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PCBS IN KOREAN ADIPOSE TISSUE AND THEIR ENDOCRINE DISRUPTING EFFECTS

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Polychlorinated biphenyls(PCBs) are members of the halogenated aromatic group of environmental pollutants. Because of their unique physical and chemical properties, notably their stability and widespread use, PCBs are sidely distributed and transported throughout the global environment. In fact, residues of PCBs have been identified in air, water, aquatic and marine sediments, and human tissue samples. Although the mechanism of the effects of these PCBs on estrogenic function are still not entirely understood, the toxicities of the PCBs have been studied intensively. Some PCBs exert dioxin-like activities mediated through the aryl hydrocarbon receptor and some congeners are hypothesized to possess endocrine disruptive potential and to induce CYP1A. We examined antiestrogenic potentials of some PCB congeners (PCB 52, 118, 138, 153, 180) which detected in Korea adipose tissue and their mixtures in vitro. As a result, PCB 118, 153 inhibited aromatase activities using tritiated water release assay in JEG-3 cell line. PCB 118, 138, 153 induced CYP1A activities using ethoxyresorufin o-deethylase bioassay in H4IIE cell line. And PCB 118, 138, 153, 180 showed antiestrogenic activities by E-Screen assay in MCF-BUS cell line. This study demonstrated that PCB congeners could have both estrogenic and antiestrogenic activities and affect estrogen biosynthesis depend on their structure.