Modelling the growth kinetics of callus cultures from the seedling of Jatropha curcas L. according to the modified Gompertz model

ABSTRACT

One of the most important preliminary investigation of callus attributes is the growth characteristics. Most often than not, callus growth curve is sigmoidal in characteristics. In this work, we model callus growth from the seedling of Jatropha curcas L. according to the modified Gompertz model from published literature to acquire essential growth constants. These growth constants can be obtained with better precision using model such as the modified Gompertz. Parameters obtained from the fitting exercise were maximum callus growth rate (μm), lag time (λ) and maximal callus production (Ymax) of 0.193 d-1, 2.91 days and 0.38 g callus/25 mL culture, respectively. Growth parameter constants extracted from the modelling exercise will be helpful for additional secondary modelling implicating the consequence of media conditions as well as other factors on the growth of callus from this plant.

Keyword: Jatropha curcas L.; Modified Gompertz; Callus; Growth rate