

# Contents

---

<b>List of Figures</b>	<b>i</b>
<b>List of Tables</b>	<b>v</b>
<b>List of Abbreviations &amp; Symbols</b>	<b>vi</b>
<b>Preface</b>	<b>viii</b>
<b>Chapter 1: Introduction</b>	<b>1</b>
<b>Chapter 2: Review of Literature</b>	<b>8</b>
2.1 Nanotechnology	8
2.2 Polymeric nanoparticles	9
2.3 Preparation of polymeric nanoparticles	11
2.3.1 Dispersion of preformed polymers	12
2.3.2. Polymerization of monomers	17
2.4. Use of polymeric nanoparticles or nanostructures in atherosclerosis	19
2.5. Atorvastatin calcium specific review	20
2.6. Excipients specific review	25
<b>Chapter 3: Plan of Study</b>	<b>35</b>
<b>Chapter 4: Materials and Methods</b>	<b>37</b>
4.1 Materials	37
4.1.1 Chemicals	37
4.1.2 Equipments	38
4.2. Experimental	39
4.2.1 Preformulation studies	39
4.2.2 Formulation development	46
<b>Chapter 5: Results and Discussions</b>	<b>62</b>
5.1 Preformulation studies	62
5.1.1 UV spectrophotometric analytical method for ATR	62
5.1.2 Analytical method development and validation of ATR by HPLC in mobile phase and plasma samples	64
5.1.3 Assessment of solubility studies of ATR in different buffer solutions with various surfactants.	67
5.2 Formulation Development, <i>in vitro</i> and <i>in vivo</i> characterizations	77
5.2.1 Preparation, <i>in vitro</i> and <i>in vivo</i> characterization of AERSNs	77
5.2.2 Preparation, <i>in vitro</i> and <i>in vivo</i> characterization of APLNs	94
5.2.3 Preparation, <i>in vitro</i> and <i>in vivo</i> characterization of ALPNs	111
<b>Chapter 6: Summary and Conclusions</b>	<b>128</b>
<b>References</b>	<b>133</b>
<b>Publications, Conferences and Awards</b>	<b>151</b>
<b>Reprints of Published Papers</b>	