SUMMARY AND CONCLUSION

Zr-TiO$_2$/CaO nanoparticles were synthesized by sol-gel method. In this work CaO was obtained from hen eggshell waste. The prepared Zr-TiO$_2$/CaO composite was characterized by SEM, EDX, TEM, XRD and FTIR spectral techniques. Zr-TiO$_2$/CaO proved to be efficient photocatalyst for removal of methylene blue dye under solar light. The degradation of MB is optimal at pH 5. The rate of reaction is maximal at 150 mg/50 ml Zr-TiO$_2$/CaO loading and 5.0 $\times$ $10^{-4}$ M methylene blue concentration. The incorporation of calcium oxide with Zr doped TiO$_2$ had shown significant photocatalytic activities for dye removal.