

UNIVERSITI TEKNOLOGI MARA

**EFFECTS OF HERBICIDE RESIDUES
ON REPRODUCTION
AND THYROID FUNCTION**

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ABSTRACT

This study was carried out with a view to investigate the effects of residual doses of herbicide mixtures on endocrine and reproductive function in male SD rats. Animals were exposed to MRL, MTD and high doses from PND 23 to PND 53. Results show that increasing dose of herbicidal mixture of paraquat, 2,4-dichloridephenoxyacetic (2,4-D), glyphosate, and glufosinate delayed puberty in SD rats by 0.4 ± 0.1 (MRL), 1.0 ± 0.5 (MTD), and 4.4 ± 0.3 (high dose) days. These delays in sexual maturation were accompanied by significant changes in body weight, size of reproductive organs and non-reproductive organ and by alteration in natural hormone levels.

CHAPTER 1

INTRODUCTION

1.1 Research Background of Project

An endocrine disrupting chemical (EDCs) is defined as a foreign substance or mixture of chemicals that alters the function(s) of the endocrine system, consequently harming an individual life form, its offspring or population (IPCS, 2002). EDCs may reduce the production of hormone in endocrine glands, affect its release, copy or block hormones action at the binding site, speed up or slow down the metabolism of hormones (IPCS, 2002). Some environmental EDCs may be released into the environment intentionally (e.g., pesticides), but for most environmental contaminants release is unintentional. Unintentional release of chemicals can occur during manufacturing, usage, and disposal periods. “Dioxinlike” chemicals are EDC’s (e.g., polychlorinated dibenzo-p-dioxin). They are formed unintentionally as byproducts in a variety of industrial and combustion processes (Fara, 1999 & Tobin, 1986).

Leakage from landfill areas and distribution via sewage sludge are also sources of exposure (Daughton *et al.*, 1999). Exposure to naturally occurring EDCs such as the phyto- and fungal estrogens, which are important components of some human and wildlife diets, occurs globally. EDCs in air may be deposited in terrestrial systems on leaves, needles, grass, and soil (Jones *et al.*, 1994) and also in aquatic systems, where