The Implication of the DNA Fragmentation in the *Casearia sylvestris* Antitumor Effects

Felipe,K.B.[1], Kviecinski,M.R.[1], Geremias,R.[2], Pich,C.T.[2], Gatti,F.M.[3], Rossi,M.H. [3], Pedrosa,R.C[1].

[1]Departamento de Bioquímica. Universidade Federal de Santa Catarina, Florianópolis, Brazil. [2] Universidade do Extremo Sul Catarinense, Criciúma, Brazil, [3]Centro de Sanidade Animal do Instituto Biológico de São Paulo, São Paulo, Brazil.

Casearia sylvestris S.W. (Flacourtiaceae) is a Brazilian medicinal plant known mainly as "Guaçatonga". The specie has been used by the folk medicine to treat many tumors. The aim of this work was to evaluate *in vitro* and *in vivo* the DNA fragmentation induced by *C. sylvestris* ethanol crude extract (CS_{CE}) and its chloroformic fraction (CS_1) to characterize the antitumor effect. The potential to cause plasmid DNA damage was measured to evaluate the fragmentation by CS_{CE} and CS_1 (37.5 - 600 mg/L) *in vitro.* The investigation was done *in vivo* using isogenic Balb/c male mice (20g b.w.) inoculated with the Ehrlich ascites carcinoma. 24 hours after tumor inoculation CS_{CE} and CS_1 (150mg/kg body weight) were administered intraperitoneally daily for 9 days. On the 10th day, samples of the ascitic tumor fluid were collected and evaluted viable cell count, life span and DNA fragmentation (through the comet assay). CS_{CE} and CS_1 did not caused important DNA fragmentation *in vitro* (CS_{CE}=5.27; CS_1=3.96; CP=100%) at 75mg/L and 300mg/L, respectively) when was to compare tin chloride (PC-positive control). Although *in vivo* they increased the index of DNA damage when compared to the negative control (DMSO – treated only) (CS_{CE}=400; CS_1=349; CN=219). Furthermore, CS_{CE} and CS_1 decreased the viable cell count (CS_{CE}=0.0300; CS1=0.0400; CN=0.0085) and increased the life span (CS_{CE}=18;CS_1=16;CN=14.5) when compared to CN. The findings suggest CS_{CE} and CS_1 do not have a direct fragmentation effect in DNA but could be an indirect effect by induction of certain mechanism of programmed cell death as apoptosis.