

CERTIFICATE

Flóra Diána Gausz

participated with an oral presentation at the

EUGLOH Annual Student Research Conference

September 28th – 30th 2020

Organized by University of Szeged (Hungary)

with the participation of invited speakers from the member universities of the EUGLOH alliance:

Ludwig-Maximilians University München (Germany)

Lund University (Sweden)

University of Porto (Portugal)

Université Paris-Saclay (France)

Authentication on behalf of University of Szeged



Prof. Dr. Márta Széll

Vice Rector



Prof. Dr. Ferenc Peták

Academic Leader

The participation and presentation at the conference was equivalent to 4 ECTS.

Alexandra Fejes (ME student), Faculty of Medicine, University of Szeged
Flóra Diána Gausz (ME student), Faculty of Medicine, University of Szeged

Effect of *Stellaria media* tea in a diabetic rat model

Introduction: Diabetes mellitus is a disease characterized by elevated blood glucose levels and impaired glucose tolerance. Nowadays, medicinal plants – for instance Chickweed (*Stellaria media*) - have gained popularity as treatment. Chickweed is a widespread species, mainly consumed as salad or tea. Chickweed tea is believed to have anti-diabetic effect; however, its efficacy has not been proved. Hence, our goal was to investigate the effect of *Stellaria media* tea in a diabetic rat model.

Methods: Male Wistar rats were used in three experimental groups (n=10 in each group). The control group received standard laboratory rat chow for 20 weeks, while the other two groups received fructose-enriched diet and were subjected to streptozotocin injection on week 17. Half of the diabetic rats were treated with *Stellaria media* tea, while the others received distilled water. Blood glucose levels were measured every 4 weeks, accompanied with OGTT from week 12. At termination of the animals, blood samples were collected from the abdominal aorta and working heart perfusion was performed.

Results: The fructose-enriched diet and streptozotocin injection significantly increased serum glucose levels compared to control (8.33 ± 0.30 vs. 5.97 ± 0.16 mmol/L, $p < 0.05$). Chickweed tea did not prevent blood glucose elevation (8.45 ± 0.37 mmol/L). Diabetes induced a cardiac dysfunction, described by deterioration of cardiac output and cardiac work. However, *Stellaria media* preserved cardiac function in settings of diabetes.

Conclusions: Our results show that *Stellaria media* tea has beneficial effect on the negative cardiac alterations caused by experimental diabetes, but it is not proceeded through the improvement of carbohydrate metabolism.

Keywords: *Stellaria media*, chickweed, diabetes, cardiomyopathy, oral gavage, blood glucose, oral glucose tolerance test, working heart perfusion

Grant support: GINOP-2.3.2-15-2016-00006, EFOP-3.6.2-16-2017-00006, 20391-3/2018/FEKUSTRAT

Supervisors:

Dr. Virág Demján PhD student, Metabolic Diseases and Cell Signaling Research Group (MEDICS),
Department of Biochemistry, Faculty of Medicine, University of Szeged

Andrea Sója PhD student, Metabolic Diseases and Cell Signaling Research Group (MEDICS),
Department of Biochemistry, Faculty of Medicine, University of Szeged

Dr. Tamás Csont associate professor, Metabolic Diseases and Cell Signaling Research Group
(MEDICS), Department of Biochemistry, Faculty of Medicine, University of Szeged