Keynote Speech

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Studies on the effect of pesticides on reproductive and developmental toxicity and endocrine disrupting activity in rats

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Speaker Biographies：

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Abstract :

Based on guidance for the identification of endocrine disruptors in the context of Regulations (EU) No 528/2012 and (EC) No 1107/2009 with Level 2 to Level 5 and Office of Chemical Safety and Pollution Prevention (OCSPP) Series 890 - Endocrine Disruptor Screening Program Test Guidelines we carried out to investigate the effect of some pesticides on reproductive and developmental toxicity and endocrine disrupting activity in rats. These studies included Level 2- In vitro assays providing data about selected endocrine mechanism(s)/ pathways(s), Level 3- In vivo assays providing data about selected endocrine mechanism(s)/ pathway(s), Level 4- In vivo assays providing data on adverse effects on endocrine relevant endpoints and Level 5- In vivo assays providing more comprehensive data on adverse effects on endocrine relevant endpoints over more extensive parts of the life cycle of the organism. Due to the specificity of mode of action positive reaction of reproductive and developmental toxicity and endocrine disrupting activity was mainly in pesticide classification of benzimidazole, imidazole, triazole, pyrethroids, dicarboximides and aryloxyphenoxypropionate. So far most of studies of endocrine disrupting activity based on Level 2-5 and OCSPP Series 890 were focused on estrogen (E), androgen (A) and thyroid (T) receptor-related. Among these studies of Level 2 to Level 5 developmental neurotoxicity study is studied relative scare. We found out that one of benzimidazole pesticide might induce developmental neurotoxicity through androgen receptor in rats. The developmental neurotoxicity induced by one of benzimidazole seems to be more serious than that of chlorpyrifos, which was banned by USA with acetylcholinesterase inhibition. Based on connecting previous study and our finding we inferred estrogen and androgen receptor disrupting pesticides might induce developmental neurotoxicity in mammals. Facing to the endocrine disrupting pesticides we will take appropriate management with highly hazard pesticides (HHPs) to evaluate hazard identification and make risk reduction in Taiwan. More completely and efficiently study and management should be done in reproductive and developmental toxicity and endocrine disrupting activity in Taiwan.