Basic reporting:

The study by Sun et al., investigate Breviscapine, a flavonoid extract amelioration of HG-induced podocyte injury that improves renal function in diabetic mice by suppressing NF-κB/NLRP3-mediated pyroptosis. In this study the authors showed that Breviscapine effectively increased inhibited HG-induced NF-κB signaling activation and subsequently decreased NLRP3 inflammasome activation, resulting in a decreased pyroptosis. This study is appropriately conducted but there is much room for improvement. The parameters in the study are properly evaluated and the manuscript is well written. Methods and results are poorly discussed in the manuscript. While this is the addition of more information to similar types of studies which somewhat already have been conducted, this information paves a closer way to understanding NF-κB/NLRP3-mediated pyroptosis and its possible therapeutic interventions. The topic is clinically important, but there are critical problems that need to be addressed:

- Study introduction is poorly written, in general, it's nice to end an introduction section with a few comments about the aim and hypothesis behind the study instead of referring to other studies, to help readers understand what's coming; please consider adding some relevant remarks here.

Experimental design

- The experimental strategies design and data reported are very poor and not very convincing. It is difficult to understand exactly what type of diabetic mouse model they used in this study. Here they have mentioned diabetes mellitus but whether it is type 2 diabetes or type 1 diabetes is unclear. With the type of doses, it looks like a low-dose STZ-induced T1D mouse model should provide an appropriate reference for this. The authors should provide an explanation of why they have chosen a low-dose STZ diabetic mouse model.
- It is very unclear the doses Treatment: What are the parameters for the treatment doses? Why 30mg/kg? Did the author test dose of treatment earlier? The reference provided by the authors has not used the doses of 10 mg/kg/d for 4 weeks (Jiang et al. 2016; Lan et al. 2022), Please discuss or provide the correct reference (Page no 5, lines 86-88) that could help readers.
- Authors should explain the composition of Breviscapine extract, how it has been extracted, and the preparation of Breviscapine extract should be part of the methodology.
- Mouse model of diabetes. Why did the authors prefer a low-dose STZ-induced mouse model of diabetes rather than other available models of Diabetes? Doe this model perfectly represent stable glucose levels and does not revert disease conditions upon normal diet feeding? The authors should justify their choice of model. It can be a part of the discussion.
- Entire methodology section needs to be rewritten in a detailed procedure with appropriate references.
- How many repeat experiments have been performed (*in vivo* and *in vitro* assays)? At least one repeat experiment is required and has to be shown.
- It would be of considerable interest to know how the disease progresses after the curtailment of treatment. Does blood glucose stay down, improve insulin sensitivity, or does the disease begin to worsen? in other words longevity for the effect. Such data would give an indication of what form treatment might take if these extracts were to be developed as therapeutic agents.
- It is advisable to describe the treatment procedures schematically.

Validity of the findings:

- It would be of considerable interest to know how the disease progresses after the curtailment of treatment. Does blood glucose stay down, improve insulin sensitivity, or does the disease begin to worsen? in other words longevity for the effect. Such data would give an indication of what form treatment might take if these extracts were to be developed as therapeutic agents.
- What would be the thinking for the route of administration (i.p), however, it wouldn't be convenient in an actual clinical setting.

Minor:

- The discussion needs minor revision. How this strategy is better or comparable to the success achieved in other studies is lacking?
- It is advised that the authors should define abbreviations at least in the first instance.
- There are a lot of definite and indefinite articles missing along with some grammatical errors, also please correct the manuscript for undefined spaces, an editor is required to correct these.
- Number of spelling mistakes/typo errors.
- Citations and references must be in the correct and uniform format, Italics missing in some places.