LUPIN ALBUS SEED GLOBULINS INDUCE HYPOGLYCEMIA AND HYPOTRIGLICERYDEMIA IN WISTAR RATS

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Introduction

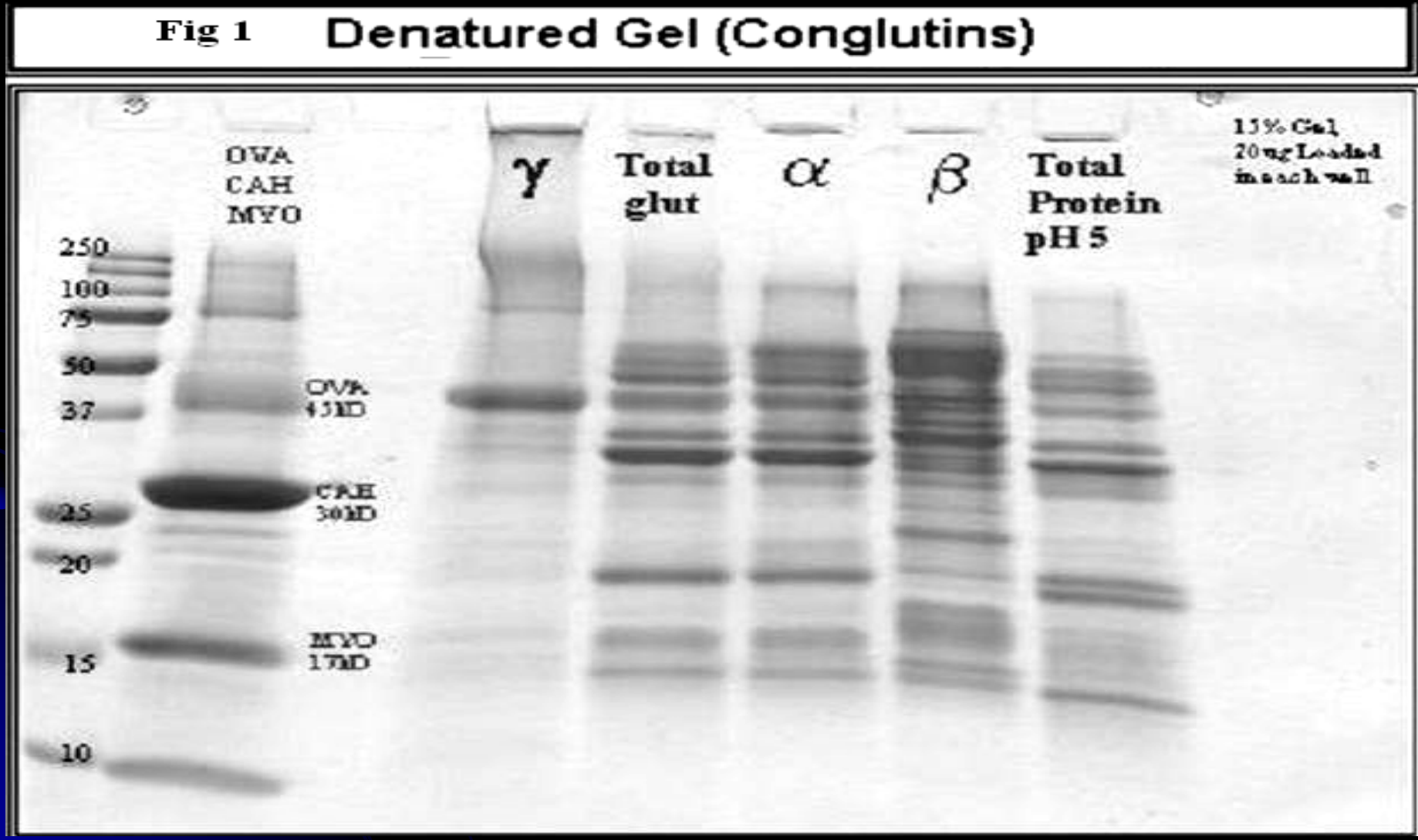
- **The metabolic syndrome** involves: **type 2 diabetes, obesity, high blood pressu re, and a poor lipid profile with elevated insulin levels and insulin resistance.**

- **Drugs that decrease insulin resistance also usually lower blood pressure and improve the lipid profile .**

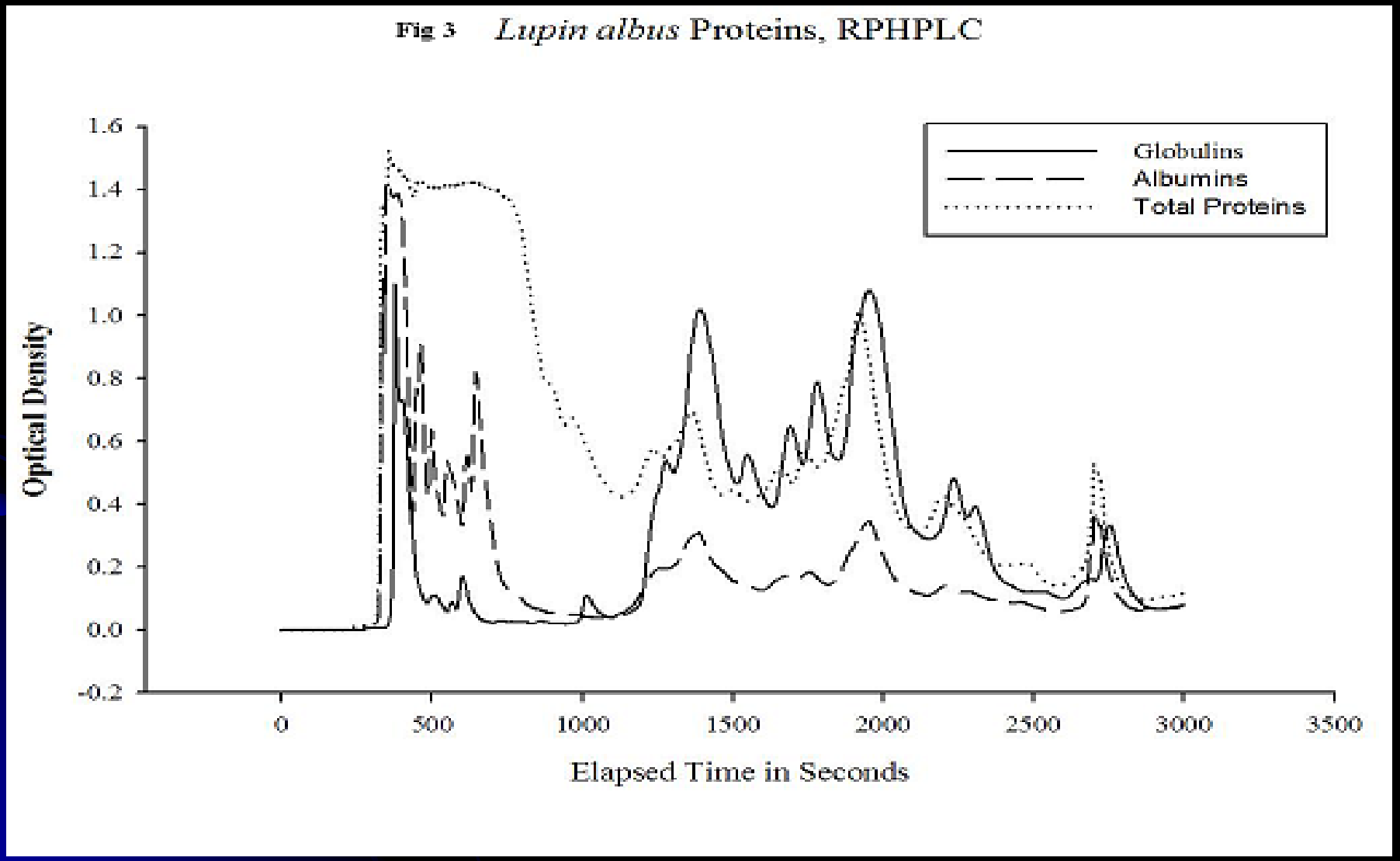
- Lupinus albus seed EXTRACTS oral administration has been reported to decrease glycemia as also occur in exposed rats either to spartein or lupanin previously to an OGTT or alloxan induced diabetes.
- Because an oral Glucose Tolerance Test (OGTT) is not allowed by itself to establish a drug hypoglycemic effect, we also have used induced animal models of diabetes (i.e. Alloxan, streptozotocin).

- Lupinus conglutin-γ obtained from protein isolates decrease glycemia following its oral administration to rats previously to an OGTT.
- Therefore the aim of this study is to demonstrate that Lupinus albus globulins and conglutin-γ decrease glycemia either during an OGTT or glycemia and lipids in diabetic animal models.

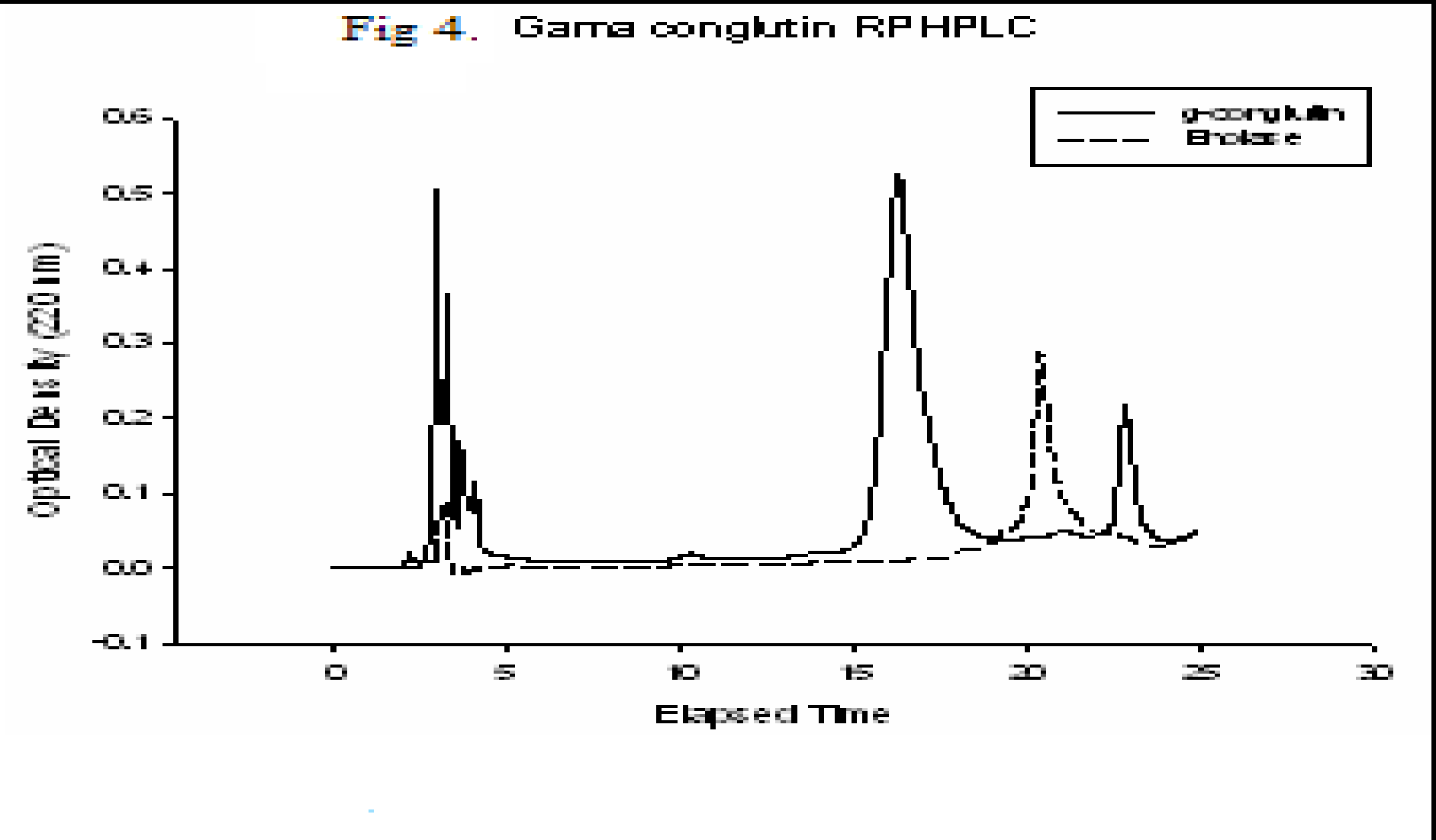
L. Albus SDS-PAGE



Reverse phase- HPLC

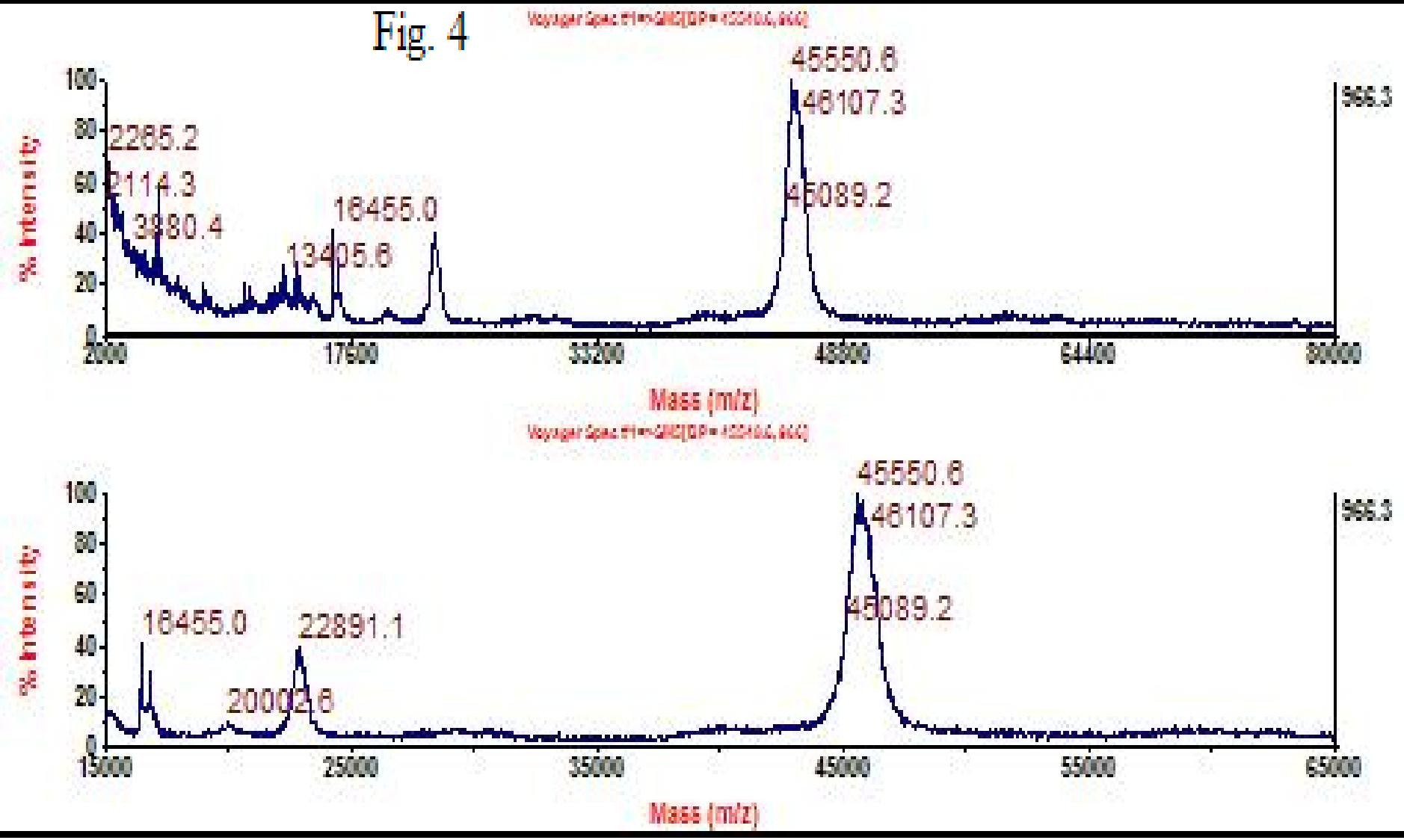


L. albus Conglutin- γ

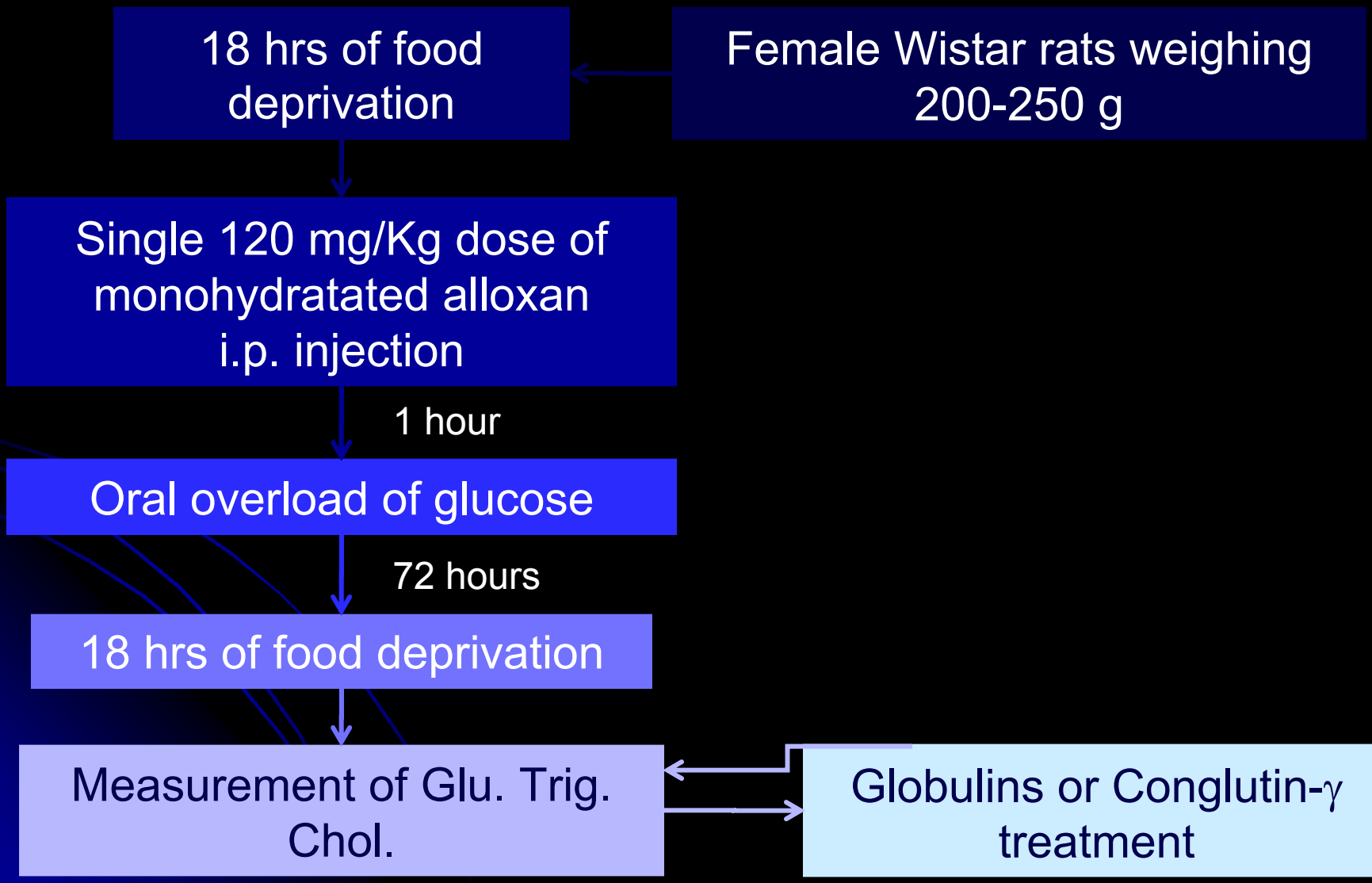


Conglutin- γ MALDIT-OF

Fig. 4



Alloxan Treatment



Glucose Overload Tolerance Test

18 hours of food deprivation

Apply 1000 mg / Kg globulins solubilized in carboximethylcellulose through a metallic cannulae

**Apply 100 mg / Kg conglutin-γ solubilized in double-distilled water through a metallic cannulae

**Apply 10 mg / Kg glybenclamide solubilized in DMSO through a metallic cannulae

30 minutes

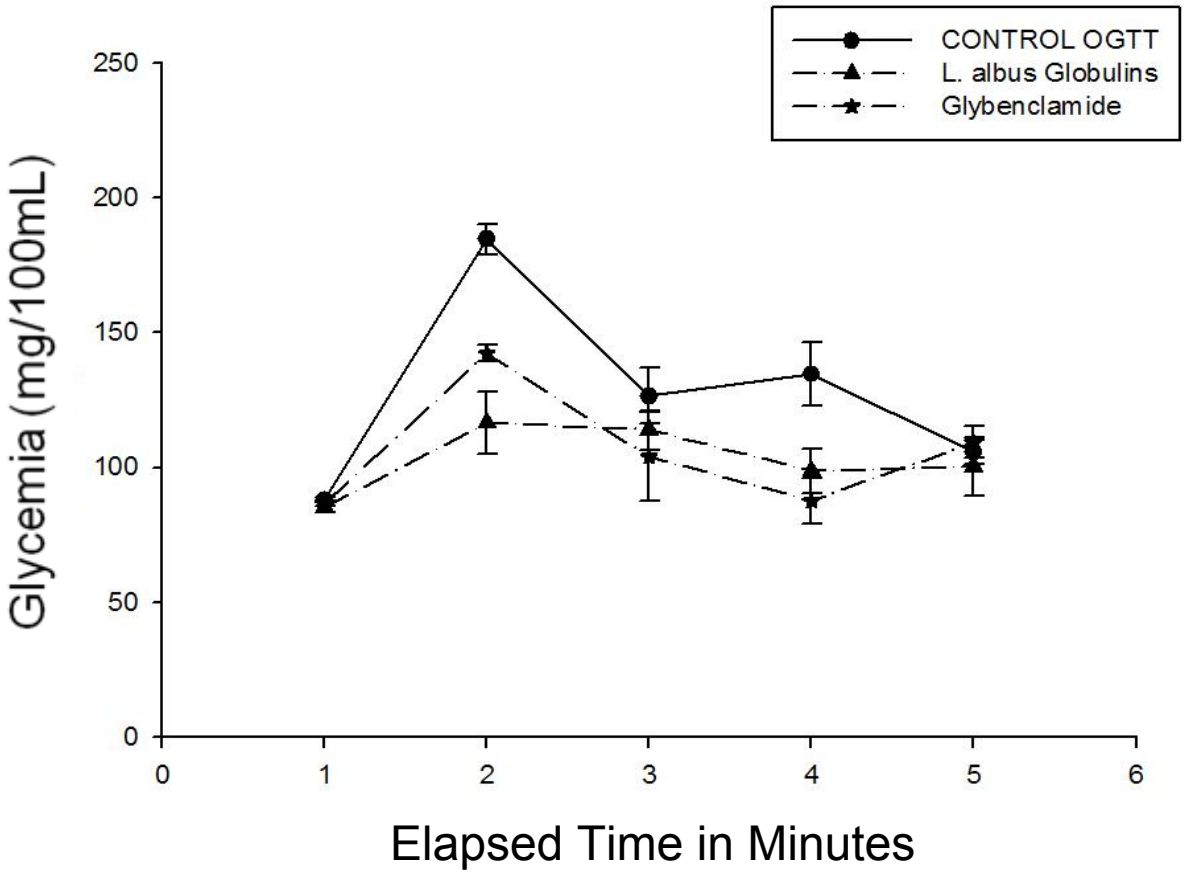
On Time Zero apply 2 g / Kg of glucose solution through a metallic cannulae

Anesthetize immediately withTriletamine-Zolazepam

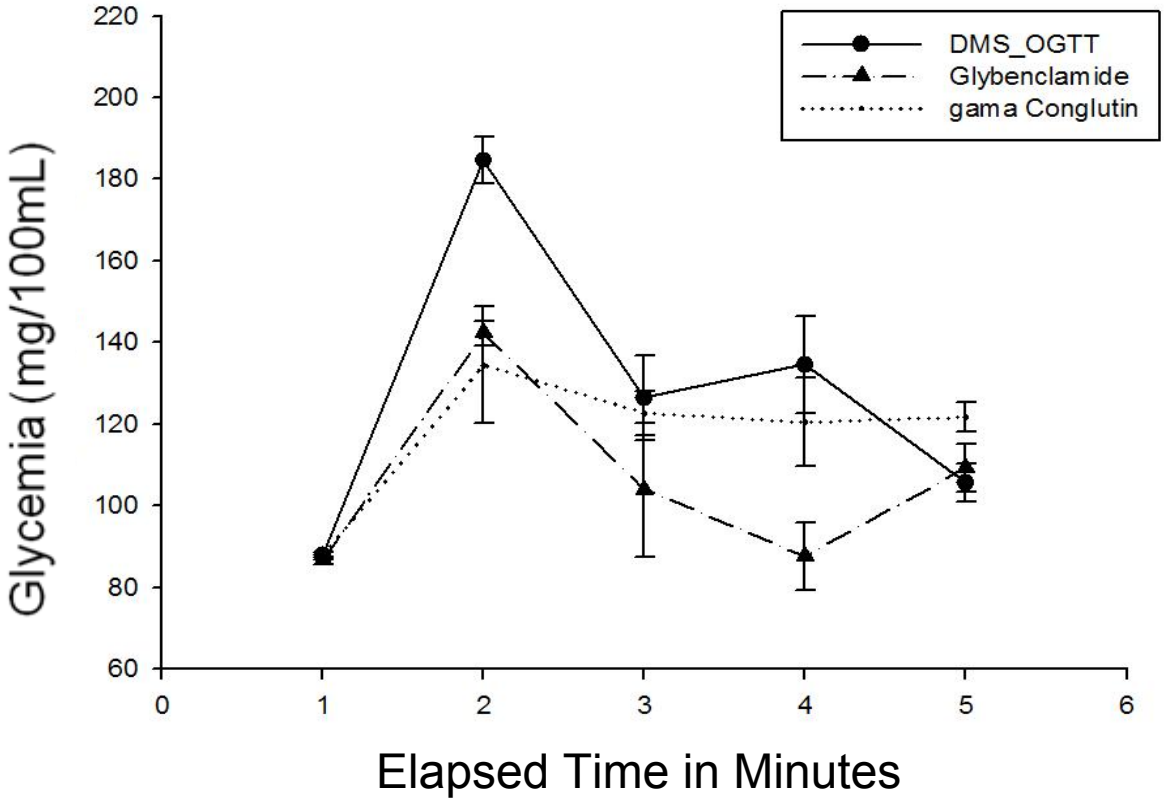
Collect 3 ml blood samples at 30, 60, 90 and 120 min.

Results and discussion

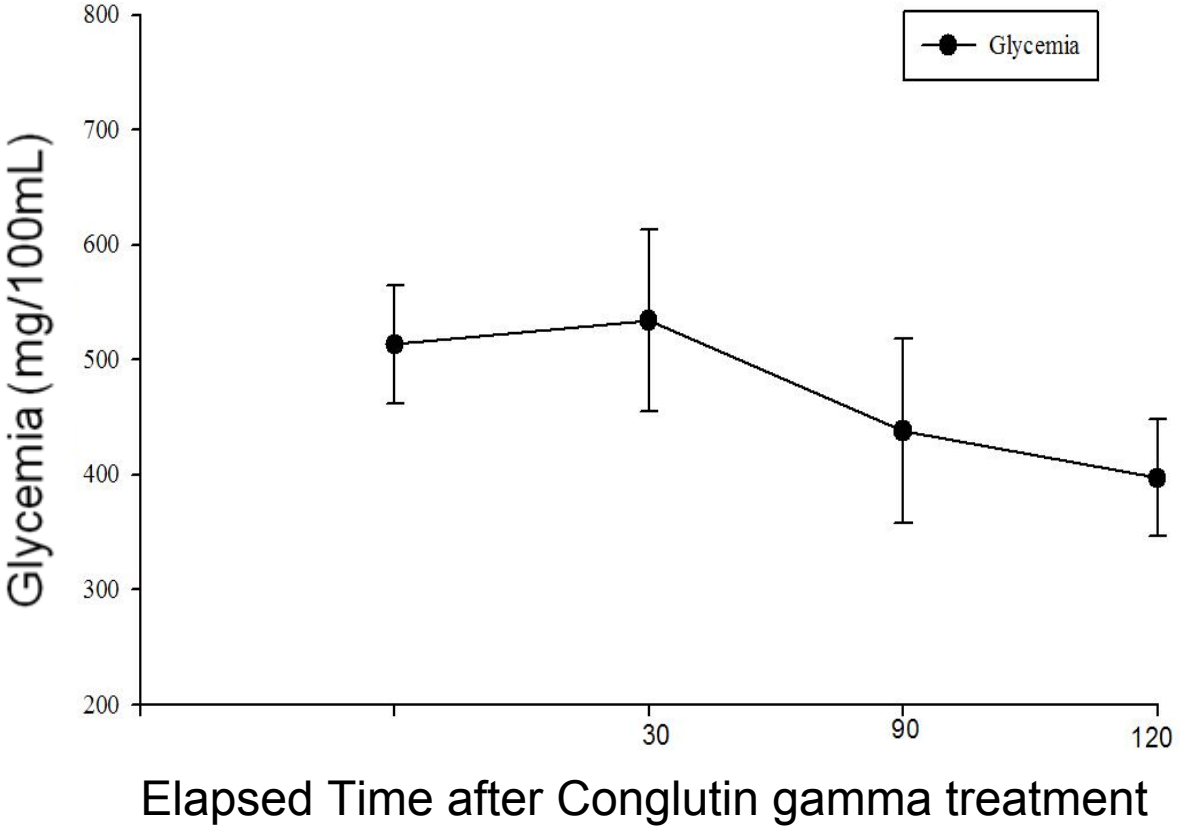
L. Albus Globulins and OGTT



L. Albus gamma conglutin



Diabetic rats and Conglutin gamma



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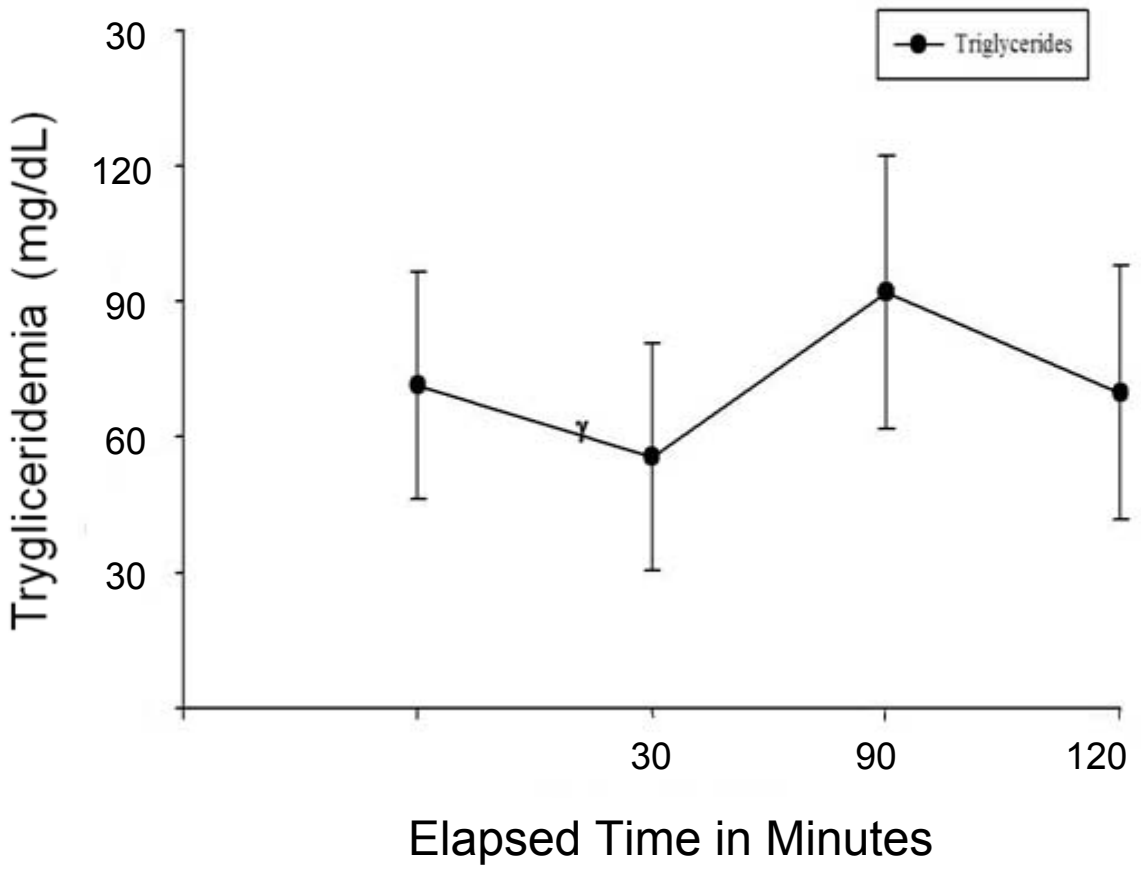
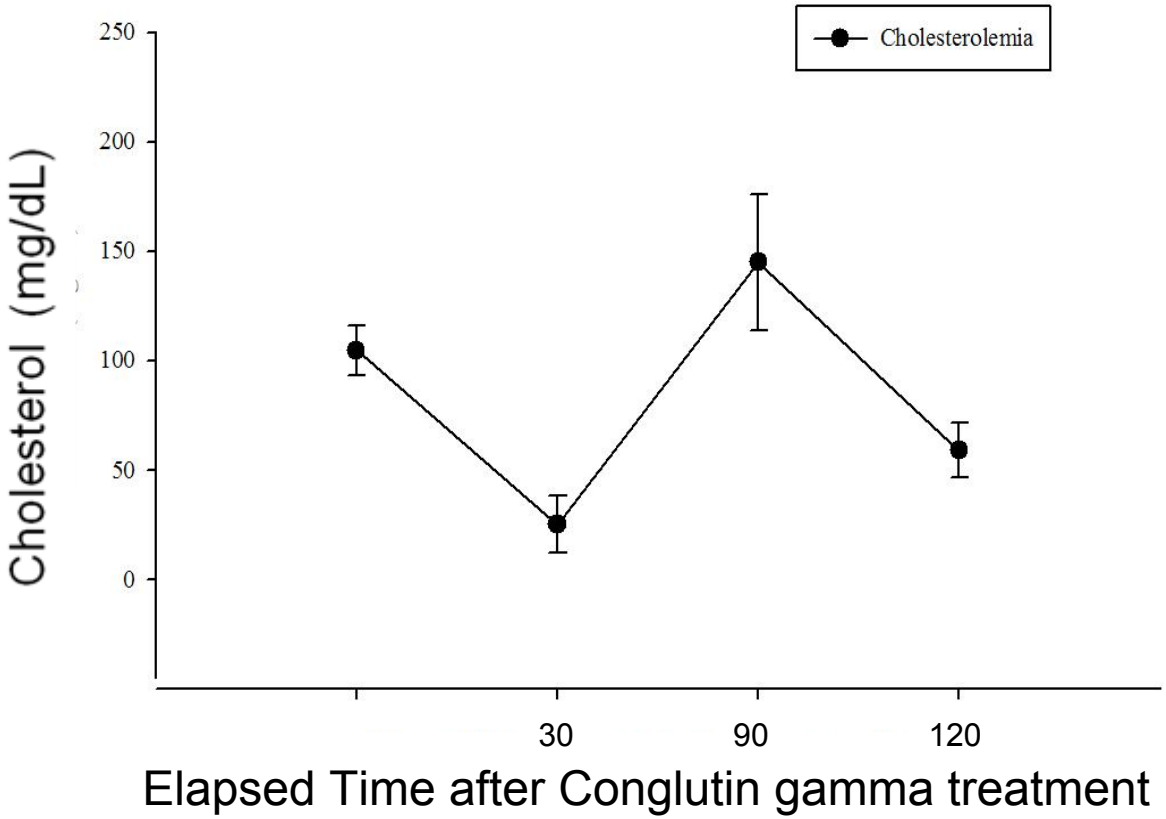
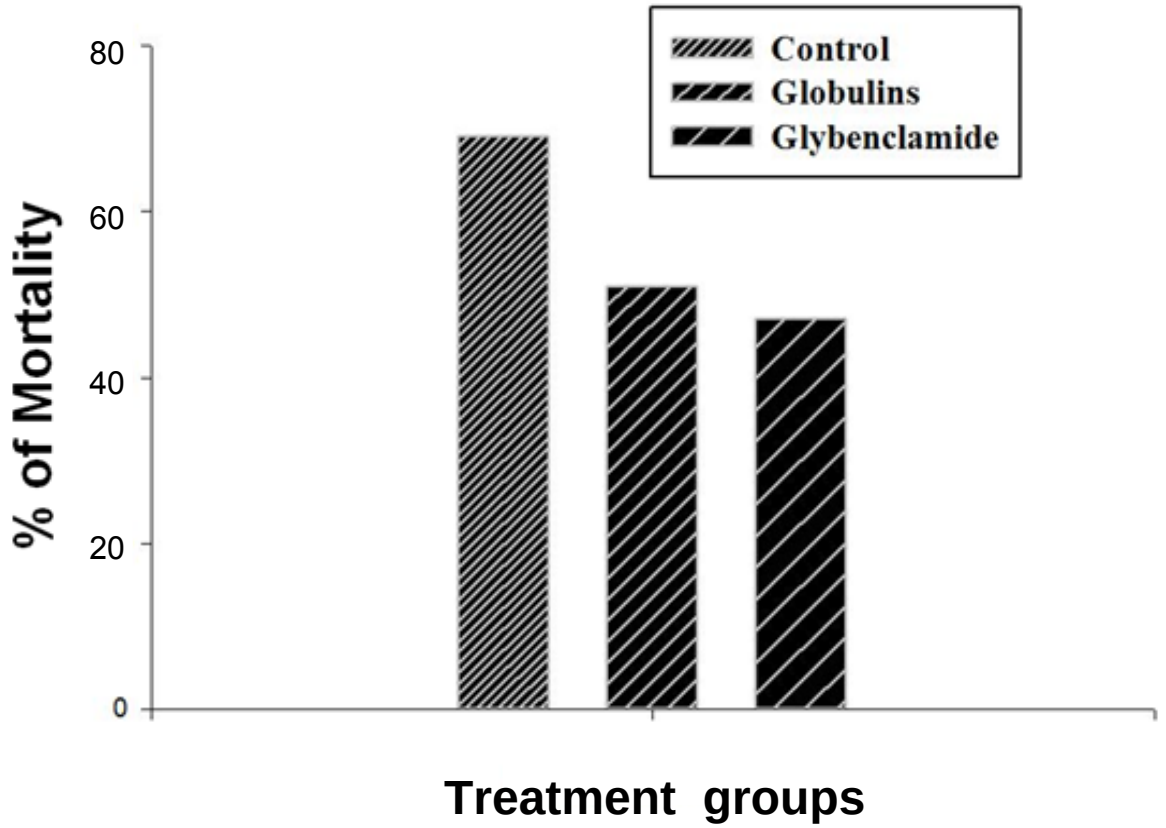


Diabetic rats and Conglutin gamma



Mortality of Alloxanized Wistar Rats



Conclusions

- The mechanism of the hypoglycemic effect of L. albus globulins and conglutin-γ is still unknown.
- Globulins and glybenclamide treatment reduced the alloxanized rats mortality. The Glybenclamide probably helped to reduce mortality through its insulin secretagogue known effect.
- *Lupin albus* conglutin-γ and globulins migth have exerted their hypoglycemic effect through insulin release stimulation.
- Ongoing experiments in humans will allow us to know how useful globulins and conglutin-γ are in the treatment of diabetes and cardiovascular diseases.

- may also represent an alternative for the prevention of cardiovascular disease if globulins and conglutin-γ decrease cholesterolemia and triglicerydemia.

Thank you