***In vivo* antioxidant potential of *Eugenia involucrata* DC. fruits: Effects on oxidative stress parameters in rats submitted to a type 2 diabetes model**

Sabrina Somacal\*1, Isabella F. Costa1, Franciele A. Smaniotto1, Greicy M. M. Conterato2,Tatiana Emanuelli1

1Federal University of Santa Maria, Santa Maria/RS, Brazil; 2Federal University of Santa Catarina, Curitibanos/SC, Brazil.

\*Posdoctoral student – s\_somacal@hotmail.com

Type 2 diabetes (T2DM) is characterized by hyperglycemia due to insufficient production of insulin or the inability of cells to respond properly to this hormone (a condition called insulin resistance). Oxidative stress has been proposed to be implicated in the causes of T2DM as well as in the progression of its long-term complications. *Eugenia involucrata* DC. (Myrtaceae) is an underutilized native tree from Brazil, which biological potential remains scarcely explored, especially in *in vivo* studies. This study aimed to assess the antioxidant potential of the ethanolic extract from fruits of *E. involucrata* in a model of T2DM in rats. Adult male Wistar rats (CEUA/UFSM n. 2954100818) were firstly divided into control (normal diet) and diabetic group (hypercaloric diet). On the 13th day after starting the hypercaloric diet, animals from diabetic group received a single dose of streptozotocin (STZ) solution (40 mg kg-1, 1 mL kg-1 b.w., i.p.). After verifying the induction of diabetes (blood glucose >150 mg dL-1), the animals were subdivided into four groups that received orally 0.9% saline or a crude extract of *E. involucrata* fruits (EB) at the daily dose of 60 mg of polyphenols kg-1 b.w. for 21 days as follows: 1) non-diabetic control (0.9% saline, n=8); 2) non-diabetic + extract (EB60, n=8); 3) diabetic (DIA, 0.9% saline, n=4) and 4) diabetic + extract (DIA+EB60, n=4). After treatment, fasting blood glucose was measured following tail vein puncture and the animals were euthanized for blood and liver collection. Blood and liver reduced glutathione/oxidized glutathione (GSH/GSSG) ratio and antioxidant enzyme activities were measured by spectrophotometric methods. Serum malondialdehyde (MDA) levels were assessed by high performance liquid chromatography with photodiode array detection (HPLC*-*PDA​). Rats induced with T2DM model have shown an increase in blood superoxide dismutase (SOD) activity compared to control, EB60 and DIA+EB60 groups (25.49 ± 4.88 *versus* 12.32 ± 1.24, 15.91 ± 2.08 and 13.85 ± 1.82 U SOD mg Hb-1, respectively, p<0.05, ANOVA/Tukey). Other oxidative stress parameters were not changed neither by the T2DM model nor by the *E. involucrata* extract. Overall, the return of blood SOD activity to control group levels when diabetic rats received EB60 suggests a possible indirect antioxidant effect for this extract. Our study still needs sample size complementation to corroborate the effects of both T2DM model and EB60 extract on the oxidative status of diabetic rats, as well as the significance of such effects.

**Keywords**: bioactive compounds, antioxidant activity, cherry of the Rio Grande, diabetes

Acknowledgments: CNPq [grant numbers 443331/2016-2 and 303654/2017-1], CAPES [Finance code 001]