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Synthesis and New HPLC Validation Method of Low Molecular Weight Heparin

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Abstract: *Low weight heparins (LMWH) have remained the most favorable form of heparin in clinics since 1990s' owing to its predictable pharmacokinetic properties. However, LMWH is mainly eliminated through kidney, thus limits its use in renal-impaired patients. In addition, the anticoagulant activity of LMWH is only partially neutralized by protamine. LMWH is obtained from a full-length, highly sulfated polysaccharide harvested from porcine mucosal tissue. The depolymerization involved in LMWH production generates a broad size distribution of LMWH fragments (6-22 sugar residues). This, combined with the various methods used to produce commercial LMWHs, result in variable pharmacological and pharmacokinetic properties. An alternative, chemoenzymatic approach offers a method for the synthesis of LMWH that has the potential to overcome the limitations of current LMWHs. This review summarizes the application of a chemoenzymatic approach to generate LMWH and the rationale for development of a synthetic LMWH.*

Keywords: Anticoagulants, Chemistry Techniques, Synthetic, Enzymes, Heparin, Low-Molecular-Weight, Protamines

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