



Momordica charantia extract protects against diabetes-related spermatogenic dysfunction in male rats: Molecular and biochemical study

Rehab F. Abdel-Rahman

Department of Pharmacology, National Research Centre, Giza, Egypt

Abstract:

Diabetes mellitus is one among the major threats in the global health. Diabetes may influence male fertility as a result of spermatogenesis, penile erection or ejaculation failures. *Momordica charantia* Linn (Cucurbitaceae) is well known in folk medicine to control several disorders including diabetes. The current investigation attempts to evaluate the possible protective effect of *M. charantia* (MC) against diabetes-related sexual complications in male rats. Thirty male rats were distributed to five groups. The 1st: normal control group; the 2nd: diabetic control group; the 3rd, 4th and 5th: diabetic groups that were given glibenclamide at 10 mg/kg, MC at 250 and 500 mg/kg, respectively for 12 weeks. The blood levels of insulin, glucose, HbA1c, testosterone (TST) and gonadotropins were estimated. Epididymal sperm characteristics, testicular histopathology, lesion scoring and testicular antioxidants were also performed. Testicular mRNA expression of the apoptosis-related markers such as Bcl-2 and Bax were evaluated by real-time PCR. Furthermore, caspase-3 protein expression was immunohistochemically evaluated. MC treatment significantly reduced the serum glucose and HbA1c, while increased serum insulin, TST and gonadotropins levels. It induced a significant recovery of the testicular antioxidant enzymes, improved histopathological changes of the testes, and decreased the spermatogenic and sertoli cells apoptosis. MC effectively inhibits testicular apoptosis as evidenced by upregulation of Bcl-2 and downregulation of both Bax and caspase-3. Moreover, reduction of apoptotic potential in MC treated groups was confirmed by reduction of Bax/Bcl-2 mRNA expression ratio. In conclusion, this study provide evidence that MC can improve diabetes-related sexual complications in male rats.



Biography:

Abdel-Rahman RF. has completed her Ph.D. at the age of 31 years from Cairo University and Postdoctoral Studies from the National Research Centre and in collaboration with other research fellows and professors from universities of Saudi Arabia, Turkey, Jordan, Japan, UK, and USA. She is the Deputy head of the Pharmacology department- Medical Research Division at the National Research Centre- Egypt. She has published more than 65 papers in reputed journals, book chapters and has been serving as an editorial board member of reputed.

Recent Publications:

1. Rehab F. Abdel-Rahman, et al *Metab Brain Dis* 2020.
2. Rehab F. Abdel-Rahman, et al *Epilepsy Behav* 2020.
3. Rehab F. Abdel-Rahman, et al *Saudi Pharm J* 2020.
4. Rehab F. Abdel-Rahman, et al *Pharmacol Rep* 2019.
5. Rehab F. Abdel-Rahman, et al *Saudi Pharm J* 2019

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