SUMMARY AND CONCLUSION

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❖ MC and MD and their saponins in our study have shown significant antihyperglycemic activity in

- Streptozotocin induced diabetes,
- FRD induced hyperinsulinemia,
- Atherogenic (AD) diet induced hyperlipidemia.

The probable mechanism of antihyperglycemic action MC and MD and their saponins may include

- Increased serum insulin level
- MC treated rats showed increase in the number of pancreatic cell islets which were similar to that of healthy pancreatic islets and reversed the atrophy of the pancreatic islets of β-cells.
- Increased hepatic glycogen level in the STZ diabetic rats. This may be by increasing glycogenesis and decreasing glycogenolysis and gluconeogenesis.Insulin is reported to increase glycogenesis,and decrease glycogenolysis & gluconeogenesis
- Significantly attenuated hyperinsulinemia in fructose rich diet rats
- MC displays a significant irreversible α- adrenergic blocking effect by bringing about rightward shift of NA concentration curve with suppression of maxima in rat anconccygeous muscle and rat aorta

This α-adrenergic blocking effect might contribute to insulin secretion and sensitizing effect

❖ Diabetic rats treated with MC or MD and their saponins

- Significantly decreased serum creatine level
- Significantly decreased Blood Urea Nitrogen level.
- Histopathological sections of the MC treated diabetic rats showed a minimal glomerular sclerosis and vacuolization
- Hence MC and MD and their saponins give protection against diabetic nephropathy.

- ❖ Diabetic rats treated with MC or MD and their saponins
    - Cardiac histopathological sections of the MC treated diabetic rats showed normal regenerative changes with striations, branched appearance and continuity with the adjacent myofibrils.

Hence MC gives protection against diabetic cardiac complication

- ❖ MC and MD and their saponins in our study showed significant antihyperlipidemic activity in various metabolic disorders like
    - o Streptozotocin induced diabetes,
    - o FRD induced hyperinsulinemia,
    - o HCD induced atherosclerosis,
    - o Atherogenic diet(AD) induced hyperlipidemia
    - o ISO induced myocardial infarction.

Hence they may have significant antihyperlipidemic activity.

- ❖ Mechanism of antihyperlipidemic effect of MC and MD and their saponins may be due to
    - o Increased secretion of insulin in diabetic animals.
    - o Inhibition of HMG CoA reductase activity HCD fed rabbits.
    - o α-adrenergic receptor blocking that improves insulin secretion, sensitizing and decreases the lipd level
- ❖ MC and MD and their saponins in our study showed significant antiatherosclerotic activity in
    - o HCD induced atherosclerosis,
    - o Atherogenic diet(AD) induced hyperlipidemia
- ❖ Mechanism of antiatherosclerotic activity may be due to
    - o Antioxidant effect
    - o Antihyperlipidemic effect
    - o α-adrenergic receptor blocking
- ❖ MC has also exhibited significant antihypertensive effect in FRD rats.It may act by
    - o Modifying vascular reactivity and vscular smooth muscle hypereactivity
    - o α-adrenergic receptor blocking

- MC and MD have also exhibited significant antioxidant effect in various pathological conditions like
  - Carbon tetrachloride induced hepatic injury
  - Streptozotocin induced diabetes
  - Isopreterenol induced myocardial infarction

By the virtue of antioxidant effect MC and MD have protected

  - Atherosclerotic plaque formation in hyperlipidemic condition
  - Organs damage in diabetes

- MC and MD have also exhibited significant antifertility effect
  - Antiovulatory effect
    - by decreasing estrous and the metestrous phases
    - by prolonging proestrous phase
  - Antiimplantation activity
    - at the zygotic stage (days 1-3)
    - at the blastocyst stage (days 3-5)
  - Abortifacient effect
- Mechanism of antifertility activity of MC and MD is not mediated through
  - Estrogenic activity
  - Antiestrogenic activity
  - Progestrogenic activity
- MC and MD did not excibit any effect on the male reproductive system

Therefore these two plants by ther virtue of their

- Antidiabetic, antihyperlipidemic, antihypertensive and antioxidant effect they can be recommended in Syndrome X. and also as an
- Antifertility and abortifacient agent

Further investigations in human subjects are needed.