Abstract

Portland cement tile was the old processed tile before the ceramic was discovered which is constantly used though not as much as ceramic tile. This project proposes to study the possibility of formulate a cement tile by enhance the crude fiber from narrow-leaved cattail plant.

Narrow – leaved cattail plant, *Typha angustifolia L* is known as water loving weed plant which contains many applications, especially for the use of herbal medicine, food, or raw material for textile products. One distinct characteristic of cattail plant is the high of fiber.

The pulping process was studied to extract the toughest fiber from this plant. The result came out as 15% NaOH boiling for 2 hours was the most suitable time for fiber extraction. Therefore, 15% NaOH solution was used throughout the rest of the experiment.

The tile formation was tested with 1%, 3% and 5% crude fiber added. After the physical properties of tile were studied, tile added with 5% crude fiber had the most flexural value in dry condition while 1% was the highest for wet condition. For the compressive strength test, 3% incorporated tile had the most value in dry condition while 1% was the highest under wet condition.

The water absorption was increased through the percentage of incorporated crude fiber percentage which means 5% had the most water absorption value while 0% was the least. On the contrary, the density was decreased following the percentage of incorporated tile means, control had the most density and 5% had the least density.

From the result, the function of narrow-leaved cattail plant incorporated tile has limited for indoor only. The product of 5% crude fiber added tile was the best using for making wall since the flexural value was high enough to be able to decorate by drilling. In the other hand, the product that could resist the highest value compression test, 3% cattail crude fiber incorporated tile, was the best using for the floor. However, the further study should be done in the future to obtain the most accuracy suitable application of the modified tile products.