In silico Identification of novel Aldose Reductase Inhibitors for diabetes from *Sterculia foetida*

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ABSTRACT

Diabetes is one the metabolic disorder of chronic illness, which is characterized by the body inability to provide adequate blood sugar control. The role of the aldose reductase in diabetic neuropathy is widely described as it increases the glucose concentration in the tissue, organ, muscle were the insulin activity was insensitive and by damaging the eye and nerve. Currently used drug are made up of Synthetic compound and noticed that it leads to some side effect and also less effective in preventing long term complications. Therefore, some extra attentions were needed to discover plant derived compounds as the best inhibitors without any side effect. On the literature survey of the plant belonging to mallow family, the plant *Sterculia foetida* was found enriched with medicinal properties and its 28 compounds were identified. Molecular docking Analysis was executed in this study to identify novel inhibitor for aldose reductase protein from the plant compounds. Docking result revealed that 2 compound exhibit best protein – ligand binding interaction of < -15 kcal/mol when compared with other compounds and it also satisfies the ADME properties. This study can be taken to the next step of drug designing, *in vitro* and *in vivo* analysis for the safety usage of dose to the patients.

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