2021 International Nuclear Atlantic Conference – INAC 2021
Virtual meeting, Brazil, November 29 – December 2, 2021

ISBN: 978-65-594-1256-3

Evaluation of Tarin on the Recovery of Irradiation Induced Medullary Hypoplasia in Mice

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1. Introduction

Lectins are proteins or glycoproteins found in the animal and plant kingdoms, which have a non-catalytic domain, at least reversibly and specifically bind to the mono-oroligosaccharides including or not the binder activity or precipitation of glycoconjugates, for example tarin, found in *Colocasia esculenta*, which has the capacity to stimulate proliferation of splenic and bone marrow cells. Investigate the effect of taro taro (*Colocasia esculenta*) on bone marrow cells and verify its applicability as an immunostimulator[1][2].

2. Methodology

The tarin was purified from crude taro extract on agarose Cibacron Blue 3GA chromatographic column. C57/BL6 male mice were induced by extracorporeal gamma irradiation with a Cobalt source (60 Co) with 2, 4 and 6 Gy absobed dose. Peripheral blood samples, cultured cells of the bone marrow in the presence and absence of tarin were analyzed according to the morphological (size vs. granularity) and phenotypic patterns by flow cytometry[3]. The survival rate of the irradiated animals was also performed. The statistics will be performed by student's T test, ANOVA, Turkey or Bonferroni method, and $p \leq 0.05$ values will be considered significant[4. Kaplan-Mayer non-parametric test was used to analyze the survival of irradiated animals Figures, such as Fig. 1, may be included centered on the page and numbered in Arabic numerals. The caption appears below the figures.

3. Results and Discussion

Animals irradiated with 2 and 4 Gy absobed dose initially showed a decrease in granulocytes followed by recovery. However the group irradiated with 6 Gy absobed dose had a gradual reduction accompanied by mortality of the animals , Figures 1, 2, 3 and 4.

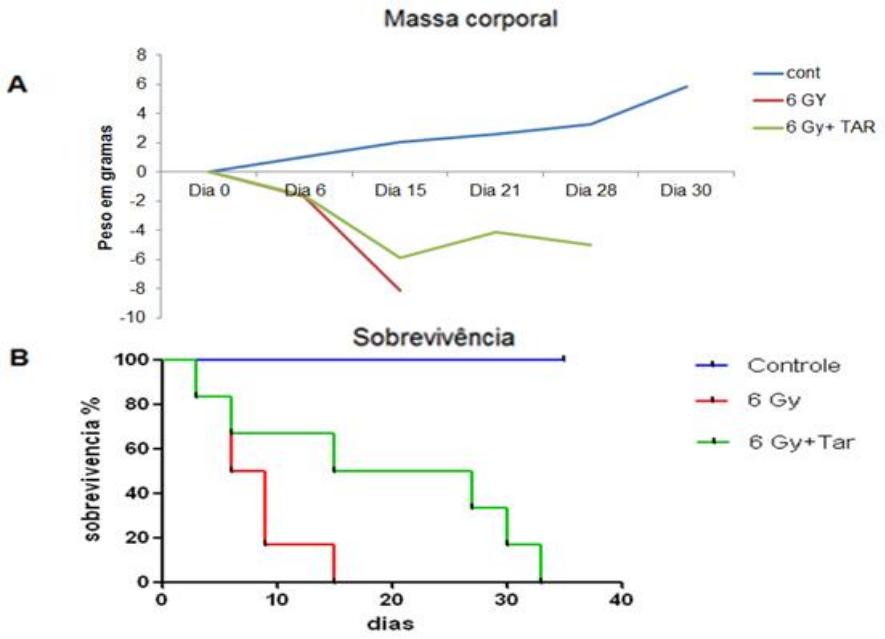

Figure 1: Body mass and survival of irradiated animals: Groups of C57/BL6 mice (n=5) irradiated with 6 Gy.

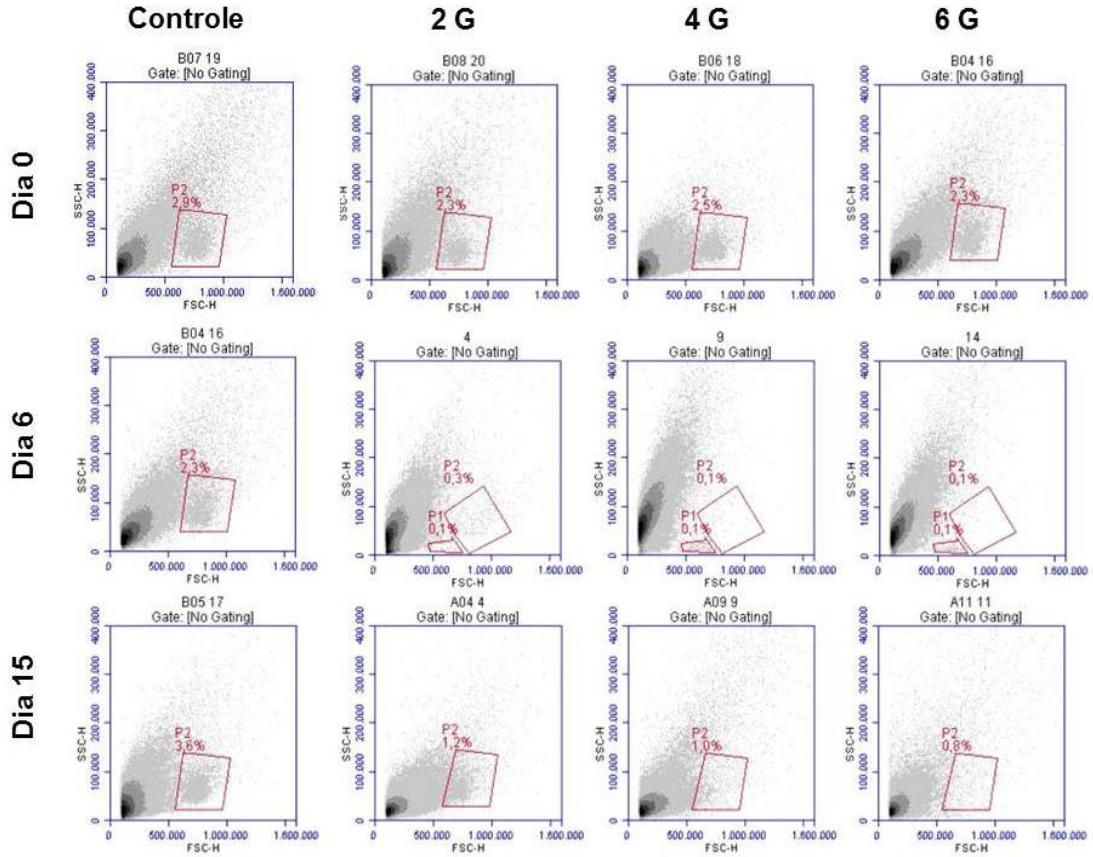

Figure 2: Cytogram representative of parameters of size (FSC) versus granularity (SSC) of peripheral blood:mice C57/BL6 (n=5), irradiated with 2 or 4 or 6 Gy and non-irradiated control, and analyzed by flow cytometry.

Treatment with tarine of animals irradiated with 6Gy absobed dose resulted in increased survival of animals from 21 to 35 days.

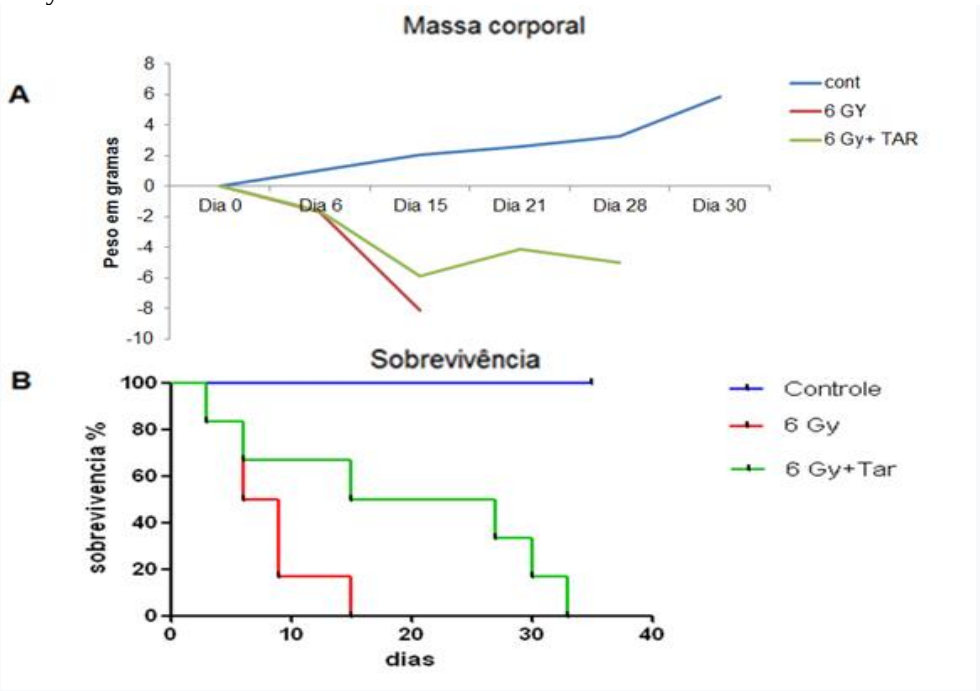

Figure 3- Body mass and survival of irradiated animals: Groups of C57/BL6 mice (n=5) irradiated with 6 Gy.

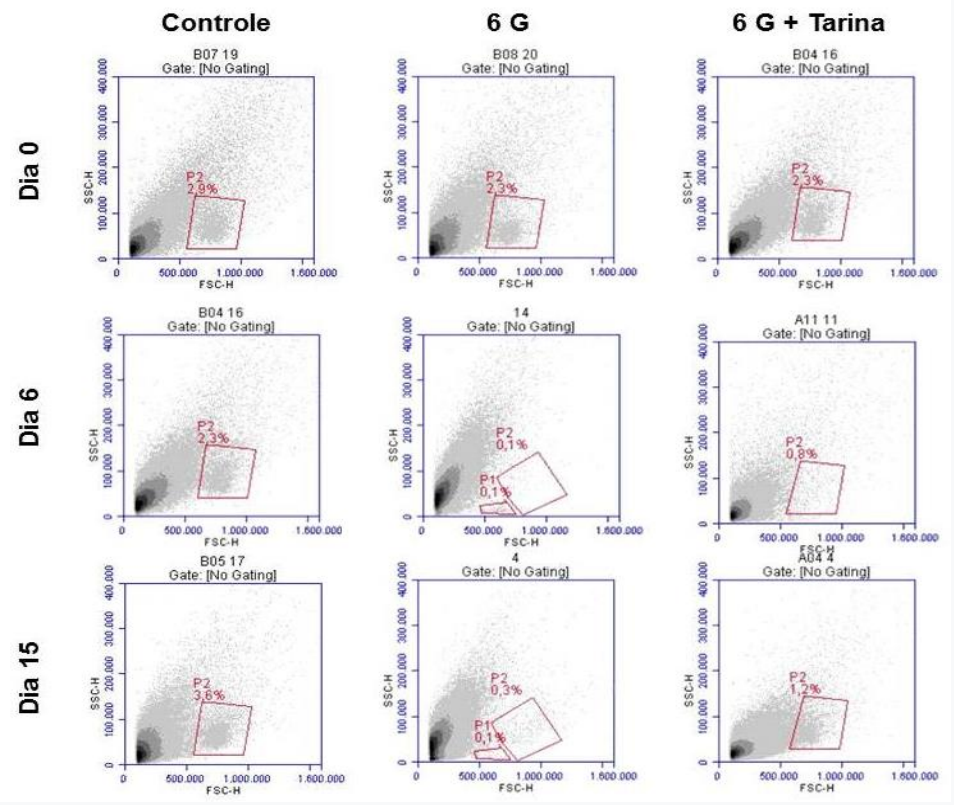

Figure 4- Representative cytogram of parameters of size (FSC) versus granularity (SSC) of peripheral blood.

Assays with medullary cells obtained from irradiated myelosuppressed animals showed that the addition of tarine resulted in an increase in the percentage of cells expressing the granulocyte lineage marker with an abundant development of fibroblastoid-like cells, reaching about 70 -80% of the substrate. The culture without stimulus can be observed the scarcity of rounded cells and the presence of many subcellular elements, Figure 5.

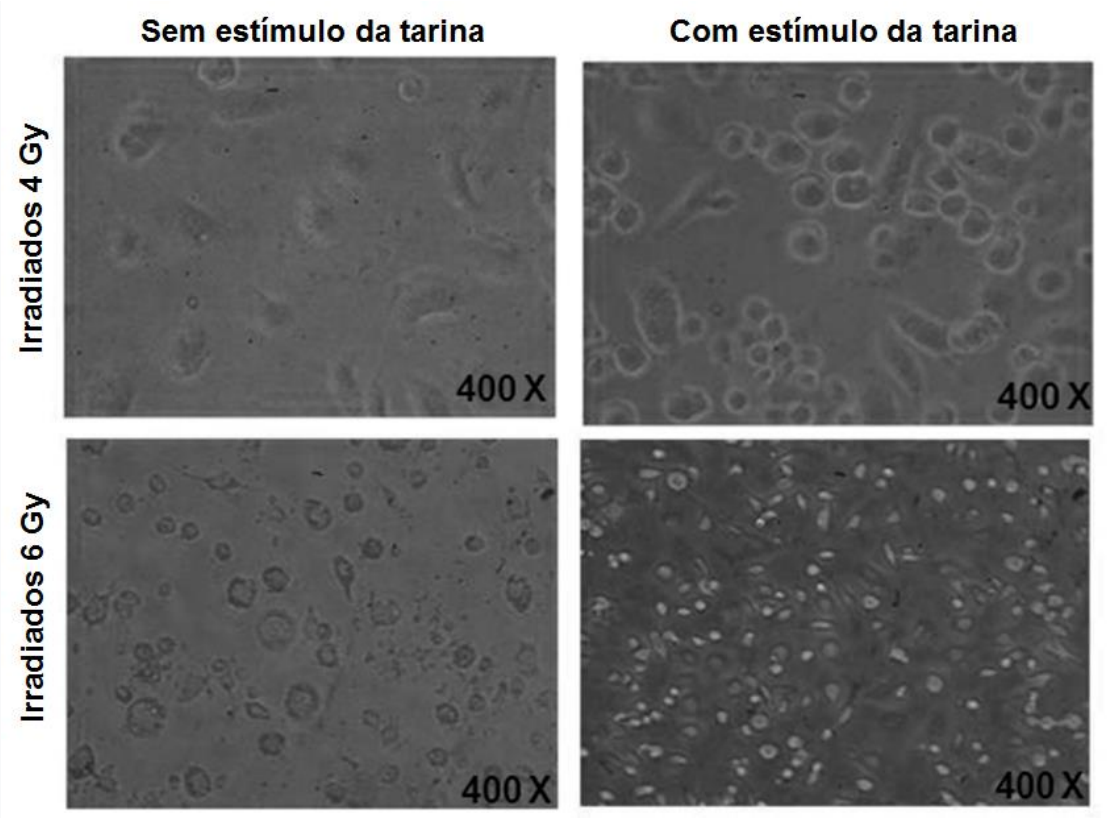

Figure 5- bone marrow cells of immunosuppressed animals

Photomicroscopy of bone marrow cells from mice irradiated with 4 and 6 Gy (n=5) cultivated in RPMI-1640 medium without stimulation (control) and stimulated with 20 µg/ml tarina.

4. Conclusions

Taken together, these results suggest that tarine can act as an immunostimulator, *in vitro* and *in vivo*, in bone marrow cells of immunosuppressed animals, especially in cell populations of granulocytic origin.

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