

UNIVERSITI TEKNOLOGI MARA

**GENE EXPRESSION CHANGES IN MALE
REPRODUCTIVE SYSTEM OF DOSE
RESPONSE, BPA-TREATED
Sprague Dawley RATS**

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Dissertation submitted in partial fulfilment of
requirements of the Bachelor of Pharmacy (Hons.)

Faculty of Pharmacy

November 2009

ACKNOWLEDGEMENT

First and foremost, thanks to God and may His blessing be upon our prophet for giving me the strength and determination to successfully complete this research. I would like to express my sincere appreciation to my supervisor Miss Mashani for the continuous support and guidance in completing this research. Special thanks to my family for always being there for me, providing me all the encouragement and motivation that I needed. Last but not least, for my dear housemates Hamidah Mokhtaruddin and Qairul Azhani, thank you very much for your kindness in assisting me with my research.

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ABSTRACT

Bisphenol A (BPA) is a xenobiotic estrogenic compound which has been suspected to have estrogenic effects on reproductive system of males and females. This study is conducted to investigate on physical and gene expression changes of male hormones in male SD rats after administration of different dose of BPA. Six groups of SD male rats (post natal day 28) were used and four groups among them were administered daily orally with 50µg/kg body weight/day, 500µg/kg body weight/day, 1000 µg/kg body weight/day and 5000 µg/kg body weight/day. The other groups were negative control and positive control. In this study, RNA samples have been isolated and amplified using Reverse Transcriptase Polymerase Chain Reaction (RT PCR). Gene expression changes of androgen receptor were examined by using gel electrophoresis method. This study shows no significant difference of body weight and testis changes ($P > 0.05$) compared to negative control group. Gene expression changes are unsuccessful due to lack of RNA integrity and contamination of the DNA ladder. To improve the study, the samples need to be stored in correct temperature and optimize action of experimental procedure have to be done to reduce risk of contamination.

CHAPTER 1

INTRODUCTION

1.1 Background

BISPHENOL A (BPA) is a small (228 Da) estrogenic monomer that is polymerized to produce polycarbonate plastic and resins used to line metal cans (Welshons et al., 2006). According to the Endocrine/Estrogen report (2003) about 65% of the BPA is produced to make polycarbonate plastics and about 25% is used in epoxy resins. The remaining 10% is used in other products such as specialty resins and in the manufacture of flame-retardants, such as tetrabromobisphenol A.

BPA is one of the Endocrine disrupting chemical (EDCs). Other EDCs include lindane, methoxychlor and dioxin (Rashid et al., 2008). EDCs are hormonally active exogenous substances disrupting the physiologic functions of hormones (Rashid et al. 2008). BPA can exert estrogenic effects (Welshons et al., 2006).

Because of its widespread use and application, the public is exposed to BPA (Kuester, 2006). Small amount of BPA can migrate from polymers to food or water especially