

List of Figures

| | | |
|-----|--|-----|
| 1.1 | Inputs to the environment associated with industrial and domestic use patterns | 6 |
| 2.1 | Fates of chemicals in the environment | 13 |
| 2.2 | Reactions of aldrin, chlordene, and 2,2'-dichlorobiphenyl with O(³ P) | 21 |
| 2.3 | Typical 'acceptor' molecules and oxygenated products for reaction with ¹ O ₂ | 22 |
| 2.4 | Photoisomerization of aldrin and dieldrin | 23 |
| 2.5 | 2π → 2σ reaction | 24 |
| 2.6 | Hydrogen transfer reaction of methanoindenes | 24 |
| 2.7 | Photoreaction of 4,5,6,7,8,8-hexachloro-2,3,3a,4,7,7a-hexahydro-4,7-methano 1 <i>H</i> -indene-1,3-dicarboxylic acid | 25 |
| 2.8 | Photodechlorination reaction of chlorinated methanoindene | 26 |
| 2.9 | Isomers of chlordene | 26 |
| 3.1 | Metabolism of cyclodiene insecticides by <i>Aspergillus flavus</i> | 44 |
| 3.2 | Metabolites of dieldrin from microorganisms | 45 |
| 3.3 | Metabolites of isodrin in cabbage. | 46 |
| 3.4 | Metabolites of Lindane in insects. | 47 |
| 3.5 | Formulae of aldrin, dieldrin, and metabolites in mammals | 49 |
| 3.6 | Degradation pathways of aldrin in the plant-soil system | 51 |
| 3.7 | Conversion products of buturon in the plant-soil system | 52 |
| 3.8 | Excretion of radioactivity by rats during long-term feeding with 2,4,6,2',4'-pentachlorobiphenyl- ¹⁴ C, chloroalkylene-9- ¹⁴ C, and 2,2'-dichlorobiphenyl- ¹⁴ C | 62 |
| 4.1 | Pollutant transport model: mercury in an aquatic ecosystem | 81 |
| 4.2 | The dynamics of methylmercury production | 82 |
| 4.3 | Behaviour of mercury in an aquatic system | 84 |
| 5.1 | ICRP lung clearance model | 94 |
| 5.2 | Single uptake | 100 |
| 5.3 | Chronic uptake | 101 |
| 5.4 | Declining uptake resulting from initial contamination of the lungs or a wound | 101 |
| 5.5 | Several uptakes in a limited period | 101 |
| 6.1 | Example of relation between threshold distribution and dose-response curve | 121 |
| 6.2 | Estimated dose-response curve with 95% confidence limits (rotenone toxicity example) | 131 |

| | | |
|------|--|-----|
| 6.3 | Comparison of true dose—response curve having spontaneous occurrence with estimated curve assuming no spontaneous occurrence | 135 |
| 6.4 | Comparison of estimated and observed proportions of animals with skin tumours at four dose levels | 139 |
| 8.1 | A three-compartment model for the distribution of a pollutant within a vertebrate | 170 |
| 8.2 | Decrease in the concentration of dieldrin in rats' blood during the first 71 days after exposure | 172 |
| 8.3 | Increase in the concentration of dieldrin in sheeps' blood while ingesting 2 mg dieldrin/kg body weight/day | 173 |
| 8.4 | Linear regression for the steady-state concentration of <i>p,p'</i> -DDT in eggs of white leghorn hens on the concentration of <i>p,p'</i> -DDT in the diet | 174 |
| 8.5 | Changes in the concentration of dieldrin in sheeps' blood while ingesting 0.5 mg dieldrin/kg body weight/day | 175 |
| 8.6 | Changes from 1901—1969 of the eggshell index for the peregrine falcon in Great Britain | 182 |
| 8.7 | Relationship between mean clutch shell thickness and DDE residue of kestrel eggs collected in Ithaca, New York, during 1970 and same relationship experimentally induced with dietary DDE | 183 |
| 9.1 | Example of probit analysis applied to sublethal studies of avoidance behaviour in trout | 190 |
| 9.2 | Illustration of a sublethal toxicity curve derived by plotting EC_{50} values against the period of exposure | 191 |
| 9.3 | Relationship between per cent depression of olfactory response and the ambient concentration of discrete solutions of mercury and copper at 4 hours exposure | 197 |
| 9.4 | Toxicity curve showing the time to occurrence of hepatomas as a function of dose in rats administered <i>p</i> -dimethylaminoazobenzene | 203 |
| 9.5 | Phases of interactions between chemical constituents of pollutant mixtures | 205 |
| 9.6 | Linear regressions for discrete solutions and for mixtures of copper and nickel | 209 |
| 9.7 | Possible types of responses which can occur between two hypothetical toxicants, A and B, which have similar actions | 209 |
| 9.8 | Isobols for a mixture consisting of a pollutant A, an active toxicant if applied singly, and a pollutant B, a non-toxicant but which antagonizes or synergizes the response to pollutant A | 211 |
| 11.1 | The DDT concentrations in filtered pond water and in some plants as a function of time after labelling the pond | 246 |
| 11.2 | Interactions among PCBs, DDT, and DDE in <i>Thalassiosira pseudonana</i> | 248 |
| 11.3 | Response of <i>Skeletonema costatum</i> to various concentrations of pulp-mill effluent and to filtered sea-water controls | 250 |
| 14.1 | Schematic dose—response curve for frost damage to tobacco or oranges | 297 |
| 14.2 | Douglas Point generating station, Lake Huron | 306 |

| | | |
|------|--|-----|
| 15.1 | Diatom population in a stream not adversely affected by pollution (Ridley Creek, Pennsylvania, U.S.A., November 1951) | 320 |
| 15.2 | Diatom population in a polluted stream (Lititz Creek, Pennsylvania, November 1951) | 321 |

