SUMMARY & CONCLUSION
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The objective of the present study is to investigate on *Mukia maderspatana* and *Raphanus sativus* on diabetes and diabetes associated dyslipidemia.

The phytochemical screening reveal the presence of alkaloids, triterpenoids, flavonoids, fats and oils, tannins, phenolic compounds, proteins and saponins.

*In vitro* studies reveal that the both the plants possess $\alpha$-amylase and $\alpha$-glucosidase inhibitory activity. The *in vitro* glucose uptake using cell lines L-6 and 3T3 L1 show that both plants increase the glucose uptake, thus actively reinforcing the enhanced glucose transport.

*In vivo* studies reveal that in both the models of diabetes mellitus (type 1 and 2), both the extracts and fractions lower the blood glucose levels, reduced the glucose-6-phosphatase activity and increased the hepatic glycogen content in the liver.

When treated with the extracts and fractions the levels of TG, TC, LDL and VLDL were significantly reduced whereas HDL level significantly when compared to the diabetic animals.

The treated animals produce a significant increase in SOD and CAT enzyme levels whereas; the levels of TBARS are decreased significantly as compared to the diabetic animals.

Histopathological studies of pancreas reveal that both the plants show architecture of islets maintained with degeneration with moderate degree of vacuolization compared to diabetic animals.
It may be concluded from present findings that the both the plants, *Mukia maderspatana* and *Raphanus sativus* ameliorates the blood glucose level, glucose-6 phosphatase, hepatic glycogen content, lipid and lipoprotein profile and antioxidant profile in STZ- induced and HFD and low dose STZ- induced diabetic rats.

The proposed mechanism in which both the plants may probably act by

- inhibiting the enzyme involved in digestion of carbohydrates,
- increasing the glycogen content in liver,
- increasing glucose uptake by enhancing glucose transport,
- stimulating the insulin release from β cells of pancreas,
- increasing the uptake of circulating lipids and decreases free fatty acids there by decreasing insulin resistance.

The extracts of both plants are seen to be potent than the fractions. Further in depth studies and clinical investigations, however may be required to confirm this.