POTENTIAL GENOTOXIC AND ANTIGENOTOXIC OF ACEROLA (*Malpighia glabra* L.) FROM DIFFERENT ORIGINS

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INTRODUCTION

The effects of the constituents of a plant on the living organism are almost always verified based on the popular knowledge of traditional and repetitive use. There is a worldwide trend increased consumption of tropical fruit juice, among them, acerola fruit *(Malpighia glabra* L.). Chemical composition of acerola, including the distribution of components, depends on the species, and varies with environmental conditions, and also with the stage of fruit ripeness. *Malpighia glabra* L. is a plant popularly used for various purposes, rich in several bioactive compounds that can act as free radical scavengers. Among them are flavonoids, carotenoids and vitamin C. Antigenotoxic and antioxidant effect of acerola fruit at two stages of ripeness were investigated.

MATERIALS AND METHODS

Samples

Origin of the samples: Rio Grande do Sul (RS), Ceará (CE) and São Paulo (SP) states.

Extract of fruit pulp dried

C1/4: 0,5mg/ml blood

C1/2: 1mg/ml blood

C1: 0,5mg/ml blood

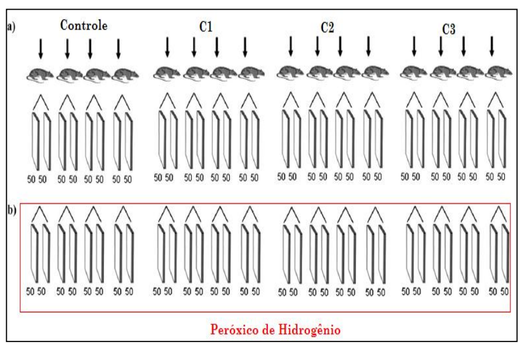
Chemical analysis - HPLC

3mg furit+ 1ml H_2O Mobile phase: a) MeOH; b) H_3PO_4
Gradient: 0,7ml/min in column C18, 47 min of race.

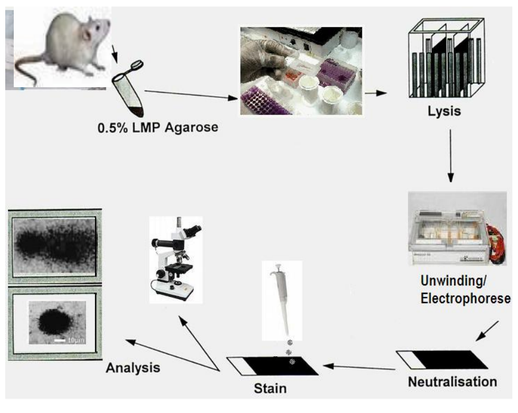
VitC: 5mg vitC + 1ml H_2O diluted 1/20 with methanol and then 1/20 with the mobile phase;

Comet Assay

Exposure of blood samples (n=4)



Comet assay procedures



Slides prepared with 7,5µl of blood sample and procedures to Comet Assay (CA) were performed.

In assessing antigenotoxic, sample of duplicate slides were immersed in hydrogen peroxide during 5min.

RESULTS

Comet Assay: results expressed in Damage Index (DI) considered statistically significant when P<0,05; Chemical analysis: results expressed in mg of extract/mL of H_2O.

Groups	Comet assay parameters	
	Without H_2O_2	With H_2O_2
	Damage Index	Damage Index
Control	11.55 ± 10.63	116.50 ± 46.86[a]
RS		
C_1 (2mg/ml)	29.75 ± 11.53	146.50 ± 10.66*
$C_{1/2}$ (1mg/ml)	19.75 ± 3.77	165.50 ± 20.95*
$C_{1/2\text{-}4h}$ (1mg/ml)	17.25 ± 8.42	168.30 ± 27.50*
$C_{1/4}$ (0,5mg/ml)	11.00 ± 7.00	202.30 ± 23.92***
SP		
C_1 (2mg/ml)	21.00 ± 9.64	68.67 ± 6.02
$C_{1/2}$ (1mg/ml)	37.25 ± 19.60	**66.00 ± 17.36***
$C_{1/2\text{-}4h}$ (1mg/ml)	9.00 ± 2.94	**69.00 ± 12.36***
$C_{1/4}$ (0,5mg/ml)	22.33 ± 4.04	85.67 ± 7.63
CE		
C_1 (2mg/ml)	18.75 ± 5.73	**57.33 ± 9.07***
$C_{1/2}$ (1mg/ml)	14.50 ± 5.97	**53.00 ± 14.73****
$C_{1/2\text{-}4h}$ (1mg/ml)	7.66 ± 0.57	**54.00 ± 19.67***
$C_{1/4}$ (0,5mg/ml)	15.50 ± 6.24	**35.75 ± 10.78*****

*Significant difference related to the control groups for damage index aat *P* <0.05; **P<0,01; *** *P* <0.001 (One Way ANOVA followed by Tukey Test).
[a] Significant difference related to the control without hydrogen peroxide at *P* <0.001 (One Way ANOVA followed by Tukey Test).

Chemical analysis – HPLC

Sample	Ascorbic acid[a]
Control[b]	250.0
RS	0.111
CE	0.786
SP	0.271

[a] Results in mg/100 g of sample.
[b] standard sample.

FINAL CONSIDERATIONS

Studies report that within the same specie there are different varieties of fruits with constitutions that can vary. The differences of the geographical origin of the fruit also act in their constitution, considering the amount of solar radiation, soil quality and environmental features to which the plant is exposed. These factors may influence the amount of flavonoids, carotenoids and, particularly, of vitamin C on fruit, being this compound an antioxidant or pro-oxidant agent, depending on the dose that is found. There are relation between a probably protection effect and the amount of vitamin C, and our study is consistent with this data. Although there is this difference between this amount of vitamin C, acerola is a complex mixture and other components must be analyzed.

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