



# An oral anti-diabetic pharmaceutical composition comprising novel synthetic alpha-amylase inhibitor

TECHNOLOGY AVAILABLE FOR TRANSFER

## UNIQUE SELLING PROPOSITION

*Efficacy of the oral formulation is equal to the standard alpha amylase inhibitor-Acarbose at half of the dose*

## UNMET NEED AND OPPORTUNITY

Diabetes mellitus is one of the most common metabolic disorders and has an increasing prevalence worldwide. Several new classes of agents, including glucagon-like peptide 1 (GLP-1) agonists, dipeptidyl peptidase-4 (DPP4) inhibitors, and sodium-glucose co-transporters 2 (SGLT-2) inhibitors, have been introduced and demonstrated a dramatic increase in their use, whereas the older treatments continue to be replaced or supplemented by newer therapies. Among the various classes of antihyperglycemic agents, metformin remains the optimal agent as the initial medication because of its low cost, proven safety record, weight neutrality and possible benefits on cardiovascular outcomes.

$\alpha$ -amylase inhibitors have been widely prescribed as a monotherapy or as a combination with other oral antihyperglycemic medications. There is need for cost effective alpha amylase inhibitor that has higher potency.

## TECHNOLOGY

The technology relates to an oral antidiabetic pharmaceutical composition which comprises of synthesized amino acid derivative that is an inhibitor of alpha-amylase. Alpha-amylases are enzymes which hydrolyze starch molecules to give diverse products including dextrans and progressively smaller polymers composed of glucose units which causes hyperglycemia and development of type 2 diabetes mellitus. This oral composition for the treatment of Type II diabetes works by inhibiting the alpha-amylase activity. The ligands were identified using molecular docking approach.

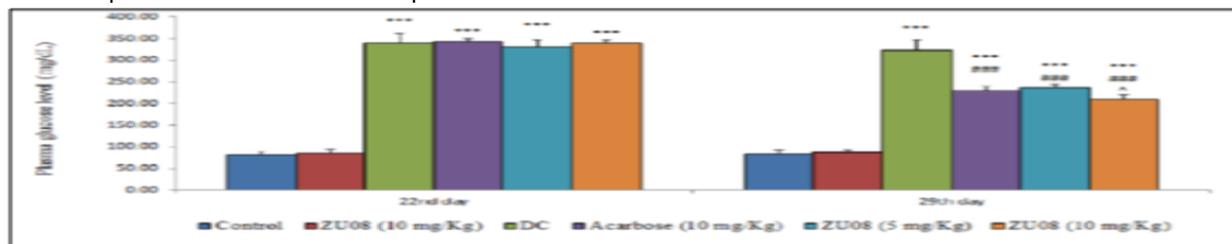
The oral formulation is easy to prepare at lab and at an industrial scale without the need of any time-consuming expensive procedures. The formulation has beneficial effects for the treatment of type II diabetes.

## ADVANTAGES

1. Significantly higher binding affinity with alpha-amylase
2. 80% higher potency as compared to currently available alpha-amylase inhibitor
3. 40 % lower IC50 as compared to Acarbose
4. Synthesis is simple and cost-effective

## STAGE OF DEVELOPMENT

Proof of concept is established in lab set-up.



Effects of treatment on Plasma glucose

## INTELLECTUAL PROPERTY

Indian Patent application filed in July, 2019

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