CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter discussed on the methodology to conduct this research. In this research, the structural behaviour of the lightweight concrete slab with the addition of steel fibre and the effect of fibre hybridization to the behaviour of oil palm shell concrete slab were determined and investigated.

Figure 3.1 shows the flowchart of the study. This flowchart is to ensure the flow of the study can be done smoothly. First of all, before proceed with the experiment; sample preparations were prepared which is consisted formwork and raw materials. Some of the raw materials are cement, water, fine aggregates, oil palm shell and steel fibre. After that, next processes were proceeded which are mixing, casting, curing and testing. Results from the testing were analysed and tabulated.
Figure 3.1: Flowchart of research
3.2 CONCRETE RAW MATERIALS

3.2.1 Oil Palm Shell Aggregates

In this study, the size of OPS used is between 5 mm-10 mm. It was air dry for about a week before it can be used. It was taken from an oil palm factory at Panching.

![Samples of OPS aggregates](image)

**Figure 3.2:** Samples of OPS aggregates

3.2.2 Steel Fibres

Steel fibres used in this study are SF60 which have length of 60 mm with aspect ratio of 80 and the diameter is 0.75 mm and SF35 which have length of 35 mm and the diameter is 0.55 mm. These steel fibres are known as hooked end steel fibre. These fibres were bought from a factory at Klang.