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## Utilisation of olive mill waste and coal ashes in normal concrete mixes

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The main objective of this research investigation is to study the effect of Olive Mill Waste (OMW) ash and Normal Coal (NC) ash on some engineering properties of normal strength concrete such as workability and compressive strength and hopefully select a better alternative for the concrete mix utilising such wastes. Thus, this will lead to reach a clear environment and reduce the overall cost of concrete mix by reducing the amount of cement content, as a result of replacing these wastes in the concrete mix. Overall, there are numerous benefits associated with the recycling of such waste products for the provision of a substitute concrete mix. Firstly, replacing a certain amount of cement with OMW and NC ash would reduce the overall cost of the concrete mix. Additionally, restoring these wastes would decrease the levels of pollution which would otherwise increase the spread of pests and negatively impact the health of the population. As well as aiding the achievement of providing a cleaner environment, regenerating these wastes for the purpose of creating a concrete mix would eliminate the costs of their disposal. In order to achieve this goal, different percentages e.g. 10, 20, 30 and 40% of both OMW ash and NC ash were used as an additive and/or replacement in the production of normal concrete strength mixes to obtain a concrete grade of 40 MPa. Four sets of concrete mixes were cast to test the workability and the compressive strength based on the changes of the percentage of OMW and NC ashes by weight of cement. The slump test results ranged from 58 to 110 mm with the addition and/or replacement of OMW and NC ashes. Moreover, the compressive strength is decreased as the percentage of adding and/or replacement of OMW and NC ashes is increased.

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