# MODELING OF CONTINUOUS OSCILLATORY BAFFLED REACTOR FOR BIODIESEL PRODUCTION FROM JATROPHA OIL

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## ABSTRACT

The aim of this paper is model the continuous Oscillatory Baffled flow Reactor for biodiesel production from Jatropha oil. It presents the prediction of the number of serially arranged ideal stirred tank reactors (N), that will have an equivalent performance as an Oscillatory baffled flow reactor using Tanks –in-Series Model approach. The results show that the number of tanks in series was prdicted to be 5.6 by the model which is almost equivalent to the experimental number of tanks in the oscillatory baffled reactor with a baffle number of seven and consequently having number of tanks to be six. The significance of 5.6 tanks, means that this non-ideal Oscillatory flow reactor under study could be represented by six ideal stirred tanks arranged in series with the same flow rate of 0.098$m^3$ / hr. The combined volume (size) of the six tanks must however, be equal to that of the Oscillatory baffled flow reactor. From this analysis, it would be more economical to use a single OFR than using about six tanks of the CSTR for the given reaction becuase the average percentage error betwen the experimental and simulated results was about 5%.

**Keywords:** Modeling, Oscillatory Baffled Reactor, Biodiesel, Jatropha Oil.