

Index

- Aeromonas hydrophila*, meat irradiation sensitivity, 24, 38
- Alcaligines*, radiation/temperature sensitivity, 10
- Allolobophora chlorotica*, dimethoate effects, 95
- Analytical methods, cadmium, 70, 72
- Anisakis* spp., irradiation control in seafood, 40
- Aspergillus* spp., irradiation control of spices, 19
- Aspergillus terreus*, radiation sensitivity in food, 8
- Atrazine, no-observed-effect concentrations in soil fauna, 107
- Atrazine, risk assessment in soil fauna, 91
- Atrazine, soil fauna field recovery, 117, 121
- Bacillus cereus*, meat irradiation sensitivity, 24
- Bacon, first approved irradiated food, 3
- Bacteria, D-Values food irradiation, 7
- Bacteria radiation sensitivity, factors affecting, 8
- Bacterial response, food irradiation, 6
- BAL (dimercaptopropanol), cadmium chelation therapy, 68
- Benomyl, no-observed-effect concentrations in soil fauna, 104
- Benomyl, risk assessment in soil fauna, 91, 104
- Benomyl, soil fauna field recovery, 116, 121
- Bioaccumulation, cadmium, 57
- Bootleg spirits, cadmium content, 66
- Cadmium, analytical methods, 70, 72
- Cadmium, bioavailability vs chemical species, 65
- Cadmium, biological half-life, 63
- Cadmium, chelation therapy humans, 68
- Cadmium, cigarette smoking intake and, 68
- Cadmium, entry into the human food chain, 66
- Cadmium, environmental indicators of, 65
- Cadmium, environmental monitoring of, 65
- Cadmium, environmental persistence of, 63
- Cadmium, farmland soil levels worldwide of, 60
- Cadmium, farmlands contamination by, 55 ff.
- Cadmium, high accumulating crops, 62
- Cadmium, human dietary exposure of, 67
- Cadmium, human food/beverage levels of, 66
- Cadmium, human toxicity/symptoms of, 68
- Cadmium, industrial environmental sources of, 58
- Cadmium, industrial uses of, 56
- Cadmium, inhalation toxicity of, 67
- Cadmium, interactions with other dietary components, 67
- Cadmium, irrigation water contamination by, 55 ff.
- Cadmium, levels in vegetable crops, 64
- Cadmium, mutagenic effects, 68
- Cadmium, myelin degeneration, 68
- Cadmium, natural environmental sources of, 57
- Cadmium, natural soil levels of, 57
- Cadmium, natural surface water levels of, 59
- Cadmium, plant absorption from soils, 58
- Cadmium, plant levels vs soil pH, 62
- Cadmium, potable water and, 61
- Cadmium, reduced acetylcholine levels, 68
- Cadmium, removal from wastewaters, 60
- Cadmium, sewage sludge/fertilizer regulations of, 69
- Cadmium, sewage sludge levels of, 60

- Cadmium, synergistic effect on other elements plants, 62
- Cadmium, teratogenic effects of, 68
- Cadmium, uncontaminated environmental levels, 56
- Cadmium, vegetable crop contamination by, 55 ff.
- Cadmium, water contamination irrigation and, 55 ff.
- Cadmium, zinc ore relationship to, 59
- Campylobacter*, leading cause of diarrhea in the world, 24
- Campylobacter jejuni*, meat irradiation sensitivity, 24, 34
- Carbamate insecticides, toxicity soil arthropods, 123
- Carbaryl, no-observed-effect concentrations in soil fauna, 103
- Carbaryl, risk assessment in soil fauna, 91, 102
- Carbaryl, soil fauna field recovery, 116, 121
- Carbofuran, no-observed-effect concentrations in soil fauna, 101
- Carbofuran, risk assessment in soil fauna, 91, 100
- Carbofuran, soil fauna field recovery, 114, 120
- Chlorpyrifos, no-observed-effect concentrations in soil fauna, 100
- Chlorpyrifos, risk assessment in soil fauna, 91, 99
- Chlorpyrifos, soil fauna field recovery, 114, 120
- Chromosome volume, radiosensitivity correlation to, 5
- Cigarette smoking, cadmium intake and, 68
- Clostridium botulinum*, D-Values food irradiation and, 7, 24
- Clostridium botulinum*, meat irradiation sensitivity and, 24, 38
- Clostridium perfringens*, meat irradiation sensitivity and, 24
- ⁶⁰Co, food irradiation preservation and, 2
- Coal, cadmium levels in, 58
- Cobalt-60, food irradiation preservation, 2
- Codex Alimentarius, General Standard for Irradiated Foods, 3
- Collembola, dimethoate effects of, 95
- Collembola, sensitivity to insecticides, 123
- Crayfish (*Procambarus clarkii*), cadmium indicator of, 65
- D-Value (D₁₀), bacteria food irradiation defined, 6
- D₁₀ (D-Value), bacteria food irradiation defined, 6
- D₁₀ Values, red meat pathogens, 24
- Dairy products, low temperature benefits of irradiation, 21
- Dairy products, irradiation preservation of, 21
- Diarrhea, *Campylobacter* leading world cause of, 24
- Dimethoate, no-observed-effect concentrations in soil fauna, 96
- Dimethoate, risk assessment in soil fauna, 91, 95, 96
- Dimethoate, soil fauna field recovery, 112, 120
- DTPA (diethylenetriaminepentaacetic acid), cadmium chelation therapy, 68
- Earthworms, carbofuran effects, 101
- Earthworms, chlorpyrifos effects, 100
- Earthworms, dimethoate effects, 95
- Earthworms, parathion-ethyl effects, 98
- Earthworms, sensitivity to organophosphate insecticides, 123
- Ecotoxicological recovery time, pesticides in soil fauna, 89
- Ecotoxicological risk assessment of pesticides in soil fauna, 83 ff.
- EDTA (ethylenediaminetetraacetic acid), cadmium chelation therapy, 68
- Eisenia fetida*, lindane effects, 94
- Electron accelerator, grain irradiation, 16
- Environmental cadmium, uncontaminated levels of, 56
- Escherichia coli* 0157:H7, meat patty radiation sensitivity to, 24

- Escherichia coli*, D-Values food irradiation of, 7, 24
- Escherichia coli*, radiation/temperature sensitivity of, 10
- Fentin, no-observed-effect concentrations in soil fauna, 108
- Fentin, risk assessment in soil fauna, 91
- Folsomia candida*, lindane effects, 94
- Food additive, irradiation classified as, 3
- Food irradiation, bacterial response to, 6
- Food irradiation, cell concentration effects of, 10
- Food irradiation, costs of, 14
- Food irradiation, dairy products and, 21
- Food irradiation, dose application effects of, 11
- Food irradiation, dose rate effects of, 10
- Food irradiation, doses cause fruit damage vs rot inhibition, 13
- Food irradiation, fruits and vegetables, 12
- Food irradiation, grains, 15
- Food irradiation, oxygen atmosphere effects of, 9
- Food irradiation, pH effects of, 9
- Food irradiation, poultry meat and, 32
- Food irradiation, red meats and, 22
- Food irradiation, seafood preservation and, 35
- Food irradiation, shelf-life extension and, 14
- Food irradiation, spices and, 18
- Food irradiation, temperature effects of, 9
- Food preservation, ionizing radiation and, 1 ff.
- Food safety, irradiation health risks and, 3
- Food spoilage microorganisms, irradiation control and, 19
- Foodborne pathogens in red meat, D₁₀ irradiation values and, 24
- Fruit irradiation, ripening inhibition and, 14
- Fruit irradiation, senescence delay and, 2
- Fruit, maximum tolerable preservation irradiation of, 13
- Fruit, ripening inhibition irradiation and, 14
- Fruit storage rots, irradiation dose required for control of, 13
- Fruits/vegetables, irradiation preservation of, 12
- General Standard for Irradiated Foods, Codex Alimentarius, 3
- Grains, using irradiation for insect control in, 15
- Grains, irradiation nutrient stability and, 17
- Grains, using irradiation for the preservation of, 15
- Grains, using irradiation for rancidity reduction of, 18
- Gram-negative bacteria, radiation sensitivity of, 35
- Gram-positive bacteria, radiation sensitivity of, 35
- Gray (gy), unit of absorbed radiation, 2
- Gy (gray), unit of absorbed radiation, 2
- Hamburger patties, irradiation shelf-life extension of, 26
- Herbicides, direct effects to soil fauna of, 108
- H₂O₂ (hydrogen peroxide) production, food irradiation and, 4
- Human diets, cadmium intake and, 67
- Hydrogen peroxide, formed during food irradiation, 4
- Hydroperoxyl radical, formed during food irradiation, 5
- Hydroxyl radical, formed during food irradiation, 5
- Inhalation toxicity of cadmium, 67
- Insect disinfestation, irradiated wheat and, 3
- Insect resistance, irradiation and, 16
- Ionizing radiation, biological effects on food of, 5
- Ionizing radiation, food preservation by, 1 ff.
- Ionizing radiation, food preservation sources and, 2

- Ionizing radiation, insect resistance to, 16
 Ionizing radiation, military field rations and, 3
 Irradiated Foods, Codex Alimentarius General Standard for, 3
 Irradiation, classified as food additive, 3
 Irradiation, dairy products low temperature benefits from, 21
 Irradiation, enhanced insect control with oxygen deficiency and, 17
 Irradiation, grain nutrient stability and, 17
 Irradiation, grain rancidity reduction by, 18
 Irradiation, insect resistance to, 16
 Irradiation, ionizing food preservation and, 1 ff.
 Irradiation, meat packaging atmospheres and, 31
 Irradiation, nitrite red meat pathogen control and, 27
 Irradiation, red meat quality and, 27
 Irradiation, starch breakdown to sugars and, 15
 Irradiation, temperature effects of insect control using, 16
 Irrigation water, cadmium contamination of, 55 ff.
 Isopods, relative tolerance to benomyl, 123

 Lindane, no-observed-effect concentrations in soil fauna, 94
 Lindane, risk assessment in soil fauna, 91
 Lindane, soil fauna field recovery, 111, 120
 Lindane, soil organism effects and, 94
 Lipid oxidation, irradiated meat and, 27
Listeria monocytogenes, D-Values food irradiation, 7, 24
Lumbricus terrestris, lindane effects, 94

 Meat quality, packaging atmospheres and, 31
 Methomyl, no-observed-effect concentrations in soil fauna, 104
 Methomyl, risk assessment in soil fauna, 91, 103

Micrococcus radiodurans, radiation/temperature sensitivity, 10
 Microorganisms, D-Values food irradiation and, 7
Moraxella spp., radiation sensitivity in food, 8
 Mussel (*Mytilus edulis*), cadmium indicator, 65
 Mutagenic effects, cadmium, 68
Mytilus edulis (mussel), cadmium indicator, 65

 Nitrite, irradiation red meat pathogen control, 27
 No-observed-effect concentrations, pesticides in soil fauna, 83 ff.
 Nontarget organisms, pesticides in soil fauna, 83 ff.

 Off-flavors, irradiated dairy products and, 21
 Organophosphate insecticides, toxicity soil arthropods, 123

 Parathion-ethyl, no-observed-effect concentrations in soil fauna, 96
 Parathion-ethyl, risk assessment in soil fauna, 91, 97, 99
 Parathion-ethyl, soil fauna field recovery, 113, 120
 Pesticide effects, soil fauna recovery from, 83 ff.
 Pesticide risk assessment, soil fauna test designs, 85
 Pesticides, estimated ecotoxicologic recovery time of soil fauna, 109
 Pesticides, no-observed-effect concentrations in soil fauna, 83 ff.
 Pesticides, predicted environmental concentrations of, 83
 Pesticides, predicted no-effect concentrations in soil fauna, 83
 Pesticides, ranking of effects on soil fauna, 110
 Pesticides, risk assessment ecotoxicologic recovery time, 108

- Pesticides, soil fauna predicted vs observed recovery, 118
- Pesticides, sublethal effects on soil fauna, 83 ff.
- Plesiomonas shigelloides*, D-Values food irradiation, 7
- Pork, *Trichinella* irradiation control of, 25
- Poultry meat, irradiation preservation of, 32
- Procambarus clarkii* (crayfish), cadmium indicator, 65
- Pseudomonas*, radiation/temperature sensitivity, 10
- RAD** (radiation absorbed dose), defined, 2
- Radappetization (food irradiation), defined, 4
- Radiation absorbed dose (RAD), defined, 2
- Radiation chemistry in food irradiation, 4
- Radiation, ionizing food preservation, 1 ff.
- Radicidation (food irradiation), defined, 4
- Radiobiology, in food irradiation, 4
- Radiosensitivity, chromosome volume correlation, 5
- Radurization (food irradiation), defined, 4
- Rancidity reduction in grains using, 18
- Rancidity, irradiated meat packaging, 31
- Red meat, irradiated, quality of, 27
- Red meat pathogens, D_{10} irradiation values and, 24
- Red meat quality, packaging atmospheres and, 31
- Ripening inhibition, fruit irradiation and, 14
- Risk assessment, pesticide effects on soil fauna, 83 ff.
- Salmonella*, spices irradiation control of, 19
- Salmonella* spp., poultry meat irradiation control, 32
- Salmonella typhimurium*, meat irradiation sensitivity, 27, 38
- Seafood, irradiation pathogen control in, 37
- Seafood, irradiation preservation of, 35
- Seafood, shelf-life extension from using irradiation, 36
- Senescence delay, fresh fruit irradiation and, 2
- Sensory panel, irradiated food quality and, 28
- Serratia marcescens*, radiation sensitivity food, 11
- Shelf-life extension, food irradiation and, 2, 14
- Shelf-life extension, meat irradiation and, 26
- Shelf-life extension, seafood irradiation and, 36
- Smoking, cadmium intake through cigarettes, 68
- Soil arthropods, general sensitivity to insecticides, 123
- Soil fauna, field recovery from pesticide application, 111
- Soil fauna, pesticide risk assessment of, 83 ff.
- Soil fauna, pesticides predicted vs observed recovery, 118
- Spices, irradiation bacterial/mold counts in, 20, 21
- Spices, irradiation plastic pouches, 19
- Spices, irradiation preservation of, 18
- Sprout inhibition, vegetable irradiation and, 14
- Staphylococcus aureus*, D-Values food irradiation and, 7, 27, 39
- Starch, irradiation breakdown of sugars to, 15
- Streptococcus faecalis*, seafood irradiation control and, 39
- Streptococcus faecium*, radiation/temperature sensitivity, 10
- Streptococcus*, radiation/temperature sensitivity, 10
- Sublethal effects of pesticides in soil fauna, 83 ff.
- Survival curves, bacteria food irradiation and, 6

- Taste panel, irradiated food quality and, 28
- Teratogenic effects, cadmium and, 68
- Test methods, pesticide risk assessment of soil fauna, 85
- Thiobarbituric acid, irradiated meat and, 27
- Triangle test, irradiated food quality and, 28
- Trichinella spiralis*, irradiation destruction of, 2
- Trichinella spiralis*, pork meat irradiation control of, 22, 25
- Trichinosis, pork meat irradiation control of, 22, 25
- Triphenyltin, no-observed-effect concentrations in soil fauna, 108
- Triphenyltin, risk assessment in soil fauna, 91
- Vegetable crops, cadmium contamination of, 55 ff., 62
- Vegetable crops, cadmium levels in, 64
- Vegetables, cadmium levels vs soil pH, 62
- Vegetables/fruits, irradiation preservation of, 12
- Vegetables, high cadmium affinity of, 62
- Vegetables, sprouting inhibition caused by irradiation, 14
- Vibrio cholera*, irradiation sensitivity in seafood to, 37
- Vibrio parahaemolyticus*, irradiation sensitivity in seafood to, 38
- Vibrio vulnificus*, irradiation sensitivity in seafood, 38
- Wheat, insect disinfestation irradiation, 3
- Wine, cadmium content of, 66
- Yersinia enterocolitica*, red meat irradiation control, 22