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**Low Dose Effects of the Brominated Flame Retardant
2,2',4,4',5-Pentabromodiphenyl Ether (PBDE 99) on Rat
Development: A Generation Study**

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des Grades Doctor rerum medicarum
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von

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CONTENTS

Abbreviations.....	v
Chapter 1: Introduction.....	9
1.1 - Endocrine Active Compounds (EACs).....	10
1.2 - Human Evidence of EAC Toxicity.....	12
1.2.1 – Neurodevelopmental Effects.....	14
1.2.2 – Male Reproductive Effects.....	16
1.3 – A New Environmental Threat: Polybrominated Diphenyl Ethers (PBDEs).....	19
1.3.1 – Chemical Properties, World Production and Environmental levels.....	20
1.3.2 - PBDE Human Levels: A Cause of Concern.....	22
1.3.3 – Toxicology and Experimental Studies.....	23
1.4 – Motivation.....	26
1.5 – Objectives.....	28
Chapter 2: Experimental.....	29
2.1 Experiment I.....	30
2.1.1 Animals and Treatment.....	30
2.1.2 Thyroid Hormone Levels.....	31
2.1.3 Tissue Distribution of PBDE 99.....	32
2.1.4 Enzyme Assay: Samples and Microsome Fraction Preparation.....	33
2.1.5 EROD Assay.....	33
2.1.6 UDPGT Assay.....	34
2.1.7 Statistical Analyses.....	35
2.2 Experiment II.....	36
2.2.1 Animals and Treatment.....	36
2.2.2 Postnatal Reflex and Developmental Landmarks.....	37
2.2.3 Locomotor Activity (Mobiltron).....	38
2.2.4 Reproductive assessment of male offspring.....	39
2.2.5 Spermatid Count and Daily Sperm Production (DSP).....	40
2.2.6 Sperm Count and Morphology.....	40
2.2.7 Flow Cytometry Analysis.....	41
2.2.8 Testicular Morphometry and Sertoli Cell Count.....	42
2.2.9 Testosterone and LH Levels.....	44
2.2.10 Male Reproductive Performance.....	44

2.2.11 Male Sexual Behavior	45
2.2.12 Statistical Analyses.....	45
Chapter 3: Results	47
3.1 Experiment I: Effects Observed During Lactation	48
3.1.1 Body Weight and Organ Weights	48
3.1.2 Thyroid Hormone Concentrations.....	49
3.1.3 Effects on Hepatic Enzyme Activities.....	54
3.1.4 PBDE 99 Tissue concentration.....	57
3.2 Experiment II: Adverse Effects observed Post-weaning to Adulthood	61
3.2.1 Developmental Landmarks and Spontaneous Reflex.....	61
3.2.2 Effects on Locomotor Activity.....	65
3.2.3 Male Reproductive Health.....	69
3.2.4 Organ Weight and Steroid Hormone Levels	69
3.2.4 Daily Sperm Production, Sperm Count and Morphology	71
3.2.5 Testicular Morphometry and Sertoli Cell Count.....	72
3.2.6 Flow Cytometry Analysis.....	74
3.2.6 Male Reproductive Performance and Sexual Behavior	76
Chapter 4: Discussion	79
4.1 Polybrominated Diphenyl Ethers	81
4.2 Thyroid Hormone Effects	84
4.3 Enzyme Activity	85
4.4 Tissue Concentration.....	87
4.5 Neurobehavior Development	89
4.6 Male Reproductive System	92
4.7 Concluding Remarks.....	96
Chapter 5: Summary	98
Chapter 5: Zusammenfassung.....	102
References.....	107
Curriculum Vitae	126
Acknowledgments.....	128

ABBREVIATIONS

2,4-D -	2,3-dichlorophenoxyacetic acid
ADHD -	Attention deficit hyperactivity disorder
ADI -	Acceptable daily intake
AHH -	Aryl hydrocarbon hydroxylase
ANOVA -	Analysis of variance
ASE -	Accelerated solvent extraction
AVS -	Absolute volume of seminiferous tubule
BBP -	Butyl benzyl phthalate
BDE -	Brominated diphenyl ether
BFRs -	Brominated flame retardants
BW -	Body weight
CYP 1A -	Cytochrome P450, subfamily 1A
CYP 2B -	Cytochrome P450, subfamily 2B
CYP 4A3 -	Cytochrome P450, isoenzyme 4A3
CYP P450 -	Cytochrome P450
DBP -	Dibutyl phthalate
DCM -	Dichloromethane
DDT -	Dichlorodiphenyltrichloroethane
DE 71 -	Commercial mixture of tetra- penta- and hexa-BDE
DEHP -	Di(2-ethylhexyl) phthalate
DES -	Diethylstilbestrol
DINP -	Diisononyl phthalate
DMSO -	Dimethylsulphoxide
DNA -	Deoxyribonucleic acid
DSP -	Daily sperm production
EACs -	Endocrine active compounds
EDTA -	Ethylene diamine tetra acetate
EI-MS -	Electron impact ionization – mass spectrometry
ELISA -	Enzyme-linked immunosorbent assay
EPN -	<i>O</i> -ethyl <i>O</i> - <i>p</i> -nitrophenyl phenyl-phosphonothionate
EROD -	Ethoxyresorufin- <i>O</i> -deethylase

EU -	European Union
FCM -	Flow cytometry method
FSH -	Follicle stimulating hormone
FT3 -	Free triiodothyronine
FT4 -	Free thyroxine
GC -	Gas chromatography
GC/MS -	Gas chromatography/mass spectrometry
GD -	Gestation day
GmbH -	Gesellschaft mit beschränkter Haftung
GnRH -	Gonadotropin-releasing hormone
H4IIE -	Liver cell lines from rat
HBCDD -	Hexabromocyclododecane
HepG2 -	Liver cell lines from human
HPT -	Hypothalamo-pituitary-thyroid
LBI -	Light beam interruption
LD-50 -	Lethal dose necessary to kill 50%
LH -	Luteinizing hormone
LOAEL -	Lowest observed adverse effect level
µg -	Microgram
m ³ -	Cubic meter
mg -	Miligram
mL -	Milliliter
MDST -	Mean diameter of seminiferous tubule
MND -	Mean nucleolar diameter
MROD -	Methoxyresorufin- <i>O</i> -demethylase
MSN -	Mean Sertoli cell nucleolar number per tubule
Na ₂ SO ₄ -	Sodium sulfate
ng -	Nanogram
NOAEL -	No observed adverse effect level
OD -	Optical density
OECD -	Organisation for Economic Co-operation and Development
PBBs -	Polybrominated biphenyls
PBDE -	Polybrominated diphenyl ether
PBDE 47 -	2,2',4,4' – tetrabromodiphenyl ether

PBDE 99 -	2,2',4,4'5 – pentabromodiphenyl ether
PBDE 100 -	2,2',4,4'6 – pentabromodiphenyl ether
PBDE 153 -	2,2',4,4'5'5 – hexabromodiphenyl ether
PBDE 154 -	2,2',4,4'5, 6' – hexabromodiphenyl ether
PCBs -	Polychlorinated biphenyls
PCDD -	polychlorinated dibenzodioxin
PCDFs -	Polychlorinated dibenzofurans
pg -	Picogram
PND -	Postnatal day
PROD -	Pentoxeresorufin-O-despentylase
PTU -	6-n-propyl-2-thiouracil
RfD -	Reference dose
RTL-W1 -	Liver cell lines from rainbow trout
SD -	Standard deviation
SIM -	Single ion monitoring
SeT -	Seminiferous tubule
ST -	Section thickness
T3 -	Triiodothyronine
T4 -	Thyroxine
TCDD -	2,3,7,8-tetrachlorodibenzo-p-dioxin
TR -	Thyroid hormone
TSH -	Thyroid stimulating hormone
TT -	Testosterone
TTR -	Transthyretin
UDPGA -	Uridine diphosphoglucuronic acid
UDPGT -	Uridine diphosphoglucuronosyl transferase
VS -	Volume density
WHO -	World Health Organization

