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*In vitro* and *in vivo* hypoglycemic evaluation of *Terminalia chebula* Retz leavesJayashree Dutta and M C Kalita  
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Diabetes mellitus is one of the fast-growing health problems in both developing and developed nations. A wide and diverse range of plants reported in Indian literature are used in the treatment of diabetes mellitus. Being a store house of medicinal plants, the north-eastern part of India serves as reservoir of traditional based knowledge for treatment of several diseases including diabetes. In the present study, the leaf part of *Terminalia chebula* Retz was accessed for its hypoglycemic potentiality both *in vitro* and *in vivo*. Initial *in vitro* test was performed using enzyme  $\alpha$ -amylase and  $\alpha$ -glucosidase. *In vitro* analysis was followed by *in vivo* hypoglycemic evaluation in alloxan induced diabetic rat model. *Terminalia chebula* leaves has demonstrated a moderate level of  $\alpha$ -amylase inhibition (70.46%) with  $IC_{50}$ -06.09 $\pm$ 0.342 mg/mL and very high yeast  $\alpha$ -glucosidase inhibition (100%) with  $IC_{50}$ -0.956 $\pm$ 0.342 mg/mL compared to standard reference drug acarbose. Oral carbohydrate tolerance test of methanol extract *T. chebula* leaves revealed that oral administration of the extract at the dose of (300 mg/kg b.w) to maltose loaded diabetic rats significantly ( $P < 0.05$ ) suppressed the rise of post-prandial blood glucose level compared to the standard drug acarbose. The phytochemical analysis reveals that the crude methanol extract of *T. chebula* leaves is very rich in phytoconstituents like phenol, tannin flavonoids, terpenoid and glycosides compared to petroleum ether extract and acetone extract. The total phenol and flavonoid content of *T. chebula* leaves was found to be 123.64 $\pm$ 1.09 mg/g and 184.23 $\pm$ 2.34 mg/g, respectively. The study concludes that the leaf part of *T. chebula* is a potential inhibitor of enzyme  $\alpha$ -glucosidase that can be employed for further for development of suitable anti-diabetic formulation working against postprandial hyperglycemia.

**Biography**

Jayashree Dutta is a Research Scholar in Department of Biotechnology, Gauhati University, India. She has been working in the field of anti-diabetic medicinal plants from last five years. She has completed her Masters in Biotechnology and is very much interested in the emerging field of pharmaceutical biotechnology leading to drug discovery. She had earlier documented few plants having hypoglycemic potentiality from North East region of India via tremendous field survey.

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