# ANALYSIS OF OXIDATIVE STRESS IN FARMERS EXPOSED TO AGROCHEMICALS

Lyriel de Oliveira Santos; Nadya Garcia de Oliveira; Any Caroline Chagas Almeida; Maiara Basseto Sena; Rita de Cássia Dutra; Raul Gomes Aguera; Renata Sano Lini; Juliana Cristina Castro; Samuel Botião Nerilo; Miguel Machinski Junior; Jurandir Fernando Comar; Simone Aparecida Galerani Mossini.

Universidade Estadual de Maringá- Maringá-Paraná

**INTRODUCTION:** Population growth demands greater production and rapid financial returns, leading to the consumption of a range of agrochemicals of different classes and mechanisms of action to increase agricultural production. The use of such substances, combined with the practice of family farming, where investment in large machinery and personal protective equipment is scarce, leaves farmers and their families vulnerable, who are chronically exposed. It is known that pesticides, when absorbed by the body, generate reactive oxygen species (ROS), which interact with cells, causing damage to different structures, and can lead to carcinogenicity, neurodegeneration, and metabolic diseases, among other complications. **OBJECTIVE:** To analyze the levels of oxidative stress in farmers chronically exposed to pesticides by determining the levels of protein sulfhydryl groups (thiols) and carbonyl proteins in plasma. **MATERIAL AND METHODS:** Cross-sectional and observational study carried out with 89 participants (50 exposed and 39 unexposed). Samples were analyzed by spectrophotometry to determine the levels of thiol groups and carbonyl proteins (PrC). The project was approved under protocol number 5,578,887. **RESULTS AND CONCLUSION:** The average time of work in the agricultural area was 28 ± 13 years. The average dosage of thiol groups that have antioxidant functions was 348.417 nmoles/mL (non-exposed population) and 450.778 nmoles/mL (exposed population). The determination of PrC resulted in 1.771 umolescarbonyl/mg (non-exposed group) and 2.804 umolescarbonyl/mg (exposed group). The high average of the exposed group for the determination of thiol groups and PrC indicates a compensatory response, where the antioxidant system increases its response to maintain balance. On the other hand, PrC levels are higher for exposed when compared to unexposed. It is not possible to state that this average increase in protein carbonylation is exclusively due to exposure to pesticides, but aligning the results obtained with the literature, protein carbonylation is a biomarker of oxidative stress that has proven relevant for occupational analyses, as it is early when compared to other biomarkers such as thiobarbituric acid, thus providing a relationship compatible with the chronicity of occupational exposure.

**Palavras-chave**: Biomarkers; Occupational Exposure; Oxidative Stress.

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