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学 位 （ 博 士 ） 論 文 要 旨

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論文題目	バニリン誘導体を由来とした芳香族ポリマーの合成と評価 Synthesis and characterization of aromatic polymers from vanillin derivatives				
論文要旨 (英文 500words)					
<p>A large number of polymer materials have been produced based on fossil resources such as oil. However, depletion of fossil resources, environmental problem and global warming stimulate growing demand for renewable one with low carbon footprint. In recent years, the preparation of bio-based polymer materials with natural monomers have attracted lots of attention. In this thesis, the synthesis and characterization of some aromatic polymers from vanillin derivatives were investigate.</p> <p>In the first part of this thesis, the navel ether poly(benzoxazole) (PBO) which synthesized from vanillin, renewable resource showed good thermal characteristics and mechanical strength in contrast to commercial materials. This PBO was analyzed by Fourier transform infrared spectrometer (FTIR), nuclear magnetic resonance (NMR), differential scanning calorimetry (DSC) and thermogravimetric analysis (TGA) to confirm the structure and thermal properties. The resultant ether-PBO film showed flexible and self-standing property. This film also had 5.2 GPa for Young's modulus and 117 MPa for tensile strength which were higher than the commercial engineering polymers and other ether PBOs.</p> <p>A new wholly aromatic biomass-based polymers poly((3-veratrylidene amino-4-hydroxy-5-methoxybenzoic acid(3,4,5-VAHMBA)-co-trans-3-methoxy-4-hydroxy cinnamic acid (3,4-MHCA)) (poly(3,4,5-VAHMBA-co-3,4-MHCA)) were synthesized from renewable 3,4-MHCA and 3,4,5-VAHMBA. The copolymers were analyzed by NMR, FT-IR, polarizing optical microscope (POM) to confirm their structure and liquid crystalline property.</p> <p>In the last part of this thesis, a novel biobased vinyl polymer from ferulic acid, renewable resource. Ferulic acid is applied in a wide range of applications, including as an antioxidant, sunscreen in cosmetics. Methacrylic-Ferulic acid copolymers were synthesized by single-step free radical polymerization. The structure of copolymers were analyzed by NMR and FT-IR.</p>					