and pressure of the feed solution was regulated. The reactor worked with continuous feeding of the substrate solution without its recirculation, facing the support layer applying for the so-called flowthrough method. During this biocatalytic process, diffusive and convective flows (depending on the pressure difference between the two sides of the membrane) as well as biochemical reaction were taking place. The change of the substrate concentration was measured and applied for evaluation of results. The operation mode was dead-end mode, when the enzyme solution was pressed continuously and regulated, by the same volumetric velocity, through the biocatalytic membrane reactor by pressure from a pressurized container. This process will also be a steady-state one after an interim period. The porous support layer was faced the pressurized substrate solution.

Figure S3. Photo of home-made membrane bioreactor.