List of Tables

Table 3.1 Details of seven proteins (SOD, r-oGH, PKS, aldolase, enolase, PyK, r-hGH) used in this study.

Table 3.2 Absorbance of 500 ml culture pellet for seven proteins (oGH, hGH, SOD, PKS, PyK, enolase and aldolase) resuspended in 10 ml Tris pH 7 buffer before sonication.

Table 3.3 Absorbance of 500 ml culture pellet for seven proteins (oGH, hGH, SOD, PKS, PyK, enolase and aldolase) resuspended in 10 ml Tris pH 7 buffer after sonication.

Table 3.4 Absorbance while washing step during inclusion bodies preparation for seven proteins (oGH, hGH, SOD, PKS, PyK, enolase and aldolase).

Table 3.5 Absorbance of supernatants of seven proteins (oGH, hGH, SOD, PKS, PyK, enolase and aldolase) during washings at pH 7, pH 8.5, DOC 1% and DOC 2% of inclusion bodies preparation.

Table 3.6 Absorbance of suspensions of inclusion bodies of seven proteins (oGH, hGH, SOD, PKS, PyK, enolase and aldolase) during washings in DOC 1% and DOC 2%, while inclusion bodies preparation.

Table 3.7 Characteristics of inclusion bodies of hGH, oGH, PKS and PyK.

Table 3.8 List of mild solubilizing buffers used for solubilization of hGH and SOD.

Table 3.9 Solubility of hGH and SOD in mild solubilization buffers.

Table 3.10 Solubility of hGH and SOD in buffers after re-solubilization.

Table 4.1 Recovery of different proteins using high pH solubilization

Table 5.1 Chemical compositions and solubility of hGH inclusion bodies in three different buffers.

Table 5.2 Solubility of hGH inclusion bodies in different molarities of β-mercaptoethanol in Tris buffer.

Table 5.3 Optimization of hGH inclusion body concentrations for maximum solubility in 6 M β-mercaptoethanol.

Table 5.4 List of eight different organic solvent based buffers (with and without 2 M urea) and absorbance of solubilized TCA precipitates at 280 nm.

Table 5.5 Effect of 2 M urea on solubility of inclusion bodies of different proteins in 6 M n-propanol or β-mercaptoethanol containing buffer.

Table 5.6 Absorbance at 280 nm reflecting solubility of hGH inclusion bodies in 8 M urea, 4 M DTT, 6 M β-mercaptoethanol and 6 M n-propanol.
Table 5.7  Experimentally determined surface tension and specific gravity of different solvents and solubilization buffers.

Table 5.8  Experimentally determined no. of drops in 5 ml of a particular liquid.

Table 5.9  Published dielectric constant of some organic solvents.

Table 5.10  Experimentally found dielectric constant of β-mercaptoethanol and other organic solvents.

Table 5.11  Dielectric constant of organic-aqueous buffers.

Table 6.1  List of solubilization and refolding buffers.

Table 6.2  Solubilizing potential and refolding yield of hGH in different buffers.

Table 6.3  Solubilizing potential and refolding yield of oGH in different buffers.

Table 6.4  Solubilizing potential and refolding yield of PKS in different buffers.

Table 6.5  Solubilizing potential and refolding yield of PyK in different buffers.

Table 7.1  Growth of E. coli and expression of r-hGH during fed-batch fermentation.

Table 7.2  Comparative process time analysis of axial versus radial flow column chromatography for purification of r-hGH.

Table 7.3  Overall recovery of r-hGH from inclusion bodies of E. coli.

Table 7.4  Comparative analysis of disulfide bonds in inclusion bodies and pure r-hGH.