

Development of a Electroporator device – Construction of Mechanical body

For the new MEGBI Genetic Engineering Laboratory in Tripoli a Electroporator unit is required. With electroporation foreign DNA can be introduced into cells. A commercial electroporation device is very expensive. To save costs this device shall be developed with students of Lebanese University in cooperation with the German company TEMO.

In this work a mechanical device shall be constructed. The construction shall be first done in the computer with the CAE tool ProE .

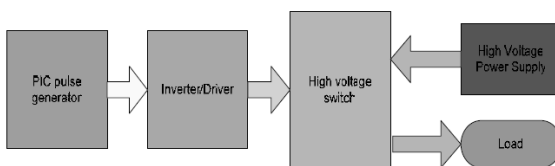


Figure 3 Block diagram of electroporation system

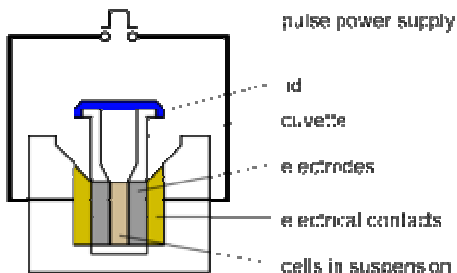


Fig.: Schema of electroporator with cuvette

Fig.3: From [Rodamporn et. al.]¹

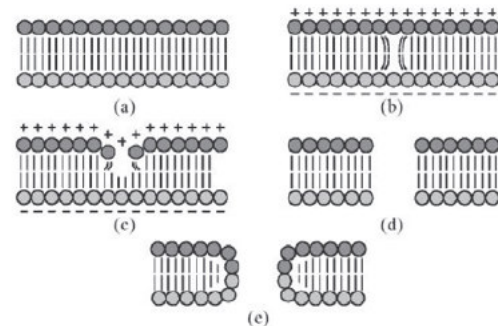
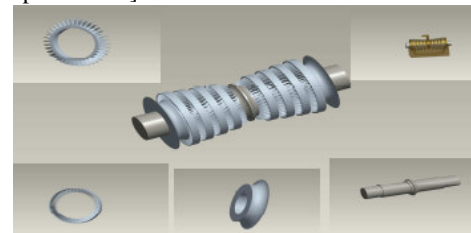
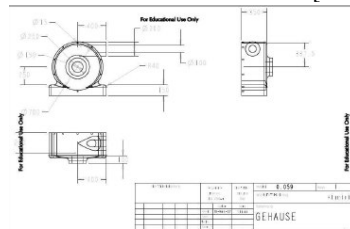


Figure 2 Process of pore formation (a) normal cell membrane, (b) a cell excited short electrical pulse resulting in irregular molecular structure (c) the membrane being method (d) the cell with a temporary hydrophobic pore and (e) the cell with a membrane restructuring [7]

The process of electroporation in the biological cell [Rodamporn et. al.]



Left: Cuvettes (commercially available), Middle and Right: Development tool: Working with CAD tool ProE

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¹ Design and Construction of a Programmable Electroporation system for Biological Applications, Rodamporn, S1, Beeby, S.P1, Harris, N.R., Brown, A.D1 and Chad, J.E, Proceedings of the ThaiBME 2007