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**Miscibility Studies on Polymer Blends Modified with Phytochemicals** NEELAKANDAN CHANDRASEKARAN, THEIN KYU, The University of Akron — The miscibility studies related to an amorphous poly(amide)/poly(vinyl pyrrolidone) [PA/PVP] blend with a crystalline phytochemical called "Mangiferin" is presented. Phytochemicals are plant derived chemicals which intrinsically possess multiple salubrious properties that are associated with prevention of diseases such as cancer, diabetes, cardiovascular disease, and hypertension. Incorporation of phytochemicals into polymers has shown to have very promising applications in wound healing, drug delivery, etc. The morphology of these materials is crucial to applications like hemodialysis, which is governed by thermodynamics and kinetics of the phase separation process. Hence, miscibility studies of PA/PVP blends with and without mangiferin have been carried out using dimethyl sulfoxide as a common solvent. Differential scanning calorimetry studies revealed that the binary PA/PVP blends were completely miscible at all compositions. However, the addition of mangiferin has led to liquid-liquid phase separation and liquid-solid phase transition in a composition dependent manner. Fourier transformed infrared spectroscopy was undertaken to determine specific interaction between the polymer constituents and the role of possible hydrogen bonding among three constituents will be discussed.

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