

# THE ROLE OF INDUSTRIAL POLLUTANTS ON SOME ANTIOXIDANTS AND LIPID PEROXIDATION FOR WORKERS IN DIFFERENT AREA OF MOSUL CITY, IRAQ

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(Received 29 May 2020, Revised 14 August 2020, Accepted 22 August 2020)

**ABSTRACT :** The continuous exposure to industrial pollutants leads to many health problems. So the current study aimed to determine the effects of these pollutants and the continuous exposure to them in the level of some antioxidants and the malondialdehyde MDA, which it represents one of the final products of lipid peroxidation as it is an indication of oxidative stress in the serum of 150 workers of non-smoking males working in different professions within the city of Mosul, their ages ranged between (19-66) years in different industrial regions (including the right and left industries and Kaser Almatran and were professionally exposed to pollution during their daily work period. Exposure periods were divided according to the working years of (5-10), (11-20) and (more than 20) years, as they included 6 professional groups who are: blacksmithing cars, dyeing cars and house, replacing fats and lubricating cars, repairers of liquid batteries for cars, electric generators and a filling fuel station, then comparison with 30 healthy, non-smoking males of the same age as workers residents in the Sheikhan district (Jarrah complex) outside the city and were used as a control group. The results showed a significant increase in the MDA concentration and the glutathione peroxidase GSH-Px activity (as an enzymatic antioxidant). The results also showed a significant increase in non-enzymatic antioxidants, which included each of the concentration of uric acid, creatinine, total and conjugated bilirubin, while it showed a non-significant decrease in the concentration of albumin in the serum of workers in different professions and during the three exposure periods, as these results showed that different exposure periods had a clear effect on these studied parameters. It is concluded from this study that exposure of workers in different professions to different types of industrial pollutants has caused oxidative stress in these workers, which has led to clear negative effects with an increase in the exposure period and a disrupted in metabolic and physiological processes.

**Key words :** Industrial pollutants, antioxidants, malondialdehyde, glutathione peroxidase.

## INTRODUCTION

Industrial pollution is defined as pollution resulting from different human activities and behaviors, especially in different industrial fields and the various professions and factories are among the most important sources of this pollution. Or is it the damage to the ecosystem as a result of the industrial activity of different professions and industrial institutions and diminishes its ability to provide a healthy life physically, psychologically, socially and ethically for a human, meaning that industrial pollution produces from human's act and activity and finds its source in industrial, service, recreational and other activities (Satarug *et al*, 2010; Qurashi, 2012).

So the industry is one of the most important sources that produce chemical pollutants and this is due to the tremendous progress and multiplicity of industries in our

modern world, as chemical pollutants from resulting from various industries can accumulate in the cells and tissues of living organisms until they reach the degree of toxicity. Therefore, heavy elements such as lead, cadmium, arsenic, copper, zinc, iron, manganese, mercury and cyanide compounds, hydrogen sulfide, pesticides, chemical fertilizers, oil and its derivatives are among the most important pollutants harmful to the environment and human health (Septiono and Roosmini, 2015; WHO, 2019).

Industrial chemical pollution has very serious effects on the components of ecosystems, which increases the risk of those chemicals, that most of them are very persistent and do not disintegrate or degrade under normal natural conditions, and the effect of these harmful substances remains for a long time, knowing that the human body has the ability to Fixed an imbalance that it