**Ilex paraguariensis** Increases the Lifespan of the Nematode *C. elegans* and Neutralizes Superoxide Production HL-60 Cell Line

Lima, M.E. 1; Colpo, A.C. 1; Salgueiro, W.G. 1; Sardinha, G.E. 1; Fagundez, D.A. 1; Tambara, A.L. 1; Martinez, C.S. 1; Meotti, F.C. 2; Ávila, D.S. 1; Folmer, V 1.

1 Grupo de Pesquisa em Bioquímica e Toxicologia em Caenorhabditis elegans, UNIPAMPA, RS; 2 Dep. de Bioquímica, IQ, USP, SP; 3 Brazil

**INTRODUCTION:** *Ilex paraguariensis*, popularly known as yerba-mate, is a native species of tree in South America. Recent studies have shown that phenolic compounds presented in yerba mate have antioxidant properties. Due to these properties, there has been great interest in ascertaining the potential effects of yerba mate and its mechanisms. **MATERIAL AND METHODS:** For this study, we used two different models the nematode *Caenorhabditis elegans*, a free-living nematode, widely used to study aging and longevity, and the HL-60 human promyelocytic leukemia cell line. The herbal compounds were purchased from a commercial establishment in Argentina, Brazil and Uruguay, was analyzed one brand of every nationality. The aqueous extracts were obtained mimicking the "mate" preparation, by using a medium size gourd, yerba mate, "mate pump", Kitasato flask and a vacuum pump. The extracts of the 1st, 2nd, 5th, 10th, 15th infusions were filtered and stored for subsequent experiments. Assays of survival and longevity in *C. elegans* were performed with Bristol wild-type strain (N2). Worms were treated in the first larval stage (L1) were exposed 30 min. After the acute exposure, twenty animals were observed and counted daily until all had completed their life cycle. Cells were pre-incubated at 37 °C with taurine, extracts, cytochrome c and activated with PMA. The reduction of cytochrome c was monitored at 550 nm for 30 min. Data were analyzed by One Way ANOVA and a p<0.05 was considered significant. **RESULTS AND DISCUSSION:** The extracts of yerba mate increased the lifespan of *C. elegans* and all extracts were capable of neutralizing at least 50% by PMA superoxide generated in cell culture. **CONCLUSION:** Based on these results we believe that the increase in *C.elegans*lifespan is directly related to the antioxidant activity of mate and it is suggested that one of the mechanisms is the neutralization of superoxide anion.

Word-keys: Caenorhabditis elegans, HL-60 cell line, *Ilex paraguariensis*, Superoxide. Suported by: CAPES