Aqueous Extract of *Syzygium cumini* reduces DNA damage induced by methylglyoxal in human leukocytes

**Pavin, S. S.**; **Prestes, A. S.**; **Santos, M. S.**; **Barbosa, N. V.**; **Folmer, V.**

1Programa de Pós Graduação em Ciências Biológicas: Bioquímica Toxicológica
Departamento de Química, CCNE, UFSM, Santa Maria, RS, Brasil.

2Programa de Pós Graduação em Bioquímica, Unipampa, Uruguaiana, RS, Brasil.

**INTRODUCTION:** Relevant cellular damage diagnosed in diabetic patients is related to plasma augmentation of methylglyoxal (MG), a reactive dicarbonyl compound precursor of advanced glycation end products (AGEs). In this context, blood cells may represent an effective system for investigating the cytotoxic effects of different compounds. Particularly, leukocyte DNA damage evaluation has been used as a simple in vitro experimental model of screenings potentially genotoxic agents. Thus, the objective of this study was to investigate the protective effect of *Syzygium cumini*, a hypoglycemic plant, against DNA damage induced by MG in human leukocytes.

**MATERIAL AND METHODS:** Peripheral blood leukocytes from healthy human donors were isolated and incubated for 90 min with different concentrations of MG (0.25, 0.5, 1, 2 and 2.5 mM), aqueous extract of *S. cumini* (Ext) (0.25, 0.5 and 1 mg/ml) and MG plus Ext (MG at 2 mM and Ext at 0.25, 0.5 and 1 mg/ml). After the respective treatments, DNA damage was assessed by Comet Assay, according Collins et al., 2004.

**RESULTS AND DISCUSSION:** MG caused a significant increase in DNA damage at concentration equal or higher than 1 mM. Ext at 0.25, 0.5 and 1 mg/ml did not exhibit effect *per se* and was effective in reducing DNA damage induced by 2 mM MG. **CONCLUSION:** The results show that MG, a typical precursor of AGES, has capacity to cause DNA alterations in leukocytes and that aqueous extract of *Syzygium cumini* may be used as a potential agent by mitigating these effects. Thus, the consumption of this extract represents a possible therapeutic strategy for diabetic complications studies.
Keywords: AGEs, Diabetes, Methylglyoxal, leukocytes

Supported by: FAPERGS, CNPq and CAPES