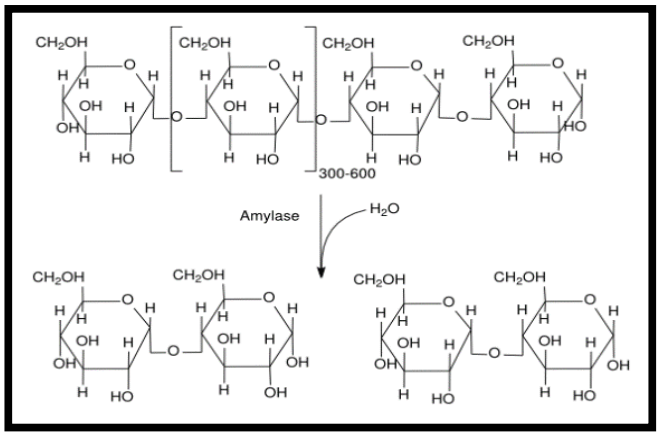
X.B - Alpha-amylase Inhibitory Property

Diabetes mellitus is a disease simply characterized by hyperglycemia have severe socioeconomic importance, due to lack of Insulin may be absolute or relative [Aguwa, 2004]. Diabetes can be managed both by the non-pharmacological and pharmacological approaches. Some hemiparasoitic taxa like *Loranthus parasiticus*, which is the available in the South west-Bengal Forest on a variety of host trees, which usually determine its phytochemical components and hence its bioactivity. The bioactive compound present within it showed potential a role in controlling blood sugar level.

Alpha-amylase (alternate names: 1, 4-α-D-glucan glucanohydrolase; glycogenase) is the major form of amylase found in humans and other mammals. The enzyme cuts alpha-bonds of large sugar molecules. Amylase is present in human saliva, where digestion process begins. The aim of this study is therefore determine the Inhibitory effect of *Loranthus parasiticus* on α-amylase enzyme. This was done as –amylase inhibition can prevent the accumulation of excess glucose in blood of diabetic patient. So could be used as an ANTI-DIAEBETICagent.



Amylase break down alpha bound of large molecule of sugar to form monosaccharide

Materials and Methods

Plant material Collection

The plant *Loranthus parasiticus, Macrosolen cochinchinensis* and *Viscum album* were collected from the different areas of south west Bengal.

Extract preparation

Plant materials were homogenized with water and boiled for 10 minutes. The extract was filtered and then centrifuged. The supernatant was used for determination of enzyme inhibitory property. Assay of α-amylase inhibitory property: Plant extract (0.1ml) was incubated with 0.2 ml of properly diluted enzyme for 20 minutes at 37^0C temperature. Then 0.1 ml of starch solution was added to the reaction mixture and incubated for 3 minutes at 37^0C temperature. The enzyme reaction mixture was interrupted by the addition of 0.2 ml **Dinitrosalicylic** (DNS) acid and heated for 5 minutes in boiling water. Then the tube containing the mixture was placed at running tap water for cooling. Then 4 ml water was added and OD value of the solution was determined by spectrophotometer at 540 nm. A blank mixture was prepared in same manner without adding enzyme in the mixture (Bernfeld, 1955). Percentage inhibition of enzyme activity was measured.

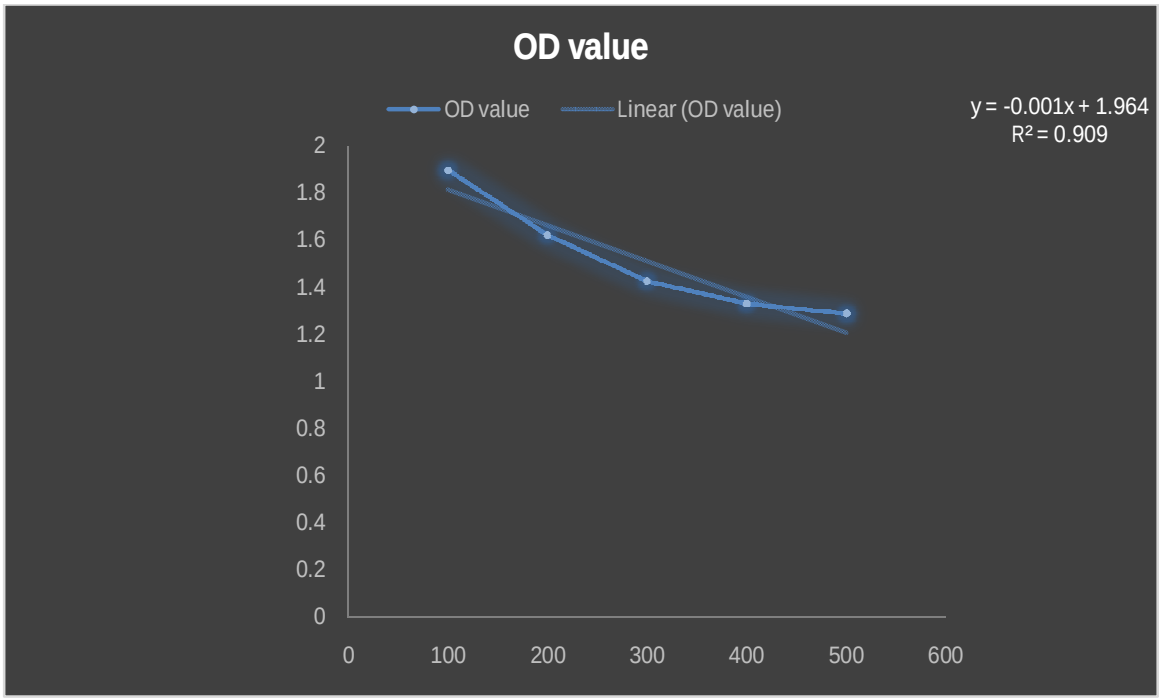
X.B.1.i - Results (*Loranthus parasiticus*)

The plant extract (*Loranthus parasiticus*) showing alpha-amylase inhibitory property lead to important role in inhibiting the Glucose level thus providing protection to human against hyperglycemia. Realizing the fact, this study is carried out to evaluate the anti-diabetic activity of aqueous extract of the leaves of *Loranthus parasiticus,* In our experiment different conc. of plant extracts are applied on the enzyme to determine the O.D values of aqueous extract of the plant. The result of the experiment are given in following tabulated

form (table.12)In this experiment significant result are found in case of *Loranthus parasiticus.*

Table 31: OD value in respect to plant extract concentration

Concentration of plant extract (mg/ml)	OD value
100	**1.895**
200	**1.621**
300	**1.425**
400	**1.329**
500	**1.286**



Graph 13: showing amylase inhibitory activity of different concentration of plant

X.B.1.ii - Discussions

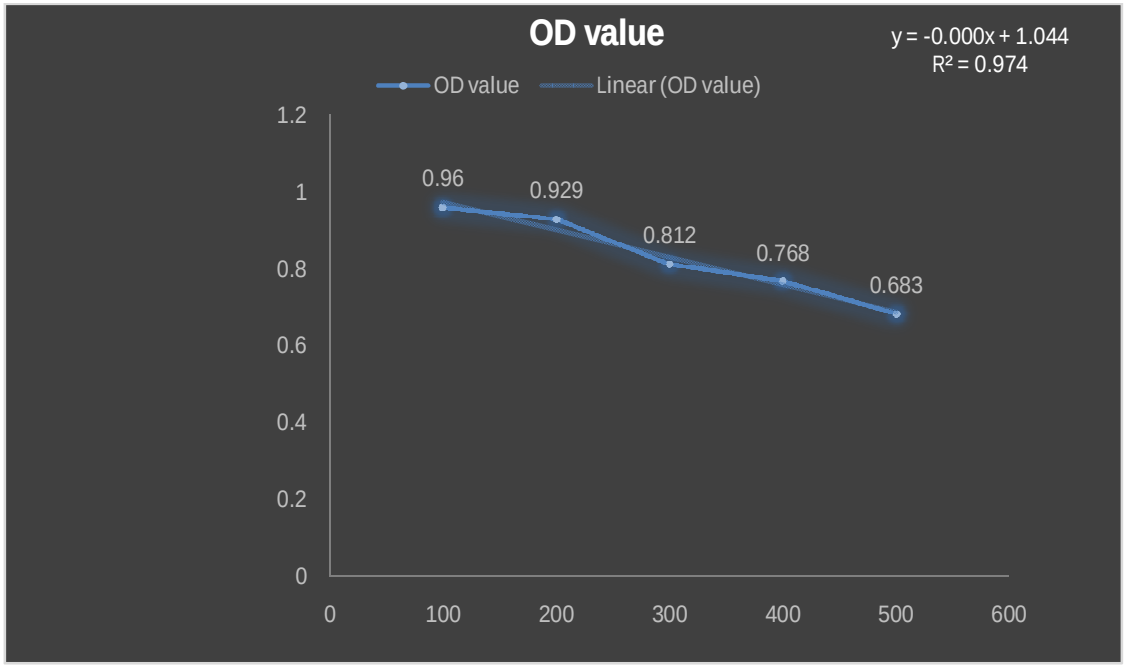
The data presented here indicate that aqueous extract of *Loranthus parasiticus* possesses significant in vitro amylase inhibtion activity. The mechanism is yet to be analyzed for further reference.

X.B.2.i - Results (*Macrosolen cochinchinensis*)

This study was conducted to evaluate the anti-diabetic activity of aqueous extract of the leaves of *Macrosolen cochinchinensis.* In our experiment different conc. of plant extracts are applied on the enzyme to determine the O.D values of aqueous extract of the plant. The resultof the experiment are given in following tabulated form table.

Table 32: OD value in respect to plant extract concentration

Concentration of plant extract (mg/ml)	OD value
100	0.96
200	0.96
300	0.821
400	0.768
500	0.683



Graph - 14: showing amylase inhibitory activity of different concentration of plant

X.B.2.ii - Discussions

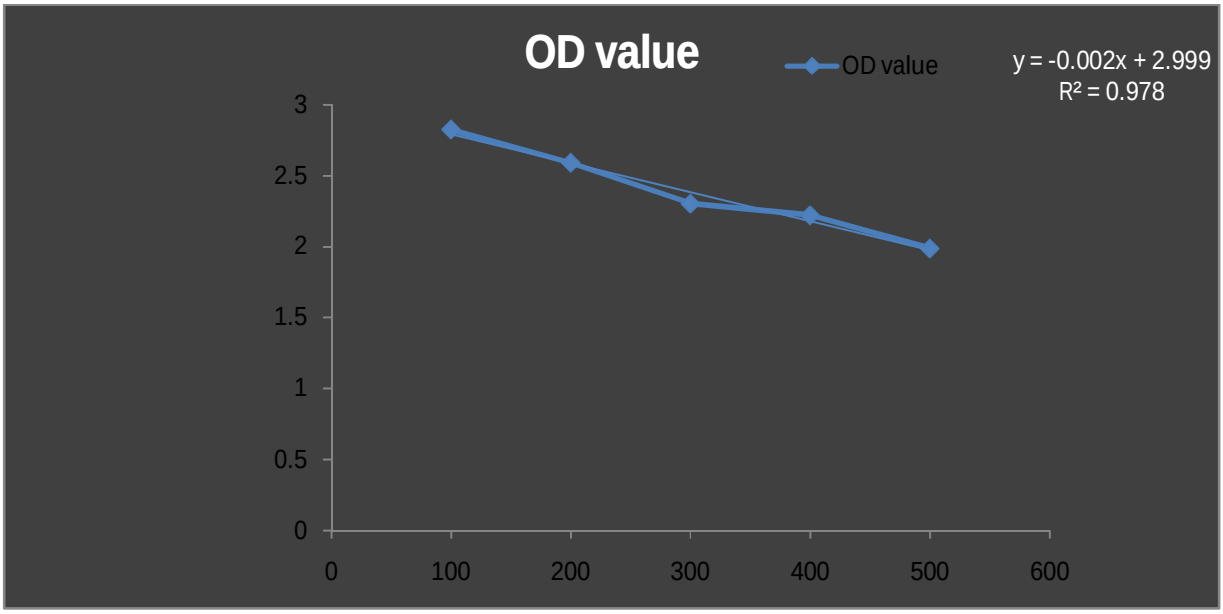
The data presented here indicate that aqueous extract of *Macrosolen cochinchinensis* possesses significant in vitro amylase inhibtion activity and it has potential role in lowering blood sugar by inhibiting the role of alpha amylase.

X.B.3.i - Results (*Viscum album*)

The plant extract of *Viscum album* showed significant Anti-diabetic activity. In our experiment different conc. of plant extracts are applied on the enzyme to determine the O.D values of aqueous extract of the plant. The result of the experiment are given in following tabulated form (table.11)

Table 33: OD value in respect to plant extract concentration

Concentration of plant extract (mg/ml)	OD value
100	2.825
200	2.592
300	2.304
400	2.221
500	2.989



Graph 15: showing amylase inhibitory activity of different concentration of plant

X.B.3.ii - Discussions

The data presented here indicate that aqueous extract of *Viscum album* possesses significant in vitro amylase inhibtion activity. As the result analysis for the previous two plants, this plant also showed significant role by the same mechanical process.