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## Solution Properties of Silk Fibroin Solution Prepared by Formic Acid

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Silk fibroin(SF) has been investigated as one of promising resources of biotechnology and biomedical material. This non-textile applications are demanded in the forms of film, powder, gel and fiber and these forms have been prepared from SF aqueous solution. However, SF aqueous solution becomes unstable and precipitated due to its low solubility in water. Furthermore, in preparation of SF blend, to overcome the drawback of SF itself, the polymers used as one of blend component material much restricted due to the lack of co-solvent except water. Recently, Um et al prepared SF solution and film using formic acid as a solvent and characterized structure of SF films. In the present work, solution properties of SF solution prepared by formic acid was examined. SDS PAGE analysis showed no degradation of SF molecules occurred during dissolution in formic acid. NMR results indicated SF molecules in formic acid solution adopted random coil conformation. FTIR measurement of SF solution during drying revealed that random coil conformation of SF molecules was transformed to  $\beta$ -sheet conformation by elimination of formic acid.