



### ANTIDIABETIC AND ANTIOXIDANT ACTIVITY OF AQUEOUS ROOT EXTRACT OF *CHLOROPHYTUM BORIVILIANUM* (SAFED MUSLI)

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**Abstract: Objective:** To investigate the antidiabetic effect of aqueous extract of *Chlorophytum borivilianum* (safed musli) root. **Methods:** The collected roots were washed; shade dried and was pulverized with a mechanical pulverizer for the size reduction. It was then passed through mesh of size # 60 and the fine powder was collected and was used for the experiment for powder microscopy and preparation of extract. The root powder (1000 g) was subjected to cold maceration in 2 L of sterile distilled water for 48 hours at room temperature, filtered into a clean round bottom flask. The  $\alpha$ -Glucosidase inhibitory activity was conducted where 100 $\mu$ l of a sample of different concentrations was incubated with 50 $\mu$ l  $\alpha$ -glucosidase (1.0 U/ml) (from *Saccharomyces cerevisiae*) in phosphate buffer (0.1 M, pH 6.8) for 10 min at 37°C. The reaction was initiated by addition of 50  $\mu$ l of substrate: 5 mM, p-nitrophenyl- $\alpha$ -D glucopyranoside in a 0.1 M phosphate buffer at pH 6.8. P-nitrophenol's release kinetics. The  $\alpha$ -Amylase Inhibition where 250 $\mu$ L of the extract (5mg/mL) was preincubated with 250 $\mu$ L of  $\alpha$ -amylase solution for 10min at 25°C in one set of tubes. In another set of tubes - amylase was preincubated with 250 $\mu$ L of phosphate buffer (pH 6.9). 250 $\mu$ L of starch solution at increasing concentrations (0.30–5.0mg/mL) was added to both sets of reaction mixtures to start the reaction. The mixture was then incubated for 10min at 25°C and then boiled for 5min after the addition of 500 $\mu$ L of DNS to stop the reaction. **Results:** In this study acarbose was also used as a standard drug for  $\alpha$ -glucosidase inhibitor. Acarbose at a concentration of (100-1000  $\mu$ g/ml) showed  $\alpha$ -glucosidase inhibitory activity from 30.31 $\pm$ 0.1084 to 84.05 $\pm$ 0.2075% with an IC value 411.436567 $\mu$ g dry extract, & acarbose was also used as a standard drug for  $\alpha$  amylase inhibitor. Acarbose at a concentration of (100-1000  $\mu$ g/ml) showed  $\alpha$ -glucosidase inhibitory activity from 23.33 $\pm$ 0.1415 to 62.05 $\pm$ 0.2725% with an IC value 236.774194 $\mu$ g dry extract.

**Conclusions:** As a result, we found that the extract of *C. borivilianum* have free radical scavenging activity and inhibitory activity against  $\alpha$ -amylase and  $\alpha$ -glucosidase and this therapeutic potentiality could be exploited in the management of post prandial hyperglycemia in the treatment of type 2 diabetes mellitus.

**Key words-** *Chlorophytum boriviliuanum*, Antidiabetic & Antioxidant



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