Abstract:
Blends contain sulfate resisting cement (SRC), micro silica (MS) and nano-sized TiO₂ (nT) were prepared. The phase of nT is a pure anatase. Incorporating 5 wt.% of nT into cement blends gave more desirable physico-mechanical properties than others. The prepared mixes exhibited adsorptive action towards the hazard water-soluble xanthenes dye (pyronin Y, PY). The ΔG° of the PY contact with the nT-SRC/ MS blend giving an estimate of -27.3 kJ. Adsorption capacity was calculated using UV–Vis spectroscopy. Contact time, pH and blend composition had an effect on the adsorption process. Blend surface is photoactive in the photomineralization of the adsorbed PY.