

シンポジウム I - 6

動物実験での洗剤と殺虫剤の皮膚刺激と 化学的組織毒性の関係について

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Experiences of animal study on the relationship between skin irritation and systemic toxicity of chemicals: detergents and pesticides

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Abstract:

To analyse the influence of dermal toxicity, we designed the experiments based on view of three types of reactions: 1) Primary systemic toxicity through dermal routes. 2) Secondary systemic responses of local reactions of the skin. 3) The combination of both primary and secondary reactions.

In 24 week dermal application study of some detergents on rats, first peak of skin reaction appeared after a week and became weaker. These fluctuations repeated almost with the period of 2 weeks. These patterns did not differ, when the interval of application was made longer as for 2 days. No systemic reaction was noted by the routine method of toxicology except for local erythema during the application and activation of Kupffer's cell and enlargement of sinusoid of liver during the recovery period. After 24 weeks, slight increase in congestion in sinusoid of liver and increase in hyaline cylinder in tubulus, swelling of the epithels of tubulus and increase in interstitial cell infiltration were only the changes which were supposed to be the secondary reactions due to the continued and involved skin reactions which will be different from those of primary toxicity. From these data, topical application with every two day intervals for one week is recomendable to examine the local irritability. Systemic reactions after chronic dermal application will be analysed comparing the routine toxicity study through other routes.

Synergism which was observed in the combination of organophosphorus pesticides EPN and malathion through oral routes in mice, did not appear in dermal toxicity and toxicity in fish.

These two experiences suggest that systemic reactions after dermal application should be compared with those through other routes of administration.