



Development of Biomass and Volume Models of *Melia dubia* Cav. for Early Establishment

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Abstract: The present study was carried out in Navsari Agricultural University, Navsari to develop linear regression models for industrially important *M. dubia* during 2015 to 2020. In this study destructive approach has been used for measurement of required variables, *i.e.* diameter at breast height (DBH), tree height, end-diameters of tree logs and fresh tree biomass. Comparison of various tested fresh biomass models relationship on the basis of adjusted R^2 values showed that the linear functions $B=0.0299(HD^2)$ ($R^2 = 0.960$) as best fit. Similarly, linear regression equation developed using linear function $V=0.003 + 0.00003 HD^2$ ($R^2 = 0.935$), considering tree volume as an dependent variable and height and DBH as an independent variable, with highest adjusted R^2 value was found best fit for all height and DBH classes. Hence, these linear regression equations were selected for development of height and diameter class wise biomass and volume models. The allometric models developed in this study can be used for estimation of *M. dubia* standing tree biomass and over bark volume.

Keywords: *Melia dubia*, Biomass, Volume, Allometry, Regression models
