

[P-70]**Immunotoxicity of Organophosphorous Pesticides,
Pirimiphos-Methyl and Methidathion on Mouse Spleen Cells
in Vitro**

Juno H. Eom, Jae-Hyun Park, Jung A Byun, Hye Young Cho, Jong-Kwon Lee,
Hye-Young Oh, and Hyung-Soo Kim*

Immunotoxicology Division, National Institute of Toxicological Research, KFDA, Seoul

In recent years, organophosphorous (OP) pesticides have largely replaced the use of organochlorine pesticides and have been widely used in agriculture because of their rapid breakdown in water and their low environmental persistence. Consumers are directly or indirectly exposed to organophosphorous pesticides through several food groups in which a significant amount of pesticide residues have been found. However, thus far there have been few reports on the immunotoxic effects resulting from inadvertent exposure to OPs. In the present study, spleen cells of Balb/c mice were used to determine the immunotoxic effects of OPs, methidathion and pirimiphos-methyl. Results showed that pirimiphos-methyl was cytotoxic to splenocytes at concentrations of more than 2 μ M but methidathion had little effect on viability of mouse splenocytes on the concentration range (0.5 ~ 50 μ M). Pirimiphos-methyl increased DNA fragmentation of splenocytes at cytotoxic concentrations. Pirimiphos-methyl depressed ConA-and LPS-proliferative responses, IL-2 production, CD28 expression in splenic T cells, and CD40L expression in splenic CD4 T cells. However methidathion had little effect on the same parameters. The results indicate that pirimiphos-methyl is more toxic than methidathion to immune cells even though pirimiphos-methyl has higher LD50 value.

Keyword : Immunotoxicity, Pesticide, Organophosphorous