**ABSTRACT**

With the increase in demand for construction ingredients, there is a strong need to make use of opportunity ingredients for sustainable development. The most important objective of this research is to study the properties, including compressive strength and tensile strengths of light-weight concrete containing Expanded Polystyrene (EPS) beads. Its properties are compared with those of conventional concrete i.e., without EPS beads. EPS beads are used as partial replacement to coarse aggregates. The outcomes showed that the quantity of polystyrene beads incorporated in concrete affects the properties of hardened concrete. At 28 days, it became determined that compressive strength of 5%, 10%, 15%, 20%, 25% and 30% EPS incorporated concrete strengths have been 91%, 77 %, 71%, 73%, 57%, and 45%, respectively when as compared to concrete and not using a EPS case.