

Techniques to Identify Disulphide Bonds in Recombinant Proteins by Different Chemical & Analytical Procedures: A Review

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ABSTRACT:

Disulfide bond identification is important aspect in recombinant proteins to maintain the 3D structure and stability of proteins. In this review different analytical approach is given to identify Disulfide bonding in proteins using HPLC and Mass spectrometry and hyphenated techniques. Partial reduction of protein sample was done by using Tris (2-carboxyethyl) phosphine hydrochloride (TCEP), Dithiothreitol (DTT) and by alkylation using N-Ethylmaleimide (NEM) and Iodoacetamide. Another way of identification is enzymatic digestion techniques, by performing chemical labelling to the free cysteine, using algorithmic techniques and computer programming software. Some of the current new techniques incorporated now a day's like cyanilation (CN) based techniques and new electrochemical reduction techniques using electrochemical cell.

Keywords: Disulfide bond, RP-HPLC, Mass spectrometry, Partial reduction, TCEP, Cysteine.

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