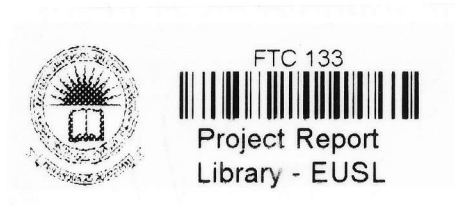


**VALUE ADDITION OF PLASTIC WITH CLAY TO  
MANUFACTURE PLASTIC-CLAY BRICKS**



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## ABSTRACT

Plastics play a significant role in modern society and they are utilized often in a variety of applications, which results in enormous waste generation. Plastic waste is a non-biodegradable waste that cannot decompose and pollutes air, water, and land. Large-scale plastic disposal has become a significant environmental burden because plastic cannot be degraded and recycling it poses significant challenges. This research project tries to solve the problem innovatively and efficiently by utilizing waste plastic to manufacture plastic clay bricks. In this study, the PET plastic waste value was added with clay to prepare plastic building bricks. The plastic was used as a binding material for the replacement of cement. The bricks were prepared by taking plastic clay in four different ratios of 1:1, 1:2, 1:3, and 1:4. In each of these ratios, only one part of the plastic was taken from the total amount of weight, and clay was taken in different amounts. Water absorption and compressive strength tests were performed to evaluate the quality of prepared plastic clay bricks. According to the test results, prepared plastic clay bricks showed satisfactory compressive strength with a negligible amount of water absorption rate compared to conventional bricks. The ratios 1:1 and 1:2 showed good compressive strengths of 12.05 N/mm<sup>2</sup> and 6.16 N/mm<sup>2</sup> as well as water absorption rates of 2.85% and 3.24 %, respectively. Ratios 1:1 and 1:2 were preferable for construction usage. Especially in underground construction due to its good compressive strength and minimum water absorption rate. Overall, these plastic clay bricks were a creative and effective solution for waste disposal problems. As well, these are alternative and affordable construction materials.

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