UNIVERSITI TEKNOLOGI MARA

TIME RESPONSE STUDY OF BPA TOWARDS THE INDUCTION OF OXIDATIVE STRESS IN THE BRAIN OF MALE SPRAGUE-DAWLEY RATS

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ABSTRACT

Bisphenol A is widely used for production of daily used product such as plastic bottle, baby bottle, and others. BPA can result in increasing the reactive free radical agents and cause oxidative stress in the body. This can lead to give stress to the rats and effects of developed of rat organs. In this study effect of the brain weight BPA treated rats show lower significant compared to negative control. There were also significant reduction of ratio brain to body weight for BPA treated rats. GPx activities in the body are one of the enzymes responsible in the sequence of neutralization of free radical. Superoxide dismutase converts superoxide to hydrogen peroxide, then catalase and GPx will convert hydrogen peroxide to the hydrogen oxide. The result showed SD rats treated with BPA does not have significant effects in the brains. The antioxidant concentration also does not show the significant reduction in the brains of rats treated with BPA. This study shows that the differences of body weight and brains of rats is significant reduction with treated with BPA. While the GPx activities and antioxidant concentration is not significant different when the rats were treated with BPA 100mg/kg/day.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Bisphenol A (BPA) or their chemical name is 2,2- bis(4-hydroxy phenyl)propane used to produce phenol resins, polyacrylates, and polyesters, but mainly for the production of epoxy resins and polycarbonates plastics. The epoxy resins were use as coating for cans, metal jar lids, protective coatings and finishes, automobiles part, adhesives, aerospace application and as a coating for PVC pipe. The polycarbonates plastics were use in compact disk manufacturing, food packaging and plastics bottle because it had good characteristics such as high impact strength, hardness, toughness, transparency and resistant to heat between -40°C to 145°C. (Staple et al., 1998). First discovery of the Bisphenol A is to find out the synthetic of estrogen but the scientist found more powerful synthetics estrogen compound called diethylstilbestrol (DES) compared to Bisphenol A. Nowadays, Bisphenol A becomes a world wide used for production of daily used product such as plastic bottle, baby bottle, and others. Many studies come out with harmful effect of BPA based product to the human health.

BPA is one of the famous environment endocrine disruptors compound (Krishnan *et al.*, 1993). BPA can alter the normal function of the estrogen (Krishnan *et al.*, 1993; Sohoni