



## BRAZILIAN BERRY EXTRACT AND HIGH-FAT DIET EFFECTS ON PROGRESSION OF THE VENTRAL PROSTATE ADENOCARCINOMA IN TRANSGENIC MICE (TRAMP).

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### Abstract

Prostate cancer (PCa) is the most common cancer in men. The high-fat diet (HFD) intake potentiates the PCa progression. Jaboticaba is a Brazilian fruit which presents antioxidant properties. The aim of the study was to characterize the Jaboticaba peel extract effects, associated with the HFD ingestion in the ventral lobe of the prostate in the transgenic adenocarcinoma mouse prostate (TRAMP).

### Key words:

Prostate cancer, TRAMP, Jaboticaba peel extract.

### Introduction

Prostate cancer (PCa) is the second cause of death among men all over the world. The high-fat diet (HFD) intake leads to an increase the PCa progression. In contrast, the functional foods consumption has been related to cellular proliferation reduction as well as anti-oxidative effects in the body. Jaboticaba is a Brazilian fruit, which presents antioxidant properties and it beneficial effect for health improvement. Thus, the aim of the study herein was to characterize the Jaboticaba peel extract (JPE) effects, associated with the HFD ingestion in the ventral lobe of the prostate in the transgenic adenocarcinoma mouse prostate (TRAMP). The TRAMP mice were divided into 5 experimental groups: control (C8), standard diet (SD) control (C16), JPE plus SD (JC), HFD control (CH16) and JPE plus HFD (JH). After the end of the treatment, the animals were euthanized and the ventral lobe of the prostate was collected. All samples were processed to morphological and immunohistochemistry evaluation.

### Results and Discussion

The results showed decrease healthy epithelium and increase proliferative lesions with the age advance and consumption of the high-fat diet in the controls groups (Figure 1), which was confirmed by the quantification of PCNA immunolabelling (Figure 2). On the other hand, JPE treatment decreased significantly preneoplastic lesions in JC and JH groups (Figure 1 and 2), suggesting a protective and chemopreventive potential of JPE in PCa progression.

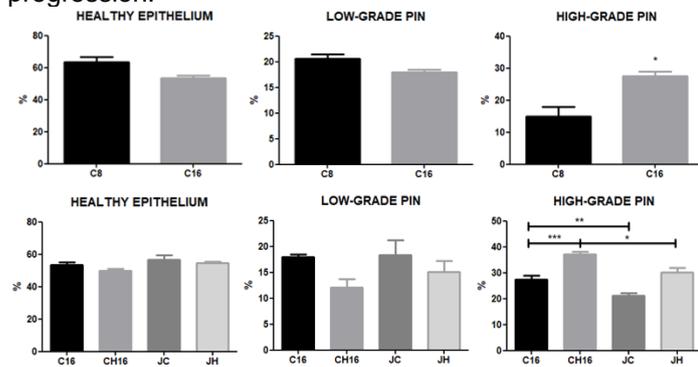


Figure 1. Proliferative lesion incidence in TRAMP mice ventral prostate. (\* $p < 0.05$ ; \*\* $p < 0.001$ ; \*\*\* $p < 0.0001$ ).

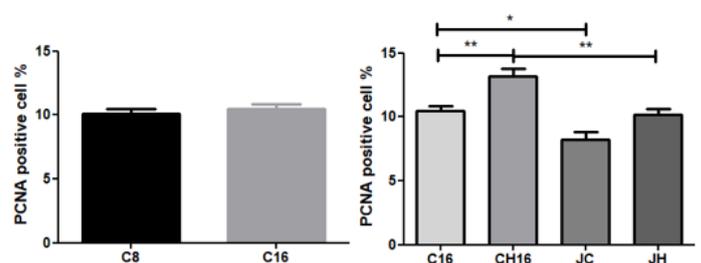


Figure 2. Incidence of PCNA immunolabelling in TRAMP mice ventral prostate. (\* $p < 0.05$ ; \*\* $p < 0.001$ ).

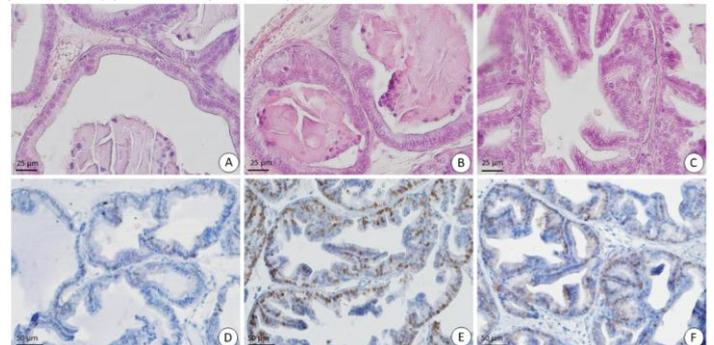


Figure 3. Photomicrographs of TRAMP mice ventral lobe.

### Conclusions

The age and high-fat diet were crucial conditions to the worsening of proliferative lesions in the prostate. However, Jaboticaba peel extract treatment attenuated the harmful effects delaying PCa progression.

### Acknowledgement

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