— DEAE-Dextran may be used in the transfection medium in which DNA is present.
— This is polycationic, high molecular weight substance and convenient for transient assays in *cos* cells.
— It does not appear to be efficient for the production of stable transfectants.
— If DEAE-Dextran treatment is coupled with Dimethyl Sulphoxide (DMSO) shock, then upto 80% transformed cell can express the transferred gene.
— Stable expression is very difficult to obtain by this method. Treatment with chloroquinone increases transient expression of DNA.

ADVANTAGES:
— Cheap
— Simple
— Can be used for transient cells which cannot survive even short exposure of calcium phosphate.

TRANSFORMATION OF PROTOPLASTS

Direct DNA uptake by protoplast is stimulated by chemicals like polyethyleneglycol (PEG). PEG will precipitate ionic macromolecules such as DNA and stimulate their uptake by endocytosis. This is followed by cell wall formation and initiation of cell divison. It yields upto 80% of transformants.

OR



— This method is utilized for protoplast only.
— Polyethylene glycol stimulates endocytosis and therefore DNA uptake occurs.
— Protoplasts are kept in the solution containing polyethylene glycol (PEG).
— The molecular weight of PEG used is 8000 dalton having the final concentration of 15%.
— Calcium chloride is added and sucrose and glucose act as osmotic buffering agent. After exposure of the protoplast to exogenous DNA in presence of PEG and other chemicals, PEG is allowed to get removed.

DISADVANTAGES:

1. Instable.
2. Inactivated in presence of serum.