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Peer Review

Review of: "Development of a Type 2 Diabetes Mellitus Model in Rats with Administration of High-Fat Diet and Streptozotocin"

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After reviewing and evaluating the manuscript entitled “Development of a Type 2 Diabetes Mellitus Model in Rats with Administration of High-Fat Diet and Streptozotocin,” the following comments and objections regarding the article are presented below:

1. How does HFD-induced insulin resistance synergize with STZ-induced β-cell dysfunction to mimic human T2DM progression?
2. *Should HOMA-IR values in rodent studies be reported with standardized units (mg/dL × μU/mL) for consistency with human studies, or is the unitless calculation sufficient given methodological differences in assays?*
3. Why did the DC group gain more weight—is it due to HFD-induced obesity or contrasting effects of STZ?
4. How do the investigation FBG results align with prior HFD/STZ studies to validate the model?
5. Briefly explain how HFD/STZ replicates the insulin resistance → β-cell exhaustion seen in humans?
6. How does this model bridge preclinical and clinical research?
7. The introduction and discussion parts have been written very weakly. For this reason, you should explain and refer to the following references completely to increase the scientific level of the manuscript.

i. Antihyperlipidemic activity of the stem bark of Boswellia ovalifoliolata in high fat diet fed rats. International Journal of Medical Plants, Photon. 2014;107:572-6.

doi.org/10.32388/280KUH

ii. Ethno-pharmacological insulin signaling induction of aqueous extract of Syzygium paniculatum fruits in a high-fat diet induced hepatic insulin resistance. Journal of Ethnopharmacology. 2020 Nov 7:113576.
iii. Pathophysiology of high fat diet induced obesity: impact of probiotic banana juice on obesity associated complications and hepatosteatosis. Scientific Reports. 2020 Oct 9;10(1):1-7.
iv. Pathophysiology of STZ-induced pancreatic β cell injury and dysfunction: traditional role of Boswellia ovalifoliolata Bal. & Henry on diabetes and dyslipidemia. Comparative Clinical Pathology. 2020 Mar 17:1-1.
v. In vivo antihyperglycemic, antihyperlipidemic, antioxidative stress and antioxidant potential activities of Syzygium paniculatum Gaertn. in Streptozotocin-induced diabetic rats. Heliyon. 2019 Mar 1;5(3):e01373.
vi. Evaluation of antioxidant activities of aqueous extract of stem bark of Boswellia ovalifoliolata in streptozotocin induced diabetic rats. Journal of Pharmacy and Chemistry. 2013;7:19-24.

Attachments: available at https://doi.org/10.32388/280KUH

Declarations

Potential competing interests: No potential competing interests to declare.