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TIME RESPONSE STUDY OF BISPHENOL A (BPA) TOWARDS THE INDUCTION OF OXIDATIVE STRESS IN THE BRAIN OF SPRAGUE DAWLEY FEMALE RATS

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ABSTRACT

Bisphenol A (BPA) or 2,2-bis-(4-hydroxyphenil)propane is a monomer used in the production of its polymers which are polycarbonate plastics and epoxy resins. It is an organic compound which is extensively used as daily consumer products also has been found widespread in the environment. It is also known as one of the most ubiquotous environmental endocrine disruptor compound. Without realizing about the danger that it brings along, BPA is frequently ingested or absorbed by humans and pass through into the body. The study focused on the duration of BPA towards the induction of oxidative stress in the rat's brain. Oxidative stress is when the oxidants in the body are more intense compared to the antioxidants, then lead to cell damage. Antioxidants for example glutathione peroxidase (GPx) are the compound that responsible for defense against oxidants. BPA can induce oxidative stress in the brain by altering the properties of oxidants and also antioxidants. BPA administration did alter the body weight of female SD rats and impaired the development of the brain in longer duration of exposure. BPA also decreased the GPx activity and overall antioxidant concentration in the brain of female SD rats.

CHAPTER 1

INTRODUCTION

1.1 Introduction

In variety of disorders that have been diagnosed, oxidative stress is considered as one of the important pathophysiological development. This is due to its ability to endorse cell death in human. Oxidative stress can be defined as the imbalance between the oxidants and antioxidants intensity in the human body. It usually occurs when the oxidants level is higher than the antioxidants (Sies, 1997). As stated earlier, oxidative stress is potentially leading to cell damage. Oxidative stress can induce lipid peroxidation and has the ability to modify the proteins and DNAs in term of their structural and functions. In previous studies it is reported that it can encourage apoptosis in reasonable stress or in more intense stress it can cause necrosis and also can contribute to cancer. Oxidative stress is contributed by the free radicals that is not being metabolised. A predominantly critical aspect of oxidative stress is the formation of reactive oxygen species which include free radicals and peroxides. A free radical is an atom, molecule or compound which is highly unstable due to its atomic or molecular structure resulted from the unequal allocation of electrons inside the molecule. They are going to be very reactive as they try to join up other molecules, atoms or even an individual electron to create a