# *ABSTRACT* (INGGRIS)

## *CONSTRUCTION OF FOUNDATION PILES USING SOLID DECANTER CEMENT MORTAR AND PALM FIBER REINFORCEMENT*


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### *Abstract*

This study aims to analyze the characteristics and mechanical performance of mortar mixtures consisting of cement, *solid decanter*, and 1% palm fiber (*ijuk*) as a foundation pile material for non-structural applications. The research methods included slump testing, compressive strength testing, flexural strength testing, and simple pile-driving tests. The test results showed a slump value of 15 cm, indicating that the mixture had good workability. The compressive strength test resulted in an average value of 1.79 MPa. This value is relatively low and has not reached the expected quality and strength for foundation pile materials; therefore, the mixture used can be considered insufficient to provide adequate compressive strength. Meanwhile, the flexural strength test on sample S1 reached 117.72 kN before failure occurred. In the simple pile-driving test, the material was able to penetrate the soil to a depth of 50 cm before cracking occurred. The results indicate that the addition of 1% palm fiber can help improve the material's resistance to cracking, but it has not been able to provide a significant improvement in mechanical strength. With a compressive strength of only 1.79 MPa, the mixture of cement, *solid decanter*, and palm fiber does not meet the expected strength requirements for use as a structural element. Therefore, the material is more appropriately directed toward non-structural applications. Further research and development are needed to optimize the mixture composition, palm fiber content, and proportion of binding materials in order to achieve better quality and mechanical strength.



***Keywords: fly ash, mini-pile, mortar, non-structural, palm fiber***