CHAPTER V
CONCLUSIONS

It was observed that HDPE was incompatible with silk. However, after the blends were chemcially treated by adding functionalized polymer components (MMA), the specific interfacial interactions; H-bonds; were formed between MMA-g-HDPE and silk. The increasing compatibility in the blends was observed. According to the complex structure of silk with various types of amino acid that can form H-bonds with MMA-g-HDPE, the H-bond bonds shown by FT-IR spectra are the average structures among the over all possible H-bonds. The mechanical properties of the final blends were enhanced. Tensile modulus, tensile strength, flexural modulus, flexural strength increased with increasing fiber loading. However, impact resistance of the final blends decreased as compared to pure component of HDPE due to the presence of micro gel, poor adhesion, and silk degradation. The thermal stability of the composite was higher than that of pure silk indicating some change in silk structure. Moreover, the crystallization temperature increased with increasing fiber loading due to the presence of silk fiber acting as the nucleating agent in the blends.