

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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Dear Editor,

Thanks for the opportunity to review this article. I recommend a major revision be made before considering this manuscript for publication. Kindly see below for my comments

The authors investigated "Development Of A High-Fat Diet And Low-Dose Streptozotocin-Induced Rat Model For Type 2 Diabetes Mellitus". While this method is not a new one, it is interesting and adds to the existing body of knowledge. However, kindly see below for my comments:

Major comments:

1. The authors did not review recent articles, which shows that their literature search is poor. There are different authors who have used and reported this method recently; still, the authors were citing old references. The list of studies below are recent articles that can be explored:

- Olayaki, L. A., Okesina, K. B., Jesubowale, J. D., Ajibare, A. J., & Odetayo, A. F. (2023). Orange Peel Extract and Physical Exercise Synergistically Ameliorate Type 2 Diabetes Mellitus-Induced Dysmetabolism by Upregulating GLUT4 Concentration in Male Wistar Rats. *Journal of medicinal food*, 26(7), 470–479. <https://doi.org/10.1089/jmf.2023.0061>.
- Odetayo, A.F., Ajibare, A.J., Okesina, K.B., Akhigbe, T.M., Olugbogi, E.A., and Olayaki, L.A. (2024). Orange peel ethanolic extract and physical exercise prevent testicular toxicity in streptozocin and high fat diet-induced type 2 diabetes rats via Nrf2/NF-κB signaling: In silico and in vivo studies, *Heliyon*, 10 (21), e39780. <https://doi.org/10.1016/j.heliyon.2024.e39780>

- Abdulrahim,H.A., Odetayo,A.F., David,A.T., Abdulquadri,Y.F., Sheu,R.O Oluwafemi, P.K., Okesina,K.B., and Olayaki, L.A. (2024). Physical exercise improved the hematological effect of vitamin D in type 2 diabetes mellitus-induced nephrotoxicity in rats. *Biochemistry and Biophysics Reports*, 40, 101839. doi.org/10.1016/j.bbrep.2024.101839
- Abdulrahim, H. A., Odetayo, A. F., Owototori, E. A., Bulus, J. D., Jimoh, F. B., Gabriel, E. O., Odiete, I. F., & Olayaki, L. A. (2024). Metformin and vitamin D combination therapy ameliorates type 2 diabetes mellitus-induced renal injury in male Wistar rats. *Naunyn-Schmiedeberg's archives of pharmacology*, 10.1007/s00210-024-03478-w. Advance online publication. <https://doi.org/10.1007/s00210-024-03478-w>
- Odetayo, A.F., Abdulrahim, H.A., Yusuf (2024). Combination Therapy with Vitamin D and Metformin: A Potential Approach to Mitigate Testicular Dysfunction in Type 2 Diabetes Mellitus. *Reprod. Sci.* <https://doi.org/10.1007/s43032-024-01708-3>
- Okesina, K. B., Odetayo, A. F., Adeyemi, W. J., Okesina, A. A., Bassey, G. E., & Olayaki, L. A. (2024). Naringin Prevents Diabetic-Induced Dysmetabolism in Male Wistar Rats by Modulating GSK-3 Activities and Oxidative Stress-Dependent Pathways. *Cell biochemistry and biophysics*, 82(4), 3559–3571.
- Okesina, K. B., Odetayo, A. F., Adeyemi, W. J., Ajibare, A. J., Okesina, A. A., & Olayaki, L. A. (2024). Naringin from sweet orange peel improves testicular function in high fat diet-induced diabetic rats by modulating xanthine oxidase/uric acid signaling and maintaining redox balance. *Laboratory animal research*, 40(1), 5.

These articles are recent articles where authors used a similar method described.

Other comments:

- According to the most recent figures as of 2024, over 540 million people worldwide have diabetes, with approximately 240 million remaining undiagnosed”. Provide reference
- “Rats were fed a high-fat diet ad libitum for 21 days to induce insulin resistance”. Rats in the diabetic group were fed
- How was the STZ preserved?
- Kindly state what the animals in the control group received
- “The rats were anesthetized with ketamine (80 mg/kg) and xylazine (100 mg/kg) in combination”. Provide reference
- “microcentrifuge tubes.Blood samples were centrifuged at 4000 g for 15 min at 4 °C to obtain the plasma”. Ordinary microcentrifuge tubes/Eppendorf cannot produce plasma
- No insulin? How did you establish pancreatic function? I think insulin and OGTT should even be your priority.

Declarations

Potential competing interests: No potential competing interests to declare.