

Pengaruh permukaan hydrophobic pada aliran dalam pipa = The effect of hydrophobic surfaces to the flows in pipe

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Abstrak

Pengaruh permukaan hydrophobic pada aliran turbulen dalam pipa akan diteliti. Penelitian ini menggunakan air sebagai fluida serta tiga jenis daun talas, yaitu *Colocasia gigantea*, *Colocasia esculenta*, dan *Colocasia fontanesii*. Tiga pipa akrilik 7×7 mm, masing-masing dinding dalam pipa tersebut dilapisi dengan ketiga jenis daun talas tersebut. Drag reduction terbesar yang dihasilkan oleh dinding daun *Colocasia gigantea* yaitu sebesar 22,6% pada Re 7300 dengan rata-rata DR sebesar 16,3%, sedangkan drag reduction terbesar yang dihasilkan dinding daun *Colocasia esculenta* dan dinding daun *Colocasia fontanesii* masing-masing sebesar 15,3% dan 20,5% pada Re 6400 dengan rata-rata DR masing-masing sebesar 12,6% dan 12,5%.

.....The effect of hydrophobic surfaces on turbulent flow in a pipe were investigated. This study used water as the fluid and three types of leaves of taro, *Colocasia gigantea*, *colocasia esculantea*, and *colocasia fontanesii*. Three acrylic pipes were coated the three types of taro leaves. Reynolds number and characteristics of the pressure drop is the main variable to be studied. Rectangular pipes 7×7 mm those coated with the leaves showed a reduction in coefficient of friction. The biggest drag reduction produced by the leaf of *Colocasia gigantea* wall is equal to 22,6% at Re 7300 with an average DR 16.35%, while the largest drag reduction produced by *Colocasia esculantea* leaf and *Colocasia fontanesii* leaf are 15,3% and 20,5% at Re 6400 with average DR 12,6% and 12,5%.