

# APPLICATION OF UV/VIS SPECTROSCOPY FOR ASSESSMENT OF IoBioFluid STABILITY

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## ABSTRACT

Iobionanofluids are a dispersion of ionic fluids as a based fluid and biomass nanoparticles. Ionic fluids consider as new green fluids which characteristics can improve the performance of IoBioFluids. This is a new class of nanofluids as a sustainable alternative to IoNanoFluids. In this work two different ionic based fluids were used ammonium formate and [HMIM] [NTf 2]. Bionanoparticles were generated by two step methods. In the first step bionano particles were produced. In the second step IoBioFluid was prepared. Bionano particles were produced from sunflower stalk biomass after hydrothermal carbonization process. Dispersion of nanoparticles and ionic fluid was created by treatment with ultrasound probe and bath. One of the disadvantages of nonofluids is limited stability. Stability of dispersion depend on nature of base fluid, nanoparticles, preparation method, applied surfactants etc. Stability can be access by observation or some optical method. For this purpose UV/VIS UniSPEC 2 spectrophotometer was used. Absorbance value used as a stability indicator. Measurement were conducted wavelength range 200 – 800 nm. Samples of two different IoBioFluids were scanned every day for 10 days. Dispersion of nanoparticels and ammonium formats showed better stability. UV/VIS spectroscopy can be used as a fast method for evaluation of nanofluid stability.

*Key words: IoBioFluids, spectroscopy, satility*

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