



ASSESSING THE BIOCHEMICAL IMPACT OF PESTICIDES ON FARMERS' HEALTH IN THE MIDDLE ITAJAÍ VALLEY

Sabrina Damásio¹, Vitória Sebold¹, Ana Paula Dalmagro^{1*}

¹Universidade Regional de Blumenau, Brazil. *anap.dalmagro@gmail.com

INTRODUCTION

Pesticides are a public health concern in Brazil due to the excessive amount of products sold and the low level of regulation, especially affecting small producers^a. This study evaluated the understanding of pesticide use among a group of family farmers in a municipality in the middle region of Vale do Itajaí (SC) and the possible biochemical effects triggered by these products.

MATERIAL AND METHODS

A group of 20 farmers ("test" group) completed a pre-structured questionnaire and underwent a blood collection to evaluate liver function (ALT, AST, GGT), kidney function (creatinine/urea), and cholinesterase levels, with biochemical data compared to individuals who do not work in agriculture ("control" group). The questionnaire included questions about their health, socioeconomic status, pesticide handling habits, and knowledge on the subject^b. Biochemical tests were conducted at the Clinical Analysis Laboratory/UNIVALI. When applicable, results with $p < 0.05$ were considered significant, as determined by the Mann-Whitney and Student's t-tests. The research was fully approved under process no. 79539024.6.0000.5370 by the Human Research Ethics Committee/FURB.

RESULTS

The "test" group consisted primarily of men, around 38 years old, who were tobacco farmers, overweight, and without chronic diseases, according to self-reports. Most of

the participants were married, and their relatives also worked in agriculture. The most commonly used pesticides on their plantations were pyrethroids, which were handled mainly according to the guidelines provided by tobacco industry representatives. Interestingly, most of the respondents' plantations were located near a water source, and no precautionary measures were taken to prevent contamination. No changes were observed in liver function markers or cholinesterase levels among the participants ($p > 0.05$ for both tests), but an increase in creatinine levels was noted in the farmers' group ($p < 0.01$).

CONCLUSIONS

The influence of the pesticide industry and empirical knowledge appear to be key factors in supporting the actions of the small group of family farmers interviewed, highlighting the need for greater technical and scientific support for these professionals.

ACKNOWLEDGMENTS

Universidade Regional de Blumenau – Department of Pharmaceutical Sciences

REFERENCES

- a. SPADOTTO, C.A.; GOMES, M.A.F. Agrotóxicos no Brasil. Portal Embrapa. 2024.
- b. ALVES, Lucélia Cristina. Quantificação de biomarcadores e caracterização do uso de defensivos agrícolas por agricultores familiares do Alto Paranaíba-MG. 2017.

