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HORMONAL CHANGES IN FEMALE BISPHENOL A TREATED *SPRAGUE DAWLEY* RATS AT DIFFERENT TIME RESPONSE

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ABSTRACT

Bisphenol A (BPA) is one of the endocrine disrupting chemical due to its capacity to mimics or interfere with several hormones, including progesterone. It is widely used in the production of polycarbonate plastics and epoxy resins. In this study we investigated the effect of BPA exposure to progesterone level in *Sprague Dawley* (SD) rats for different time response (7, 14 and 28 days). Nine groups of rats were prepared for negative control, positive control and BPA treated with seven, fourteen and 28 days duration of treatment. Positive control groups were treated with 1.0 µg/kg/day ethinyl estradiol (EE) while BPA group were treated with 100 mg/kg/day of BPA via force feeding. Daily weight of the rats were recorded and the plasma level of progesterone was examined by using ELISA method. Independent-groups t-test was then performed. The result showed that the progesterone concentration was not normally distributed and therefore, it is suggested that there was no significant differences of progesterone level in each treated groups ($P>0.05$). For the weight gain, there is no significance difference for seven days of treatment. Weight gain was significance between the negative and positive control group for fourteen days and 28 days of treatment respectively.

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Bisphenol A (BPA) is a small monomer that is polymerized to produce polycarbonate plastic and resins used to line metal cans. BPA is also used as an additive in other types of plastic, such as polyvinyl chloride (PVC) and polyethylene terephthalate (PET), which often used in medical tubing, toys, water pipes and mineral water bottles. BPA is also used to make some dental sealants. In 2003, BPA is one of the highest volume chemicals in commerce with total worldwide production capacity exceeding six billion pounds (Burridge, 2003).

An endocrine disruptor or endocrine disrupting chemical (EDC) has been broadly defined as ''an exogenous agent that interferes with the production, release, transport, metabolism, binding, action, or elimination of natural hormones responsible for the maintenance of homeostasis and the regulation of developmental processes (Kavlock *et al.,* 1996). EDCs also can be defined as synthetic chemical or naturally occurring substances that are released into the environment and can interfere with the endocrine