



CHAPTER V CONCLUSIONS

Jute- and flax-reinforced starch-based composite foams (SCFs) with varying fiber content, fiber aspect ratio, and fiber orientation were successfully prepared. An increase in the storage relative humidity level resulted in an increase in the moisture content of the pure starch-based foams (SFs). The moisture content of the pure starch foams was constant after three days of conditioning. Addition of jute or flax fibers resulted in the much improvement in the flexural strength and the flexural modulus of elasticity, at the expense of the flexural strain at maximum force. The optimal moisture content which resulted in the maximum values of the flexural strength and the flexural strain at maximum force for both jute- and flax-reinforced SCFs was observed between 8 and 10%, depending on the batter formulations. The reinforcing effect of the fibers was found to improve with increasing fiber content and fiber aspect ratio, with jute fibers provided more improvement to the flexural strength of the SCFs than flax fibers did. Lastly, the SCF reinforced with flax fibers being oriented in the longitudinal direction showed dramatic improvement in the flexural strength and the flexural modulus of elasticity over the SFs.