

BIOCHEMICAL PROFILE OF WORKERS EXPOSED TO THE GYPSUM INDUSTRY IN THE PERNAMBUCO BACKWOODS

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INTRODUCTION: The gypsum industry in the Pernambuco backwoods plays a key economic role in Brazil, but it also raises serious concerns about occupational exposure to airborne pollutants and chemical agents. Chronic exposure in this industrial setting may lead to biochemical disturbances, particularly affecting hepatic, renal, and metabolic functions. However, the biochemical status of workers in this sector remains poorly investigated. **OBJECTIVE:** To evaluate serum biochemical alterations in workers from the gypsum industry in Araripe, Pernambuco's Backwood, aiming to identify potential toxicological effects of occupational exposure. **MATERIALS AND METHODS:** This is a cross-sectional observational study conducted with 85 male workers from the gypsum industry in Araripe, a semi-arid region in northeastern Brazil. Peripheral blood samples were collected under standardized conditions and transported under refrigeration to the Suely Galdino Research Center for Therapeutic Innovation (NUPIT-SG), at the Federal University of Pernambuco (UFPE). Serum was separated by centrifugation and analyzed using the A25 biochemical analyzer (Biosystems). The following clinical chemistry biomarkers were evaluated: albumin, aspartate aminotransferase (AST), alanine aminotransferase (ALT), total cholesterol, triglycerides, creatinine, total protein, urea and uric acid. **RESULTS AND CONCLUSION:** Albumin levels were below reference ranges in most participants (median: 24 g/L), suggesting inflammatory activity or nutritional deficiency. AST (median: 25 U/L) and ALT (median: 39 U/L) were elevated in several cases, indicating hepatic stress. Total cholesterol (median: 230 mg/dL) and triglycerides (median: 178 mg/dL) were frequently elevated. Creatinine and urea levels showed two distinct patterns: while some workers presented values below detection limits, others exhibited elevated concentrations. In addition, increased levels of uric acid (median: 6.1 mg/dL) and total protein (median: 100 g/L) were observed in some participants. These alterations may reflect early signs of hepatic, renal, and metabolic imbalances that may be associated with chronic exposure to gypsum dust. Furthermore, in vitro and in vivo studies are needed to investigate mechanism pathways and identify biomarkers of exposure and effect.

KEYWORDS: Occupational toxicology; Gypsum exposure; Serum biomarkers;

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