

ARTERIAL DAMAGE ASSOCIATED WITH CHRONIC EXPOSURE TO GLYPHOSATE AND DICHLOROPHENOXYACETIC ACID – A STUDY IN RATS

Fernanda Maria Bottino Vizzotto Toreto¹, Maria Eduarda Silva Souza², Gabriela Hernandes Ribeiro², Renata Calciolari Rossi^{1,2}, Gisele Alborghetti Nai^{1,2,3}

¹Graduate Program in Health Science, ²Medical College, ³Department of Pathology, Universidade do Oeste Paulista (UNOESTE), Presidente Prudente, SP, Brazil.

INTRODUCTION

Atherosclerosis is a chronic inflammatory disease, which can culminate in significant cardiovascular manifestations. Some pesticides have been implicated in atherogenesis.

Glyphosate based herbicides (GBH) and dichlorophenoxyacetic acid (2,4-D) are the most widely used herbicides in crops worldwide.

The aim of this study was to compare the potential for arterial damage from chronic inhalation and oral exposure to the herbicide glyphosate and 2,4-D in rats.

RESULTS

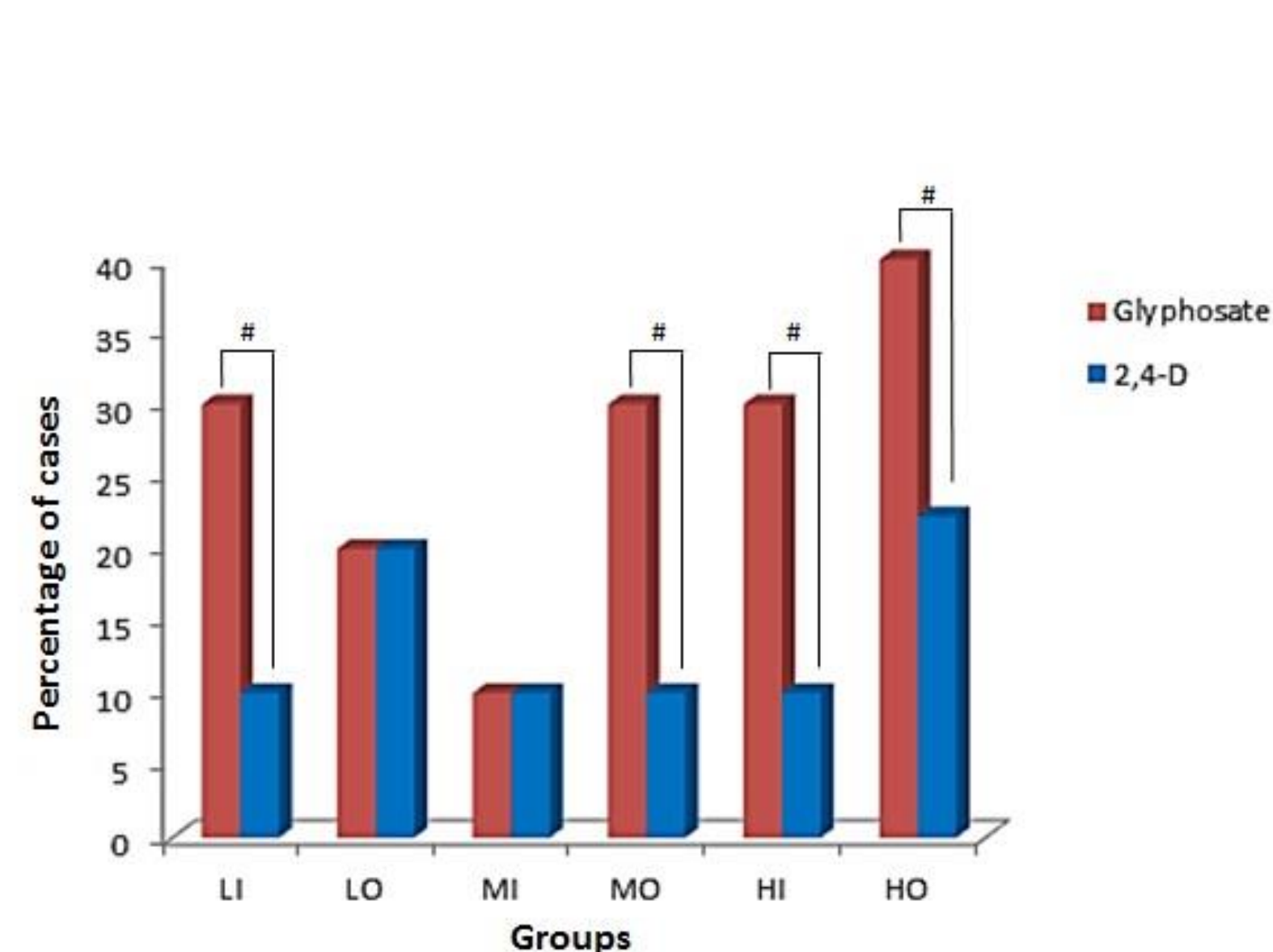


Figure 2 – Percentage of fatty streaks by study group (n=140). #: p<0.05.

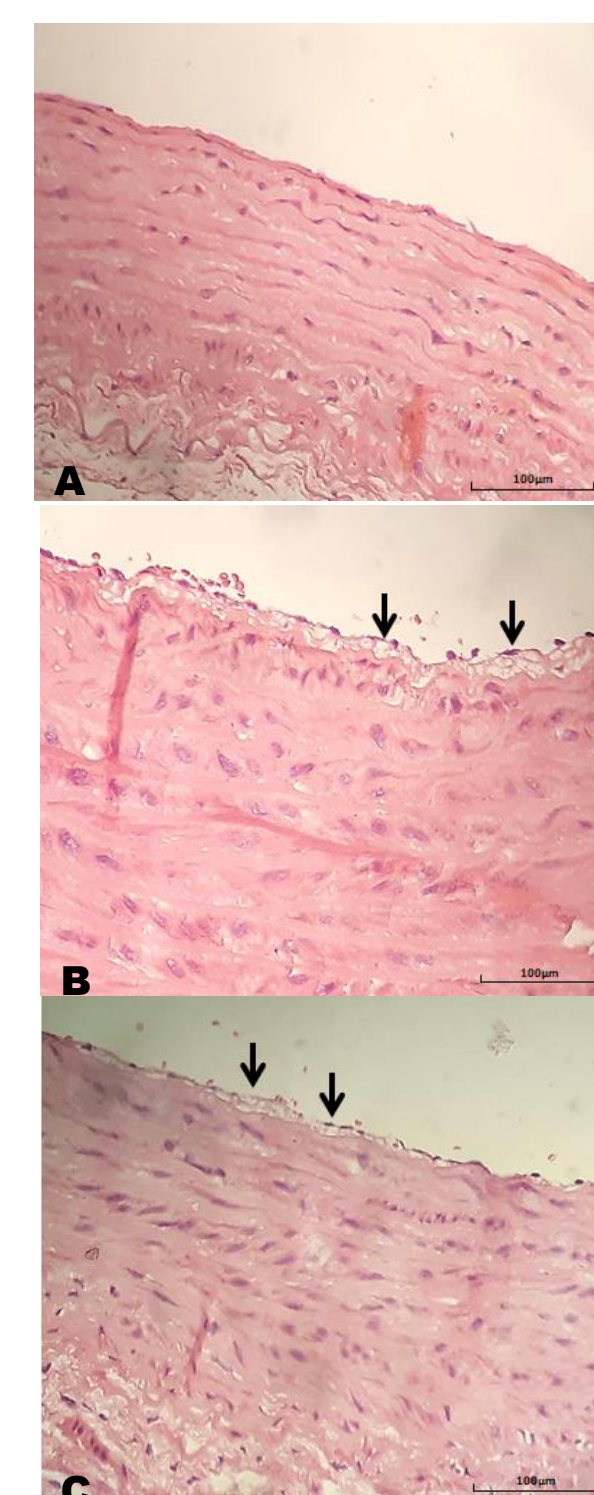


Figure 3 – A – Normal arterial wall – control group animal. B – Fatty streaks (arrows) - animal exposed to 2,4-D. C - Fatty streaks (arrows) - animal exposed to GBH. Hematoxylin-eosin, 400x magnification.

CONCLUSION

- Both herbicides have atherogenic potential, but this is greater in exposure to GBH.
- Animals exposed to 2,4-D have the largest nuclear fractal dimension, showing that this herbicide causes greater nuclear reactivity of the aortic wall.

METHODS

The study was approved by the Animal Use Ethics Committee of the proposing institution (Protocol 6724).

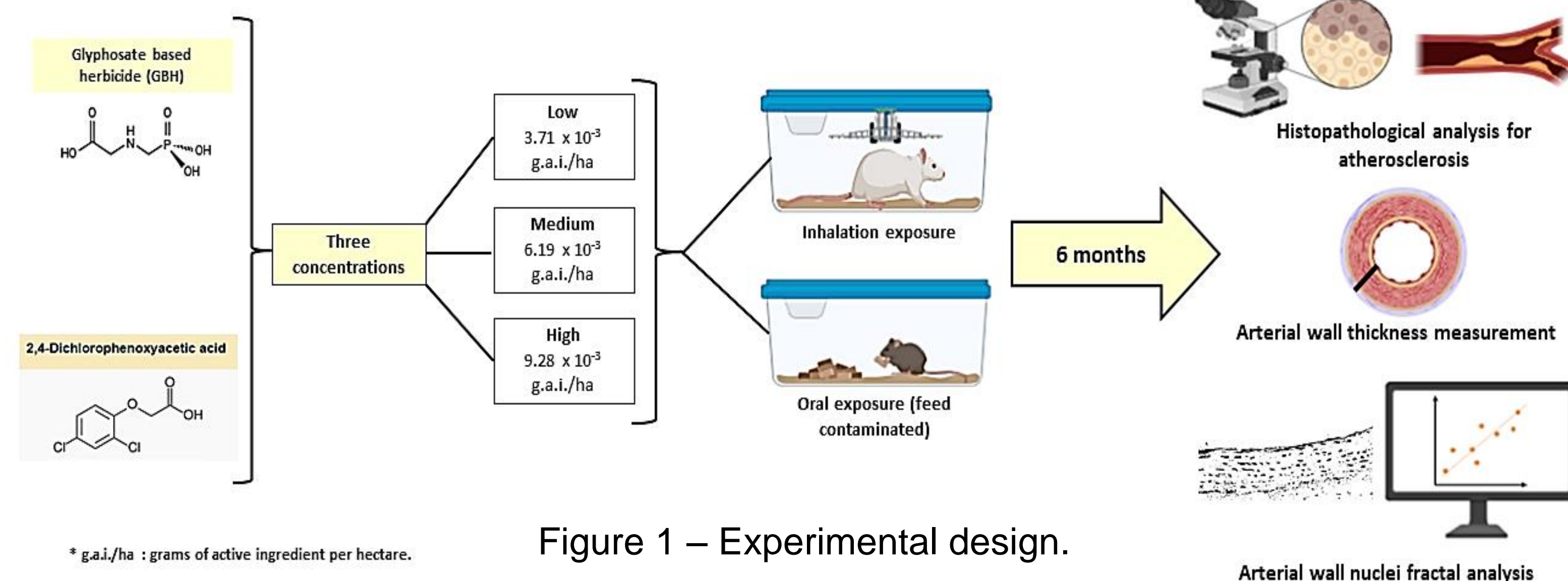


Figure 1 – Experimental design.

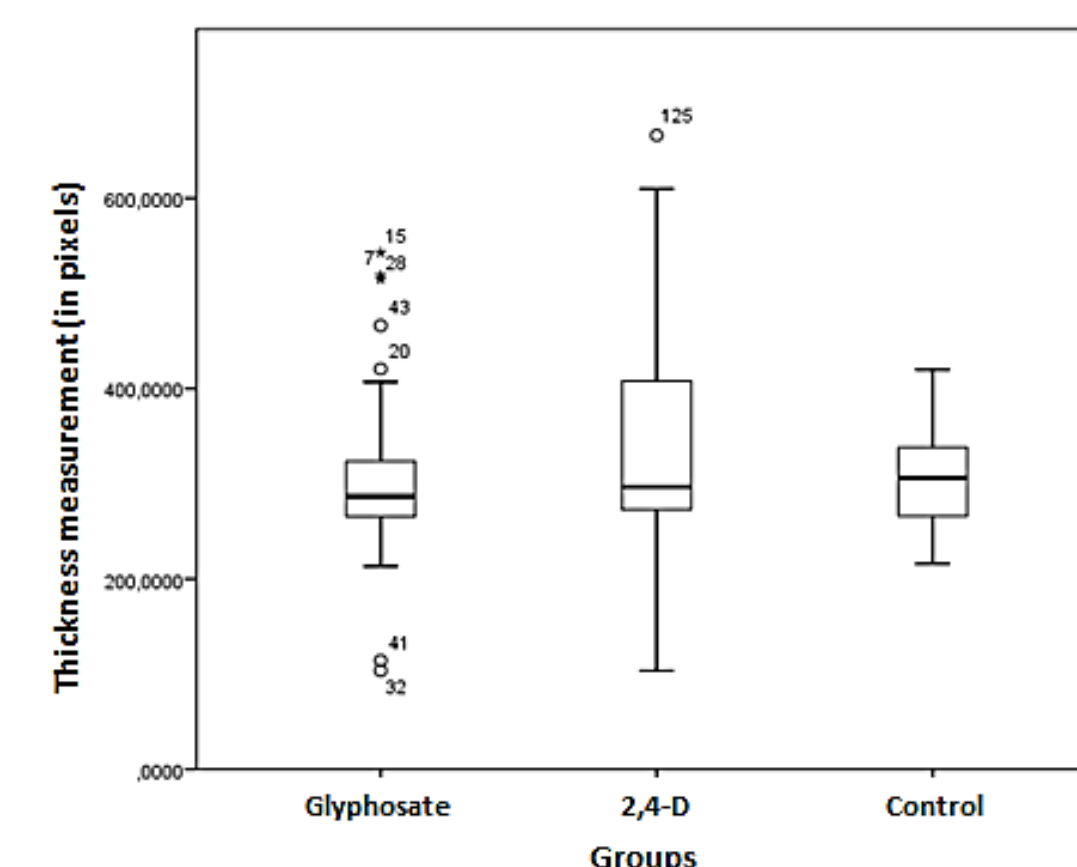


Figure 4 – Arterial wall thickness according the type of exposure (n=140). p > 0.05.

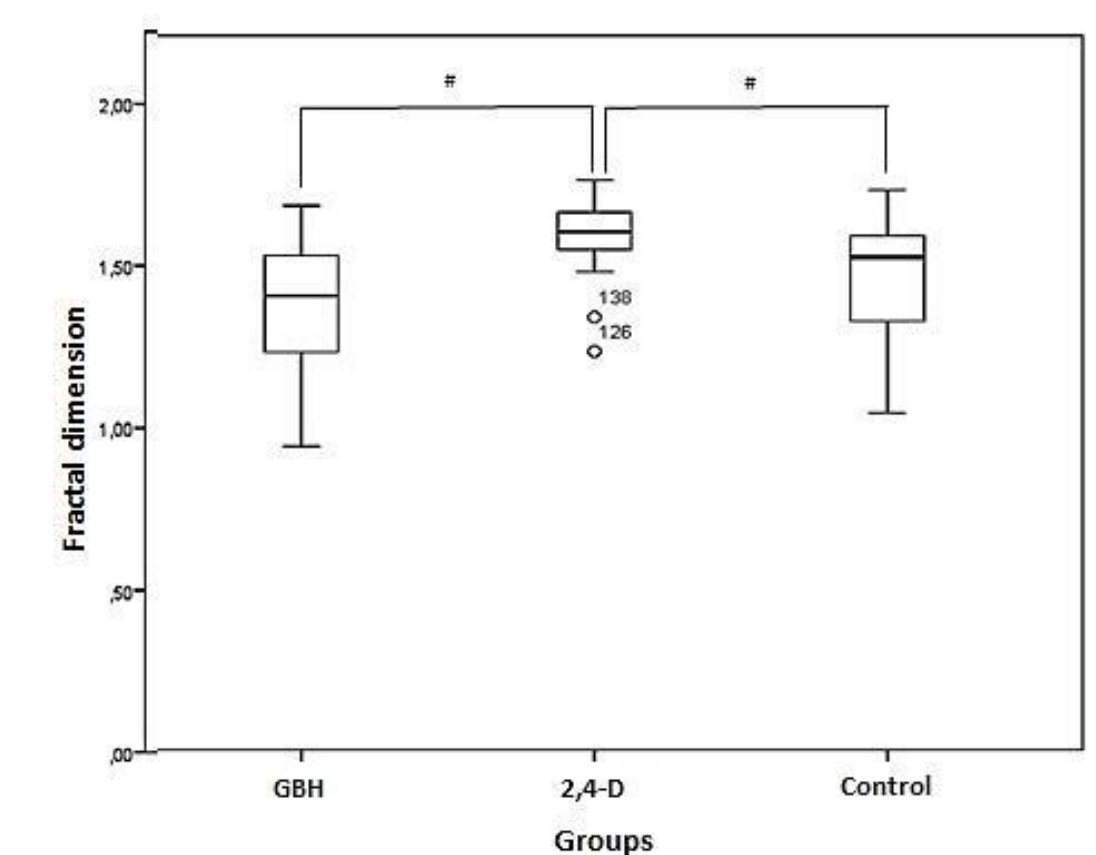


Figure 5 – Fractal dimension of the nuclei of the arterial wall according to the type of exposure (n=140). #: p < 0.05.