

### 10. Literatur

- Adams, D.D. (1994) Sediment pore water sampling. In: Mudroch, A., MacKnight, S.D. (Hrsg.) handbook of techniques for aquatic sediments sampling, 2. Auflage, Kapitel 7, Lewis Publishers, Boca Raton, pp. 171-202.
- Adams, W.J., Kimerle, R.A., Barnett, Jr. J.W. (1992) Sediment quality and aquatic life assessment. *Environmental Science & Technology* 26 (10): 1864-1875.
- Ahlf, W. (1995) Biotests an Sedimenten. In: Steinberg, C., Bernhardt, H., Klappner, H. (Hrsg.), *Handbuch Angewandte Limnologie - Teil Aquatische Ökotoxikologie*, 1. Auflage, Vol. 1. Kapitel V-3.6.1, Ecomed, Landsberg, pp.1-43.
- Ahlf, W., Dahn, M., Förstner, U., Wild - Metzko, S. (1991) Biologisches Bewertungskonzept für Sedimente. *Vom Wasser* 76: 215-223.
- Ahne, W. (1985) Untersuchungen über die Verwendung von Fischzellkulturen für Toxizitätsbestimmungen zur Einschränkung und Ersatz des Fischtests. *Zbl. Bakt. Hyg. 1 Abt. Orig. B* 180: 480-504.
- Ahne, W., Halder, M. (1991) Die R1-Fischzellkultur zur Ermittlung der Abwassertoxizität. *Münchner Beiträge zur Abwasser-, Fischerei- und Flußbiologie* 45: 144-158.
- Al Sabti, K. (1989) Allium test for air and water borne pollution control. *Cytobios.* 58: 71-78.
- Al Sabti, K., Kurelec, B. (1985) Chromosomal aberrations in onion (*Allium cepa*) induced by water chlorination by products. *Bull. Environ. Contam. Toxicol.* 34: 80-88.
- Ali, F.N., Lazar, R., Haffner, G.D., Adeli, K. (1993) Development of a rapid and simple genotoxicity assay using a brown bullhead fish cell-line: Application to toxicological surveys of sediments in the Huron-Erie Corridor. *J. Gt. Lakes Res.* 19: 342-351.
- Amer, W.H., El Yazigi, A., Hannan, M.A., Mohamed, M.E. (1990) Water contamination and esophageal cancer at Gassim Region. *Gastroenterology* 98: 1141-1147.
- Ames, B.N., Durston, D.E., Yamasaki, E., Lee, F.D. (1973) Carcinogens are mutagens: A simple test system combining liver homogenates for activation and bacteria for detection. *Proc. Natl. Acad. Sci. USA*, 70: 2281-2285.
- Ankley, G.T., Schubauer-Berigan, M.K., Hoke, R.A. (1992) Use of toxicity identification evaluation techniques to identify dredged material disposal options a proposed approach. *Environ. Managem.* 16: 1-6.
- Arias, I.M., Popper, H., Schachter, D., Schafritz, D.A. (1988) Bioindikatoren - Möglichkeiten, Grenzen und neue Erkenntnisse. Ulmer Verlag, Stuttgart.
- Arnold, H. (1995) Die Wirkung von Pestiziden auf Monitororgane und -zellen bei Fischen - Ein Vergleich von subletalen Effekten in Einzelstudien und im Kombinationsexperiment. Dissertation, Universität Heidelberg. pp.1-193.
- Arnold, H., Braunbeck, T. (1994) Disulfoton as a major toxicant in the Rhine chemical spill at Basle in 1986: acute and chronic studies with eel and rainbow trout. In: Müller, R., Lloyd, R. (Hrsg.) *Sublethal and chronic effects of pollutants on freshwater fish*. Fishing News Books, Blackwell Science Publ.: pp.75-87.
- Ashby, J., Tinwell, H., Lefevre, P.A., Browne, M.A. (1995) The single cell gel electrophoresis assay for induced DNA damage (comet assay): measurement of tail length and moment. *Mutagenesis*, 10: 85-90.

## 10. Literatur

---

- ATV-Landesgruppe, Baden-Württemberg (1994) Kläranlagen-Nachbarschaften. Hirthammer, F. Verlag.
- Babich, H., Borenfreund, E. (1987a) Fathead minnow FHM cells for use in *in vitro* cytotoxicity assays of aquatic pollutants. *Ecotox. Environ. Safety* 14: 78-87.
- Babich, H., Borenfreund, E. (1987b) *In vitro* cytotoxicity of organic pollutants to bluegill sunfish (BF-2) cells. *Environ. Res.* 42: 229-237.
- Babich, H., Borenfreund, E. (1988) Structure-activity relationships for diorganotins, chlorinated benzenes, and chlorinated anilines established with bluegill sunfish BF-2 cells. *Fund. Appl. Toxicol.* 10: 295-301.
- Babich, H., Borenfreund, E. (1990) *In vitro* cytotoxicities of inorganic lead and di- and trialkyl lead compounds to fish cells. *Bull. Environ. Contam. Toxicol.* 44: 456-460.
- Babich, H., Borenfreund, E. (1991) Cytotoxicity and genotoxicity assays with cultured fish cells: A review. *Toxic. In vitro* 5: 91-100.
- Babich, H., Borenfreund, E. (1992) Neutral red assay for toxicology *in vitro*. In: Watson, R.R. (Hrsg.), *In vitro* methods of toxicology, 1. Auflage, Kapitel 17, CRC - Press, Boca Raton, Florida, pp. 238-251.
- Babich, H., Goldstein, S.H., Borenfreund, E. (1990) *In vitro* cyto- and genotoxicity of organomercurials to cells in culture. *Tox. Letters* 50: 143-149.
- Babich, H., Puerner, J.A., Borenfreund, E. (1986a) *In vitro* cytotoxicity of metals to bluegill (BF-2) cells. *Arch. Environ. Contam. Toxicol.* 1: 363-372.
- Babich, H., Shopsis, C., Borenfreund, E. (1986b) *In vitro* cytotoxicity testing of aquatic pollutants (cadmium, copper, zinc, nickel) using established fish cell lines. *Ecotox. Environ. Safety* 11: 91-99.
- Baksi, S.M., Frazier, J.M. (1988) A fish hepatocyte model for the investigation of the effects of environmental contaminants. *Mar. Environ. Res.* 24: 141-145.
- Baksi, S.M., Frazier, J.M. (1990) Review. Isolated fish hepatocytes - model systems for toxicology research. *Aquat. Toxicol.* 16: 229-256.
- Barile, F.A. (1994) Introduction to *in vitro* cytotoxicity: mechanisms and methods, 1. Auflage, CRC Press, Boca Raton, Florida, pp. 1-213.
- Bartholomew, G.A. (1964) The roles of physiology and behavior in the maintenance of homeostasis in the desert environment. In : Symposia of the Society for Experimental Biology (Hrsg.), Homeostasis and feedback mechanisms, Vol. 18, Academic press, New York, pp. 7-21.
- Baudhuin, P., Beaufay, H., Rahman-Li, Y., Sellinger, O.Z., Wattlaux, R., Jacques, P., De Duve, C. (1964) Intracellular distribution of mono-aminooxidase, aspartate aminotransferase, alanine aminotransferase, D-amino acid oxidase and catalase in rat liver tissue. *Biochem. J.* 92: 179-184.
- Beaufay, H., Amar-Costesec, A., Feytmans, E., Thinés-Sempoux, D., Wibo, M., Robbi, M., Berthet, J. (1974) Analytic study of microsomes and isolated subcellular membranes from rat liver. *J. Cell. Biol.* 61: 188-200.
- Becker, H.G.O., Domschke, G., Fanghänel, E., Fischer, M., Gewalt, K., Mayer, R., Pavel, D., Schmidt, H., Schwetlick, K. (1988) Organikum; Organisch - chemisches Grundpraktikum, 17. Auflage, VEB Deutscher Verlag der Wissenschaften, Berlin, pp. 1-751.
- Benedeczky, I., Nemcsok, J., Halasy, K. (1986) Electron microscopic analysis of the cytopathological effect of pesticides in the liver, kidney and gill tissues of carp. *Acta Biol. Szeged.* 32: 69-91.
- Benford, D.F., Reavy, H.J., Hubbard, S.A. (1988) Metabolizing systems in cell culture cytotoxicity tests. *Xenobiotica*, 18 (6): 649-656.

## 10. Literatur

---

- Benson, W.H., Di Giulio, R.T. (1992) Biomarkers in hazard assessments of contaminated sediments. In: Burton, Jr. G.A. (Hrsg.): Sediment Toxicity Assessment. Lewis Publishers, Boca Raton, FL: pp. 241-265.
- Berry, M.N., Edwards, A.M., Barrit, G.J., Friend, D.S. (1991) Isolated hepatocytes - preparation, properties and application. In: Burdon, R.H., Knipfenberger, P.H.: Laboratory techniques in biochemistry and molecular biology. Vol. 21. Elsevier, Amsterdam, New York & Oxford, pp. 1-460.
- Berry, M.N., Friend, D.S. (1969) High-yield preparation of isolated rat liver parenchymal cells - a biochemical and fine structural study. *J. Cell Biol.* 43: 506-520.
- Betancourt, M., Ortiz, R., Gonzalez, C., Perez, P., Cortes, L., Rodriguez, L., Villasenor, L. (1995) Assessment of DNA damage in leucocytes from infected and malnourished children by single cell gel electrophoresis/comet assay. *Mutat. Res.* 331: 65-77.
- Betti, C. (1994) Microgel electrophoresis assay (comet test) and SCE analysis in human lymphocytes from 100 normal subjects. *Mut. Res.* 307: 323-333.
- Betti, C. (1995) Comparative studies by comet test and SCE analysis in human lymphocytes from 200 healthy subjects. *Mut. Res.* 343: 201-207.
- BFG Bfg. (1997) Handlungsanweisung für den Umgang mit Baggergut im Binnenland (HABAB-WSV). Bfg 1070: 1-27.
- Billings, R.E., McMahon, R.E., Ashnore, J., Wagle, S.R. (1977) The metabolism of drugs in isolated rat hepatocytes. A comparison with *in vivo* drug metabolism and drug metabolism in subcellular liver fractions. *Drug Metabolism and Disposition* 5 (6): 518-526.
- Binkovha, B. (1996) Biomarker studies in Northern Bohemia. *Environmental Health Perspectives* 104: 591-597.
- Birge, J.W., Black, J.A., Westerman, A.G. (1985) Short-term fish and amphibian embryo-larval tests for determining the effects of toxicant stress on early life stages and estimating chronic values for single compounds and complex effluents. *Environ. Toxicol. Chem.* 4: 807-821.
- Birge, W.J., Black, J.A., Hudson, J.E., Bruser, D.M. (1979) Embryo-larval toxicity tests with organic compounds. *Am. Soc. Test. Mater.* 131-147.
- Birnbaum, M.J., Schultz, J., Fain, J. (1976) Hormone-stimulated glycconeolysis in isolated goldfish hepatocytes. *American J. Physiol.* 31 (1): 191-197.
- Bissell, D.M., Guzelian, P.S. (1979) Ascorbic acid deficiency and cytochrome P-450 in adult rat hepatocytes in primary monolayer culture. *A Biochem. Biophys.* 192 (2): 569-576.
- Black, D.E., Phelps, D.K., Lapan, R.L. (1988) The effect of inherited contamination on egg and larval winter flounder, *Pseudopleuronectes americanus*. *Mar. Environ. Res.* 25: 45-62.
- Blair, J.B., Miller, M.R., Pack, D., Barnes, R., Teh, S.J., Hinton, D.E. (1990) Isolated trout liver cells: establishing short-term primary cultures exhibiting cell-to-cell interactions. *In Vitro Cell Dev Biol* 26: 237-249.
- Blaxter, J.H.S. (1969) Development: eggs and larvae. In: Fish physiology III, edited by Hoar, W.S., Randall, D.J., Academic Press, New York, pp. 177-252.
- Bols, N.C., Boliska, S.A., Dixon, D.G., Hodson, P.V., Kaiser, G.L.E. (1985) The use of fish cell cultures as an indication of contaminant toxicity to fish. *Aquat. Toxicol.* (6): 147-155.
- Borenfreund, E., Puerner, J.A. (1984) A simple quantitative procedure using monolayer cultures for cytotoxicity assays (HTD/NR90). *J. Tiss. Cult. Meth.* 9 (7): 7-9.
- Borenfreund, E., Shopsis, C. (1985) Toxicity monitored with a correlated set cell-culture assays. *Xenobiotica* 15 (8/9): 705-711.

## 10. Literatur

---

- Bowen, I.D. (1984) Laboratory techniques for demonstrating cell death. In Davies, I., Sigeo, D.C. (Hrsg.), Cambridge University Press. Cell ageing and cell death 5-40.
- Bradford, M.M. (1976) A rapid and sensitive method for the quantitation of microgram quantities of protein utilising the principle of protein-dye binding. *Anal. Biochem.* 72: 248-254.
- Braunbeck, T. (1989) Cytopathologische Veränderungen in der Fischleber durch Umweltchemikalien - Beiträge zur Ökotoxikologie. Dissertation an der Universität Heidelberg. pp. 1-329.
- Braunbeck, T. (1992) Isolated fish hepatocytes and permanent fish cell lines in cytotoxicity tests - an alternative to fish hepatocytes *in vivo*? In: Schöffl, H., Schulte-Hermann, R., Tritthart, H.A.: Möglichkeiten und Grenzen der Reduktion von Tierversuchen. Springer, Wien & New York.
- Braunbeck, T. (1993a) Cytological alterations in isolated hepatocytes from rainbow trout (*Oncorhynchus mykiss*) induced by 4-chloroaniline. *Aquat. Toxicol.* 25: 83-110.
- Braunbeck, T. (1993b) Entwicklung von Biotestverfahren mit Zellkulturen aus Fischen und Mollusken zum Nachweis letaler und subletaler Schäden von Organismen durch Umweltschadstoffe im Wasser. *Veröff. PAÖ 7*: 537-559.
- Braunbeck, T. (1994a) Entwicklung von Biotestverfahren mit Zellkulturen aus Fischen zum Nachweis letaler und subletaler Schäden von Organismen durch Umweltschadstoffe im Wasser. *Veröff. PAÖ 8*: 533-558.
- Braunbeck, T. (1994b). Detection of environmentally relevant concentrations of toxic organic compounds using histological and cytological parameters: substance-specificity in the reaction of rainbow trout liver ? *Fish. New Books, Blackwell Science Publ.* pp. 15-29.
- Braunbeck, T. (1995) Zelltests in der Ökotoxikologie - Cytotoxizitätstests mit Zellkulturen aus Fischen als Alternative und Ergänzung zu konventionellen Fischttests. In: Landesanstalt für Umweltschutz Baden Württemberg (Hrsg.), *Veröff. PAÖ 11*, Karlsruhe, pp. 1-204.
- Braunbeck, T., Berbner, T., Bieberstein, U., Erdinger, L., Geier, V., Hollert, H., Leist, E., Rahman, N., Zipperle, J. (1995) Toxikologische und Ökotoxikologische Untersuchung und Bewertung verschiedener Kompartimente in Fließgewässern mit Hilfe eines mehrstufigen Prüfsystems mit Zellkulturen aus Fischen. *Veröff. PAÖ 12*: 345-358.
- Braunbeck, T., Bresch, H., Storch, V. (1990a) Species-specific reaction of liver ultrastructure in zebrafish (*Brachydanio rerio*) and trout (*Oncorhynchus mykiss*) after prolonged exposure to 4-chloroaniline. *Arch. Environ. Contam. Toxicol.* 19: 405-418.
- Braunbeck, T., Burckhardt-Holm, P., Gorge, G., Nagel, R., Negele, R.D., Storch, V. (1992a) Regenbogenforelle und Zebraäbrbling, zwei Modelle für verlängerte Toxizitätstests: Relative Empfindlichkeit, Art- und Organspezifität in der cytopathologischen Reaktion von Leber und Darm auf Atrazin. *Schriftenr. Ver. Wasser-, Boden-, Lufthygiene* 89: 109-145.
- Braunbeck, T., Burckhardt-Holm, P., Storch, V. (1990b) Liver pathology in eels (*Anguilla anguilla*) from the Rhine river exposed to the chemical spill at Basle in November 1986. *Limnologie aktuell* 1: 371-392.
- Braunbeck, T., Konradt, J., Strmac, M. (1996) 1. Zwischenbericht zum BMBF - Verbundprojekt: Validierung und Einsatz biologischer, chemischer und mathematischer Tests und Biomarkerstudien zur Bewertung kleiner Fließgewässer mit Umweltchemikalien, 233-300.
- Braunbeck, T., Konradt, J., Strmac, M. (1997) 2. Zwischenbericht zum BMBF - Verbundprojekt: Validierung und Einsatz biologischer, chemischer und mathematischer Tests und Biomarkerstudien zur Bewertung kleiner Fließgewässer mit Umweltchemikalien, 375-455.

## 10. Literatur

---

- Braunbeck, T., Konradt, J., Strmac, M. (1998) 3. Zwischenbericht zum BMBF - Verbundprojekt: Validierung und Einsatz biologischer, chemischer und mathematischer Tests und Biomarkerstudien zur Bewertung kleiner Fließgewässer mit Umweltchemikalien, 129-150.
- Braunbeck, T., Segner, H. (1992) Preexposure temperature acclimation and diet as modifying factors for the tolerance of golden ide (*Leuciscus idus melanotus*) short-term exposure to 4-chloroaniline. *Ecotox. Environ. Safety* 24: 72-94.
- Braunbeck, T., Storch, V. (1990) Zelle und Umwelt. Wie wirken sich Umweltgifte auf Zellen aus ? *Biologie in unserer Zeit* 19: 127-132.
- Braunbeck, T., Storch, V. (1992) Ageing of hepatocytes isolated from rainbow trout (*Oncorhynchus mykiss*) in primary culture: cytological alterations. *Protoplasma* 170: 138-159.
- Braunbeck, T., Storch, V., Nagel, R. (1989) Sex-specific reaction of liver ultrastructure in zebrafish (*Brachydanio rerio*) after prolonged sublethal exposure to 4-nitrophenol. *Aquat. Toxicol.* 14: 185-202.
- Braunbeck, T., Storch, V., Nagel, R. (1989) Sex-specific reaction of liver ultrastructure in zebrafish (*Brachydanio rerio*) after prolonged sublethal exposure to 4-nitrophenol. *Aquat. Toxicol.* 14: 185-202.
- Braunbeck, T., Teh, S.J., Lester, S.M., Hinton, D.E. (1992b) Ultrastructural alterations in hepatocytes of medaka (*Oryzias latipes*) exposed to diethylnitrosamine. *Toxicol. Pathol.* 20: 179-196.
- Braunbeck, T., Völkl, A. (1991) Induction of biotransformation in the liver of eel (*Anguilla anguilla*) by sublethal exposure to dinitro-*o*-cresol: an ultrastructural and biochemical study. *Ecotox. Environ. Saf.* 21: 109-127.
- Braunbeck, T., Völkl, A. (1993) Toxicant-induced cytological alterations in fish liver as biomarkers of environmental pollution ? A case study on hepatocellular effects of dinitro-*o*-cresol in golden ide. In: Braunbeck, T., Hanke, W., Segner, H. (Hrsg.). *Fish in ecotoxicology and ecophysiology*. Verlag Chemie Weinheim: pp. 55-80.
- Bresch, H. (1991) Early life-stage test in zebrafish versus a growth test in rainbow trout to evaluate toxic effects. *Bull. Environ. Contam. Toxicol.* 46: 641-648.
- Brighenti, L., Puviani, A.C., Gavioli, M.E., Ottolenghi, C. (1987) Mechanisms involved in catecholamine effect on glycogenolysis in catfish isolated hepatocytes. *General and Comparative Endocrinology* 66: 306-313.
- Brunström, B., Broman, D., Dencker, L., Näf, C., Vejens, E., Zebühr, Y. (1992) Extracts from settling particulate matter collected in the Stockholm archipelago waters: Embryoethality, immunotoxicity, and EROD-inducing potency of fractions containing aliphatics/monoaromatics, diaromatics, or polyaromatics. *Environ. Toxicol. Chem.* 11: 1441-1449.
- Buege, J.A., Aust, S.D. (1978) Microsomal lipid peroxidation. *Methods of Enzymology* 52: 302-310.
- Bufflap, S.E., Allen, H.E. (1995) Comparison of pore water sampling techniques for trace metals. *Wat. Res.* 29 (9): 2051-2054.
- Bulychev, A., Trouet, A., Tulkens, P. (1978) Uptake and intracellular distribution of neutral red in cultured fibroblasts. *Exp. Cell. Res.* 115.
- Burton, G.A. (1991) Assessing the toxicity of freshwater sediments. *Environ. Toxicol. and Chemistry* 10: 1585-1627.
- Burton, G.A., MacPherson, C. (1995) Sediment toxicity testing issues and methods. In: Hoffman, D.J., Rattner, B.A., Burton, G.A., Cairns, J. (Hrsg.), *Handbook of Ecotoxicology*, 1. Auflage, Kapitel 5, Lewis-Publishers, pp. 70-103.

## 10. Literatur

---

- Burton, Jr. G.A., Nelson, M.K., Ingersoll, C.G. (1992) Freshwater benthic toxicity tests. In: Burton, Jr. G.A. (Hrsg.): Sediment Toxicity Assessment. Lewis Publishers, Boca Raton, FL: pp. 213-240.
- Bus, J.S., Gibson, J.E. (1979) Lipid peroxidation and its role in toxicology. In: Hodgson, Bend, Philpot (Hrsg.) Reviews in biochemical toxicology, Elsevier, North Holland. pp. 125-149.
- Cairns, M.A., Nebeker, A.V., Gakstatter, J.H., Griffis, W. (1984) Toxicity of copper-spiked sediments to freshwater invertebrates. Environmental Toxicology and Chemistry 3: 435-446.
- Calmano, W., Hong, J., Förstner, U. (1991) Einfluß von pH-Wert und Redoxpotential auf die Bindung und Mobilisierung von Schwermetallen in kontaminierten Sedimenten. Vom Wasser 78: 245-257.
- Campbell, M., Bitton, G., Koopman, B., Delfino, J.J. (1992) Preliminary comparison of sediment extraction procedures and exchange solvents for hydrophobic compounds based on inhibition of bioluminescence. Environ. Toxicol. Water Quality 7: 329-338.
- Castano, A., Vega, M., Balzquez, T., Tarazona, J.V. (1994) Biological alternatives to chemical identification for the ecotoxicological assessment of industrial effluents: The RTG-2 *in vitro* cytotoxicity test. Environ. Toxicol. And Chem. 13 (10): 1607-1611.
- Chapman, P.M. (1989) Current approaches to developing sediment quality criteria. Environmental Toxicology and Chemistry 8: 589-599.
- Chapman, P.M. (1991) Criteria. What type should we be developing ? Environmental Science & Technology 25 (8): 1353-1359.
- Chapman, P.M., Power, E.A., Burton, Jr. G.A. (1992) Integrative assessments in aquatic ecosystems. In: Burton, Jr. G.A. (Hrsg.): Sediment Toxicity Assessment. Lewis Publishers, Boca Raton, FL: 313-340.
- Chishti, M.A., Rotkiewicz, T. (1993) Hepatic and renal ultrastructural changes in cockerels exposed to cadmium chloride and subsequent interaction with organophosphate insecticide. J. Environ. Path., Tox. and Onc. 12 (1): 35-45.
- Christensen, G.M., McKim, J.M., Brungs, W.A., Hunt, E.P. (1972) Changes in the blood of the brown bullhead (*Ictalurus nebulosus* LeSueur) following short- and long-term exposure to copper (II). Toxicol. Appl. Pharmacol. 23: 417-427.
- Claxton, L.D., Houk, V.S., Hughes, T.J. (1998) Genotoxicity of industrial wastes and effluents, Mutat. Res. 410: 237-243.
- Clements, C., Ralph, S., Petras, M. (1997) Genotoxicity of selected herbicides in *Rana catesbeiana* tadpoles using the alkaline single-cell gel DNA electrophoresis (Comet) assay. Environmental and Molecular Mutagenesis 29: 277-288.
- Constan, A.A., Yang, R.S.H., Baker, D.C., Benjamin, S.A. (1995) A unique pattern of hepatocyte proliferation in F344 rats following long-term exposures to low levels of a chemical mixture of groundwater contaminants. Carcinogenesis Vol. 16 (2): 303-310.
- Craun, J.F. (1985) Epidemiologic studies of organic micropollutants in drinking water. Sci. Tot. Environ. 47: 461-472.
- Daniels, C.B., Means, J.C. (1989) Assessment of the genotoxicity of produced water discharges associated with oil and gas production using a fish embryo and larval test. Marine Environmental Research 28: 303-307.
- Das, R.K., Nanda, N.K. (1986) Induction of micronuclei in peripheral erythrocytes of fish *Heteropneustes fossilis* by mitomycin C and paper mill effluent. Mutat. Res. 175: 67-71.
- Dash, S., Panda, K.K., Panda, B.B. (1988) Biomonitoring of low levels of mercurial derivatives in water and soil by *Allium* micronucleus assay. Mutat. Res. 203: 11-21.

## 10. Literatur

---

- Dave, G., Xiu, R. (1991) Toxicity of mercury, copper, nickel, lead, and cobalt to embryos and larvae of zebrafish, *Brachydanio rerio*. Arch. Environ. Contam. Toxicol. 21: 126-134.
- De Marini, D.M., Plewa, M.J., Brockmann, H.E. (1982) Use of four short term tests to evaluate the mutagenicity of municipal water. J. Toxicol. Environ. Health 9: 127-140.
- De Méo, M., Laget, M., Castegnaro, M., Duménil, G. (1991) Genotoxic activity of potassium permanganate in acidic solutions. Mutation Res. 260: 295-306.
- Dekant, W., Vamvakas, S. (1994) Toxikologie 1. Auflage, Spektrum-Verlag, Heidelberg, pp. 1-432.
- Dierickx, P.J., van der Vyver, I.E. (1991) Correlation of the neutral red uptake inhibition assay of cultured fathead minnow fish cells with fish lethality test. Bull. Environ. Contam. Toxicol. 46: 649-653.
- DiToro, D.M., Zarba, C.S., Hansen, D.J., Berry, W.J., Swartz, R.C., Cowan, C.E., Pavlou, S.P., Allen, H.E., Thomas, N.A., Paquin, P.R. (1991) Technical basis for establishing sediment quality criteria for nonionic organic chemicals by using equilibrium partitioning. Environmental Toxicology and Chemistry 10 (12): 1541-1583.
- Dolara, P., Torricelli, F., Antonelli, N. (1994) Cytogenetic effects on human lymphocytes of a mixture of fifteen pesticides commonly used in Italy. Mut. Res. 325: 47-51.
- Dunn, B.P., Black, J.J., Maccubbin, A. (1987) <sup>32</sup>P-Postlabeling analysis of aromatic DNA adducts in fish from polluted areas. Cancer Res. 47: 6543-6548.
- Dutka, B.J., Kwan, K.K., Rao, S.S., Jurkovic, A., McInnis, R., Palmateer, G.A., Hawkins, B. (1990) Use of bioassays to evaluate Thames River water and sediment quality. Rivers Research Branch. National Water Research Institut. Canada Centre for Inland Waters. NWRI Contribution 90-71, RRB 90-34, Burlington, Ontario, Canada: pp. 1-31.
- Eaton, D.L., Klaassen, C.D. (1979) Effects of 2,3,7,8-Tetrachlordibenzo-*p*-dioxin, kepone and polybrominated biphenyls on transport systems in isolated rat hepatocytes. Toxicol. Appl. Pharmacol. 51: 137-144.
- Eckl, P.M. (1998) Short-term genotoxicity screening of water samples with primary cultures of rat hepatocytes-preliminary results. Ber. Nat. Med. Ver. Salzburg 9: 21-28.
- Eckl, P.M., Strom, S.C., Michaelopoulos, G., Jirtle, R.J. (1987) Induction of sister chromatid exchanges in cultured adult rat hepatocytes by directly and indirectly acting mutagens/carcinogens. Carcinogenesis 8: 1077-1083.
- Elangbam, C.S., Qualls, C.W., Confer, A.W. (1991) Evaluation of ultrastructural hepatic response to environmental toxicants in wild cotton rats (*Sigmodon hispidus*). Bull. Environ. Contam. Toxicol. 47: 321-328.
- Elangbam, C.S., Qualls, C.W., Confer, A.W. (1991) Evaluation of ultrastructural hepatic response to environmental toxicants in wild cotton rats (*Sigmodon hispidus*). Bull. Environ. Contam. Toxicol. 47: 321-328.
- Engwall, M., Broman, D., Ishaq, R., Näf, C., Zebühr, Y., Brunström, B. (1996) Toxic potencies of lipophilic extracts from sediments and settling particulate matter (SPM) collected in a PCB contaminated river system. Environ. Tox. Chem., 15 (2): 213-222.
- Engwall, M., Brunström, B., Brewer, A., Norrgren, L. (1994) Cytochrome p450IA induction by coplanar PCB, a PAH mixture, and PCB-contaminated sediment extracts following microinjection of rainbow trout sac-fry. Aquatic Toxicol. 30: 311-324.
- Ensenbach, U., Nagel, R. (1995) Toxicity of complex chemical mixtures: acute and long-term effects on different life stages of zebrafish (*Brachydanio rerio*). Ecotoxicol. Environ. Saf. 30: 151-157.

## 10. Literatur

---

- Ensenbach, U., Nagel, R. (1997) Toxicity of binary chemical mixtures: effects on reproduction of zebrafish (*Danio rerio*). Arch. Environ. Contam. Toxicol. 32: 204-210.
- Fairbairn, D.W., Olive, P.L., O'Neill, K.L. (1995) The comet assay: A comprehensive review. Mutat. Res. 339: 37-59.
- Farmer, P.B. (1996) Biomonitoring human exposure to environmental carcinogenic chemicals. Mutagenesis 11: 363-381.
- Fenech, M., Perepetskaya, G., Mikhalevich, L. (1997) A more comprehensive application of the micronucleus technique for biomonitoring of genetic damage rates in human populations - experiences from the Chernobyl catastrophe. Environ. Mol. Mutagen. 30: 112-118.
- Fent, K. (1992) Embryotoxic effects of tributyltin on the minnow *Phoxinus phoxinus*. Environ. Poll. 76: 187-194.
- Fent, K., Meier, W. (1992) Tributyltin-induced effects on early life stages of minnows *Phoxinus phoxinus*. Arch. Environ. Contam. Toxicol. 22: 428-438.
- Fent, K., Meier, W. (1994) Effects of triphenyltin on fish early life stages. Arch. Environ. Contam. Toxicol. 27: 224-231.
- Fleischer, M., Meiß, R., Robenek, H., Themann, H., Eckard, R. (1980) Ultrastructural morphometric investigations on rat liver of young and adult rats after treatment with technical pentachlorophenol (PCP). Arch. Toxicol. 44: 243-257.
- Fong, K., McCay, P.B., Poyer, J.L., Keele, B.B., Misra, H. (1973) Evidence that peroxidation of lysosomal membranes is initiated by hydroxyl free radicals produced during flavin enzyme activity. J. Biol. Chem. 248: 7792.
- Förstner, U. (1983) Assessment of metal pollution in rivers and estuaries. In: Applied Environmental Geochemistry. Academic Press, London, pp. 395-423.
- Förstner, U. (1990) Bewertung sedimentbezogener Maßnahmen in Ästuar- und Küstengewässern der Bundesrepublik Deutschland. Wasser und Boden 42: 508-512.
- Förstner, U., Ackermann, F., Alberti, J., Calmano, W., Frimmel, F.H., Kornatzki, K.H., Leschber, R., Roßknecht, H., Schleichert, U., Tent, L. (1987) Qualitätskriterien für Gewässersedimente. Allgemeine Problematik und internationaler Stand der Diskussion. Zeitschrift für Wasser- und Abwasser-Forschung 20: 54-59.
- Förstner, U., Calmano, W., Ahlf, W., Kersten, M. (1989) Ansätze zur Beurteilung der "Sedimentqualität" in Gewässern. Vom Wasser 73: 25-42.
- Frahne, D., Honnen, W., Schlegel, T., Rath, K., Hartmann, M., Blum, T. (1996) 1. Zwischenbericht zum BMBF - Verbundprojekt: Validierung und Einsatz biologischer, chemischer und mathematischer Tests und Biomarkerstudien zur Bewertung kleiner Fließgewässer mit Umweltchemikalien. pp. 113-184.
- Frank, M. (1960) Geologische Karte von Baden-Württemberg 1:25000, Erläuterung zu Blatt 7321 Neuhausen a. d. Fild. In: Landesvermessungsamt Baden-Württemberg, ed. Geologisches Landesamt.
- Frenkel, K. (1992) Carcinogen-mediated oxidant formation and oxidative DNA damage. Pharmacol. Ther. 53: 127-166.
- Friedmann, D.L., Claus, T.H., Pilkis, S.J., Pine, G.E. (1981) Hormonal regulation of DNA synthesis in primary cultures of adult rat hepatocytes. Exp. Cell Res. 135: 283-290.
- Froschauer, A. (1998) *In vivo*-Untersuchungen an *Danio rerio* zum Nachweis genotoxischer Effekte im Comet-Assay, Msc-Thesis, Zoology I, Ruprecht Karls Universität Heidelberg.
- Fry, J.R. (1982) Activation systems in tissue culture toxicity studies. Toxicology 25: 1-12.



## 10. Literatur

---

- Gagné, F., Blaise, C. (1995) Evaluation of genotoxicity of environmental contaminants in sediments to rainbow trout hepatocytes. *Environ. Toxicol. Water Qual.* 10: 217-229.
- Gagné, F., Marion, M., Denizeau, F. (1990) Metallothionein induction and metal homeostasis in rainbow trout hepatocytes exposed to mercury. *Toxicol. Letters* 51: 99-107.
- Gagné, F., Trottier, S., Blaise, C., Sproull, J., Ernst, B. (1995) Genotoxicity of sediment extracts obtained in the vicinity of a creosote-treated wharf to rainbow trout hepatocytes. *Toxicol. Letters* 78: 175-182.
- Ghadially, F.N. (1988) Ultrastructural pathology of the cell and matrix. Butterworth, London.
- Giesy, J.P., Hoke, R.A. (1990) Freshwater sediment quality criteria toxicity assessment. In: Baudo, R., Giesy, J., Muntau, H. (Hrsg.): *Sediments: Chemistry and Toxicity of In-Place Pollutants*. Lewis Publishers, Boca Raton, FL: pp. 265-348.
- Giesy, J.P., Rosiu, C.J., Graney, R.L., Henry, M.G. (1990) Benthic invertebrate bioassays with toxic sediment and pore water. *Environmental Toxicology and Chemistry* 9: 233-248.
- Gill, T.S., Tewari, H., Pande, J. (1992) Short- and long-term effects of copper on the rosy barb (*Puntius conchoni* Ham.). *Ecotox. Environ. Saf.* 23: 294-306.
- Gingerich, W.H. (1982) Hepatic toxicology in fish. In: Weber, L.J.: *Aquatic toxicology*. Raven Press, New York.
- Glück-Macholdt, C., Lieser, K.H. (1988) Untersuchungen der Sorption von Schwermetallen an Schwebstoffen des Rheins mit Hilfe der Mikroautoradiographie. *Vom Wasser* 70: 255-264.
- Görge, G., Nagel, R. (1990) Toxicity of lindane, atrazine, and deltamethrin to early life stages of zebrafish (*Brachydanio rerio*). *Ecotoxicol. Environ. Saf.* 20: 246-255.
- Green, M.H., Lowe, J.E., Harcourt, S.A., Akinluyi, P., Rowe, T., Cole, J., Anstey, A.V., Arlett, C.F. (1992) UV-C sensitivity of unstimulated and stimulated human lymphocytes from normal and Xeroderma pigmentosum donors in the comet assay: A potential diagnostic technique. *Mutation Res.* 273: 137-144.
- Griffith, J., Riggan, W.B. (1989) cancer mortality in U.S. counties with hazardous waste sites and ground water pollution. *Arch. Environ. Health* 44: 69-74.
- Guiney, P.D., Lech, J.J., Peterson, R.E. (1980) Distribution and elimination of a polychlorinated biphenyl during early life stages of rainbow trout (*Salmo gairdneri*). *Toxicol. Appl. Pharmacol.* 53: 521-529.
- Guiney, P.D., Smolowitz, R.M., Peterson, R.E., Stegeman, J.J. (1997) Correlation of 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin induction of cytochrome P 450 1A in vascular endothelium with toxicity in early life stages of lake trout. *Toxicol. and Appl. Pharmacol.* 143: 256-273.
- Gunkel, G. (1994) Erfassung der genotoxischen Wirkung. In: Gunkel, G. (Hrsg.), *Bioindikation in aquatischen Systemen - Bioindikation in limnischen und küstennahen Ökosystemen - Grundlagen, Verfahren und Methoden*, 1. Auflage, Kapitel 4.1, Gustav-Fischer-Verlag, Jena & Stuttgart, pp. 339-342.
- Gupta, R.S. (1984) Genetic markers for quantitative mutagenesis studies in Chinese hamster ovary cells: applications to mutagen screening studies. In: Kilbey, B.J. (Hrsg.): *Handbook of mutagenity test procedures*. Elsevier, pp. 291-320.
- Guzelian, P.S., Bissell, D., Meyer, U. (1977) Drug metabolism in adult rat hepatocytes in primary monolayer culture. *Gastroenterology* 72: 1232-1239.
- Habig, W.H., Pabst, M.J., Jakoby, W.B. (1974) Glutathione S-transferases - The first enzymatic step in mercapturic acid formation. *J. Biol. Chem.* 249 (22): 7130-7139.

## 10. Literatur

---

- Hacking, M.A., Budd, J., Hodson, K. (1978) The ultrastructure of the liver of rainbow trout: normal structure and modifications after chronic administration of polychlorinated biphenyl Aroclor 1254. *Can. J. Zool.* 56: 477-491.
- Halbreich, A., Mayer, J. (1969) Early effects of carbon tetrachloride on the synthesis of phospholipids in the rat liver and their possible pathogenic role in fatty liver. *Biochim. Biophys. Acta* 187: 584-587.
- Halder, M., Ahne, W. (1990) Evaluation of waste water toxicity with three cytotoxicity tests. *Z. Wasser Abwasser Forsch.* 23: 233-236.
- Harkey, G.A., Landrum, P.F., Klaine, S.J. (1994) Comparison of whole-sediment, elutriate and pore-water exposures for use in assessing sediment-associated organic contaminants in bioassays. *Environ. Toxicol. And Chemistry* 13 (8): 1315-1329.
- Harris, R.A., Cornell, N.W. (1983) Isolation, characterization and use of hepatocytes, Elsevier Biomedical, New York.
- Hartlein, M.W., DeMarini, D.M., Katz, A.J., Meaxs, J.C., Plewa, M.J., Brockmann, H.E. (1981) Mutagenicity of municipal water obtained from agricultural area. *Environ. Mutagen.* 3: 519-530.
- Hartmann, A., Fender, H., Speit, G. (1998) Comparative biomonitoring study of workers at a waste disposal site using cytogenetic tests and the comet (single-cell gel) assay, *Environ. Mol. Mutagen.* 32: 17-24.
- Hauck, C., Braunbeck, T. (1994) Bioaktivierung von Cyclophosphamid im Cytotoxizitätstest mit Fischzellen durch Supplementierung mit S9-Proteinfraktion aus Säugetieren und Fischen. *Verh. Deut. Zool. Gesell.* 87 (1): 326.
- Hellmann, H. (1996) Organische Spurenstoffe in Gewässerschwebstoffen. In: Steinberg, C., Bernhardt, H., Klappner, H. (Hrsg.), *Handbuch Angewandte Limnologie. Teil Aquatische Ökotoxikologie*, 1. Auflage, Vol. 1. Erg. Lfg. 5/96, Kapitel VII-3.1., Ecomed, Landsberg, pp. 1-46.
- Helma, C., Knasmüller, S., Schulte-Hermann, R. (1994a) Die Belastung von Wässern mit genotoxischen Substanzen. *Z. Umweltchem. Ökotox.* 6 (5): 277-288.
- Helma, C., Mersch-Sundermann, V., Houk, V.S., Glasbrenner, U., Klein, C., Wenqing, L., Kassie, F., Schulte-Hermann, R., Knasmüller, S. (1996) Comparative evaluation of four bacterial assays for the detection of genotoxic effects in the dissolved water phases of aqueous matrices. *Environ. Sci. Technol.* 30: 897-907.
- Helma, C., Sommer, R., Schulte-Hermann, R., Knasmüller, S. (1994b) Enhanced elastogenicity of contaminated groundwater following UV-irradiation detected by the *Tradescantia* micronucleus assay. *Mutat. Res.*, 323: 93-98.
- Hill, D.W., Hejtmancik, E., Camp, B.J. (1976) Induction of hepatic microsomal enzymes by Aroclor 1254 in *Ictalurus punctatus* (channel catfish). *Bull. Environ. Contam. Toxicol.* 16: 495-502.
- Hinton, D.E., Klauning, J.E., Lipsky, M.M. (1978) PCP-induced alterations in teleost liver: a model for environmental diseases in fish. *Mar. Fish Rev.* Rev: pp. 47-50.
- Hinton, D.E., Lantz, R.C., Hampton, J.A., Mc Kuskey, P.R., Mc Kuskey, R.S. (1987) Normal versus abnormal structure: considerations in morphologic responses of teleost to pollutants. *Environ. Health Perspect.* 71: 139-146.
- Hinton, D.E., Laurén, D.J. (1990) Liver structural alterations accompanying chronic toxicity in fishes: potential biomarkers of exposure. In: McCarty, J.F., Shugart, L.R.: *Biomarkers of environmental contamination*. Lewis Publ., Boca Raton. pp. 15-57.
- Ho, K.T.Y., Quinn, J.G. (1993) Physical and chemical parameters of sediment extraction and fractionation that influence toxicity as evaluated by Microtox. *Environ. Toxicol. Chem.* 12: 615-625.

## 10. Literatur

---

- Hollert, H. (1996) Toxikologische und ökotoxikologische Untersuchung und Bewertung verschiedener Kompartimente in Fließgewässern mit Hilfe von *In vitro*-Testsystemen. Diplomarbeit, Universität Heidelberg.
- Hollert, H., Braunbeck, T. (1997) Ökotoxikologie *in vitro* - Gefährdungspotential in Wasser, Sediment und Schwebstoffen. Hrsg. Landesanstalt für Umweltschutz Baden-Württemberg, Projekt "Projekt Ökologie" 21: 1-189.
- Hollert, H., Dürr, M., Dörr, I., Erdinger, L., Zipperle, J., Braunbeck, T. (1996) Toxikologische und ökotoxikologische Untersuchung und Bewertung der Kompartimente in Fließgewässern mit Hilfe von Zellkulturen aus Fischen. Veröff. PAÖ, 14.
- Hong, H.L., Yang, R.S.H., Boorman, G.A. (1992) Alterations in hematopoietic responses in B6C3F<sub>1</sub> mice caused by drinking a mixture of 25 groundwater contaminants. J. Environ. Pathol. Toxicol. Oncol. 11(2): 65-74.
- Honnen, W., Frahne, D., Rath, K., Schwinger A. (1999a) 2. Zwischenbericht zur Phase 2 des BMBF - Verbundprojektes: Validierung und Einsatz biologischer, chemischer und mathematischer Tests und Biomarkerstudien zur Bewertung kleiner Fließgewässer mit Umweltchemikalien. pp. 71-130.
- Honnen, W., Frahne, D., Schlegel, T., Rath, K., Hartmann, M., Schwinger, A., Blum, T. (1997) 2. Zwischenbericht zum BMBF - Verbundprojekt: Validierung und Einsatz biologischer, chemischer und mathematischer Tests und Biomarkerstudien zur Bewertung kleiner Fließgewässer mit Umweltchemikalien. pp. 123-290.
- Honnen, W., Frahne, D., Schlegel, T., Rath, K., Schwinger, A., Blum, T. (1998) 1. Zwischenbericht zur Phase 2 des BMBF - Verbundprojektes: Validierung und Einsatz biologischer, chemischer und mathematischer Tests und Biomarkerstudien zur Bewertung kleiner Fließgewässer mit Umweltchemikalien. pp. 47-95.
- Honnen, W., Rath, K., Schwinger, A., Tribskorn, R. (1999b) Chemical analyses in small streams: results of a four year monitoring (Valimar 1995 - 1998). Proceedings of the 9<sup>th</sup> Annual Meeting of SETAC-Europe, May 25-29, Leipzig, Germany.
- Houk, V.S. (1992) The genotoxicity of industrial wastes and effluents. Mutat. Res. 277: 91-138.
- Huggett, R.F., Kimerle, R.A., Mehrle, P.M., Bergman, H.L. (1992a) Biomarkers. Biochemical, physiological, and histological markers of anthropogenic stress. Lewis Publishers, Boca Raton, pp. 1-347.
- Huggett, R.J., van Veld, P.A., Smith, C.L., Jargin, Jr. W.J., Vogelbein, W.K., Weeks, B.A. (1992b) The effects of contaminated sediments in the Elizabeth River. In: Burton, G.A. Jr. (Hrsg.): Sediment Toxicity Assessment. Lewis Publishers, Boca Raton, FL, pp. 403-430.
- Hughes, J.B., Hebert, A.T. (1991) Erythrocyte micronuclei in winter flounder (*Pseudopleuronectes americanus*): results of field surveys during 1980-1988 from Virginia to Nova Scotia and in Long Island Sound. Arch. Environ. Contam. Toxicol. 20: 474-479.
- Hugla, J.L., Goffinet, G., Kremers, P., Dubois, M., Lambert, V., Stouvenakers, N., Thome, J.P. (1996) Ultrastructural modifications in cultured fetal quail hepatocytes exposed to pesticides and PCBs. Ecotox. and Environ. Safety 34: 145-155.
- ICES - International Council for the Exploration of the Sea (1992) Characteristics of sediments which influence contaminant exposure to marine organisms and methods for their Quantification. In: ICES: Report of the Study Group on the Biological Significance of Contaminants in Marine Sediments. Prepared by the ICES Study Group on Biological Significance of Contaminated Sediments. C.M. 1992/Poll: 7, Ref. L, Sess. V, July 24, ICES, Copenhagen: pp. 1-15.

## 10. Literatur

---

- Isomaa, B., Liius, H., Raberg, C. (1994) Aquatic toxicology *in vitro*: a brief review. *ATLA* 22: 243-253.
- Janssen, J., Lowrey, P. (1987) Hormonal regulation of hepatic glycogenolysis in the carp, *Cyprinus carpio*. *Am. J. Physiol.* 252: 653-660.
- Jensen, D. (1984) A quantitative test for mutagenicity in V79 Chinese hamster cells. In: Kilbey, B.J. (Hrsg.): Handbook of mutagenicity test procedures. Elsevier, pp. 269-290.
- Jones, K.H., Senft, J.A. (1985) An improved method to determine cell viability by simultaneous staining with fluorescein diacetate - ethidium bromide. *The Journal of Histochemistry and Cytochemistry* 33 (1): 77-79.
- Junqueira, V.B.C., Simizu, K., Videla, L.A., de Barros, S.B. (1986) Dose-dependent study of the effects of acute lindane administration on rat liver superoxide anion production, antioxidant enzyme activities and lipid peroxidation. *Toxicology* 41: 193-204.
- Karnovsky, M.J. (1971) Use of ferrocyanide-reduced osmium tetroxide in electron microscopy. *J. Cell Biol.* 51: 146A.
- Khengarot, B.S. (1992) Copper-Induced hepatic ultrastructural alterations in the snake-headed fish, *Channa punctatus*. *Ecotox. Environ. Saf.* 23: 282-293.
- Kim, T.W. (1991) The bullfrog (*Rana catesbeiana*) tadpole red blood cell micronucleus bioassay (TDPL-MCN) for clastogens. Dissertation, Western Illinois University.
- Klauning, J.E. (1984) Establishment of fish hepatocyte cultures for use *in vitro* carcinogenicity studies. *In vitro Animal Cell & Develop. Biol.* 21: 163-173.
- Klauning, J.E., Lipsky, M.M., Trump, B.F., Hinton, D.E. (1979) Biochemical and ultrastructural changes in teleost liver following subacute exposure to PCB. *Environ. Pathol. Toxicol.* 2: 953-963.
- Klauning, J.E., Ruch, R.J., Weghorst, C.M. (1990) Comparative effects of phenobarbital, DDT, and lindane on mouse hepatocyte gap junctional intercellular communication. *Toxicol. Appl. Pharmacol.* 102: 553-563.
- Klauning, J.E., Ruch, R.J., Goldblatt, P.J. (1985) Trout hepatocyte culture: Isolation and primary culture. *In vitro Cell & Develop. Biol.* 21 (4): 221-228.
- Klee, O. (1993) Wasser untersuchen - Einfache Analysemethoden und Beurteilungskriterien, 2. Auflage, Quelle und Meyer, Heidelberg, Wiesbaden, pp. 1-245.
- Kligerman, A.D., Bishop, W.E., Valentine, L.C. (1984) Use of the mudminnow *Umbra sp.* in an *in vivo* sister chromatid exchange test. *Natl. Cancer Inst. Monogr.* 65: 111-118.
- Kocan R.M., Landolt, M.L., Sabo, K.M. (1982) Anaphase aberrations: a measure of genotoxicity in mutagen-treated fish cells. *Environ. Mutagen.* 4: 181-189.
- Kocan, R.M., Landolt, M.L. (1984) Alterations in patterns of excretion and other metabolic functions in developing fish embryos exposed to benzo(a)pyrene. *Helgoländer Meeresunters.* 37: 493-504.
- Kocan, R.M., Landolt, M.L., Sabo, K.M. (1979) *In vitro* toxicity of eight mutagens/carcinogens for three fish cell lines. *Bull. Environ. Contam. Toxicol.* 23: 269-274.
- Kocan, R.M., Matta, M.B., Salazar, S.M. (1996) Toxicity of weathered coal tar for shortnose sturgeon (*Acipenser brevirostrum*) embryos and larvae. *Arch. Environ. Contam. Toxicol.* 31: 161-165.
- Kocan, R.M., Sabo, K.M., Landolt, M.L. (1985) Cytotoxicity / genotoxicity: the application of cell culture techniques to the measurement of marine sediment pollution. *Aquat. Toxicol.* 6: 165-177.
- Könemann, H. (1981) Fish toxicity tests with mixtures of more than two chemicals: a proposal for a quantitative approach and experimental results. *Toxicology* 19: 229-238.
- Kool, H.J., van Kreyl, C.F., van Kranen, H.J. (1981) The use of XAD-resins for the detection of mutagenic activity in water. II. Studies with surface water. *Chemosphere* 10: 85-98.

## 10. Literatur

---

- Kosz Vnenchak, M., Rokosz, K. (1997) The comet assay for detection of potential genotoxicity of polluted water, *Folia Biol. Krakow* 45: 153-156.
- Kothary, R.K., Burgess, E.A., Candido, E.P.M. (1984) The heat-shock phenomenon in cultured cells of rainbow trout hsp70 mRNA synthesis and turnover. *Biochim. Biophys. Acta* 783: 137-143.
- Kothary, R.K., Candido, E.P.M. (1982) Induction of a novel set of polypeptides by heat shock or sodium arsenite in cultured cells of rainbow trout, *Salmo gairdneri*. *Can. J. Biochem.* 60: 347-355.
- Krebs, F. (1992) Über die Notwendigkeit ökotoxikologischer Untersuchungen an Sedimenten. *Deutsche Gewässerkundliche Mitteilungen* 5/6: 165-169.
- Kuljukka, T., Vaaranrinta, R., Veidebaum, T., Sorsa, M., Peltonen, K. (1996) Exposure to PAH compounds among cokery workers in the oil shale industry. *Environ. Health Perspect. Suppl.* 104: 539-541.
- Kunze, J., Buhringer, H., Harms, U. (1978) Accumulation of cobalt during embryonic development of rainbow trout (*Salmo gairdneri* Rich.). *Aquaculture* 13: 61-66.
- Kwan, K.K., Dutka, B.J. (1990) Simple two-step sediment extraction procedure for use in genotoxicity and toxicity bioassays. *Tox. Assess.* 5: 395-404.
- La Point, T., Fairchild, J.F. (1992) Evaluation of sediment contaminant toxicity: the use of freshwater community structure. In: Burton, Jr. G.A. (Hrsg.): *Sediment Toxicity Assessment*. Lewis Publishers, Boca Raton, FL: pp. 87-110.
- Landolt, M.L., Kocan, R.M. (1984) Lethal and sublethal effects of marine sediment extracts on fish cells and chromosomes. *Helgoländer Meeresuntersuchungen* 37: 479-491.
- Lange, M., Gebauer, W., Markl, J., Nagel, R. (1995) Comparison of testing acute toxicity on embryo of zebrafish, *Danio rerio* and RTG-2 cytotoxicity as possible alternatives to the acute fish test. *Chemosphere* 30 (11): 2087-2102.
- Lee, G.F., Jones, R.A. (1992) *Sediment Quality Criteria Development: Technical Difficulties with Current Approaches and Suggested Alternatives*. Report of G. Fred Lee & Associates, El Macero, CA.
- Lester, S.M., Braunbeck, T., Teh, S.J., Stegemann, J.J., Miller, M.R., Hinton, D.E. (1993) Hepatic cellular distribution of cytochrom P-450 IA1 in rainbow trout (*Oncorhynchus mykiss*): An immunohisto- and -cytochemical study. *Cancer Res.* 53: 3700-3706.
- Lidmann, U., Forlin, L., Molander, O., Axelson, G. (1976) Induction of the drug metabolizing system in rainbow trout (*Salmo gairdneri*) liver by polychlorinated biphenyls (PCBs). *Acta Pharmacol. Toxicol.* 39, 262-272.
- Lipsky, M.M., Klauning, J.E., Hinton, D.E. (1978) Comparison of acute response to PCB in livers of rat and channel catfish. A biochemical and morphological study. *J. Toxicol. Environ. Health* 4: 107-121.
- Lipsky, M.M., Sheridan, T.R., Bennett, R.O., May, E.B. (1986) Comparison of trout hepatocyte culture on different substrates. *In vitro Cell & Develop. Biol.* 22 (6): 360-362.
- Liss, W., Ahlf, W. (1997) Evidence from whole-sediment, porewater, and elutriate testing in toxicity assessment of contaminated sediments. *Ecotoxicol. And Environ. Safety* 36: 140-147.
- Livingstone, D.R., Archibald, S., Chipman, J.K., Marsh, J.W. (1992) Antioxidant enzymes in the liver of the dab, *Limanda limanda*, from the North Sea. *Mar. Ecol. Prog. Ser.* 91: 97-104.
- Livingstone, D.R., Lemarie, P., Matthews, A., Peters, L., Bucke, D., Law, R.J. (1993) Pro-oxidant, antioxidant and 7-ethoxyresorufin o-deethylase (EROD) activity responses in liver of dab (*Limanda limanda*) exposed to sediment contaminated with hydrocarbons and other chemicals. *Mar. Pollut. Bull.* 26: 602-606.

## 10. Literatur

---

- Long, E.R., Chapman, P.M. (1985) A sediment quality triad: measures of sediment contamination, toxicity and infaunal community composition in Puget Sound. *Marine Pollution Bulletin* 16: 405-415.
- Long, E.R., Morgan, L.G. (1990) The potential for biological effects of sediment-sorbed contaminants tested in the National Status and Trends Program. National Oceanic and Atmospheric Administration, NOAA Technical Memorandum NOS OMA 52, Seattle, Washington: pp. 1-175.
- Luckenbach, T., Triebskorn, R., Müller, E., Oberemm, A. (1999) Untersuchungen zur Wirkung anthropogener Gewässerbelastungen auf die Entwicklung von Bachforellen (*Salmo trutta fario* L.). In *Ökotoxikologie – Ökosystemare Ansätze und Methoden*, Oehlmann – Markert (Hrsg.). Landsberg: ecomed, 1999. 39: 399-407.
- Mac, M.J., Schwartz, T.R. (1992) Investigations into the effects of PCB congeners on reproduction in lake trout from the Great Lakes. *Chemosphere* 25: 189-192.
- Maccubbin, A.E. (1994) Chapter 6: DNA Adduct Analysis in Fish: Laboratory and Field Studies. CRC Press Inc.
- MacLeod, Jr. W.D., Ramos, L.S., Friedman, A.J., Burrows, D.G., Prohaska, P.G., Fisher, D.L., Brown, D.W. (1981) Analyses of residual chlorinated hydrocarbons, aromatic hydrocarbons and related compounds in selected sources, sinks, and biota of New York Bight. NOAA Tech Memo OMPA-6.
- Malins, C., Krahn, M.M., Myers, M.S., Rhodes, L.D., Brown, D.W., Krone, C.A., McCain, B.B., Chan, S.L. (1985) Toxic chemicals in sediments and biota from a creosote-polluted harbor: relationships with hepatic neoplasms and other hepatic lesions in English sole (*Parophrys vetulus*), *Carcinogen* 6: 1463-1469.
- Marinovich, M., Ghilardi, F., Galli, C.L. (1996) Effect of pesticide mixtures on *in vitro* nervous cells: comparison with single pesticides. *Toxicology* 108: 201-206.
- Marion, M., Denizeau, F. (1983a) Rainbow trout and human cells in culture for the evaluation of the toxicity of aquatic pollutants: a study with cadmium. *Aquat. Toxicol.* 3: 329-343.
- Marion, M., Denizeau, F. (1983b) Rainbow trout and human cells in culture for the evaluation of the toxicity of aquatic pollutants: a study with lead. *Aquat. Toxicol.* 3: 47-60.
- Maron, D.M., Ames, B.M. (1984) Revised methods for the *Salmonella* mutagenicity test. In: Kilbey, B.J. (Hrsg.): *Handbook of mutagenity test procedures*. Elsevier, pp. 93-141.
- Maron, D.M., Ames, B.N. (1983) Revised methods for the *Salmonella* mutagenicity test. *Mut. Res.* 113: 173-215.
- Martell, F.L., Motekaitis, R.T., Smith, R.M. (1988) Structure-stability relationships of metal complexes and metal speciation in environmental aqueous solutions. *Environ. Toxicol. Chem.* 7: 417-434.
- Mather-Mihaich, E., Di Giulio, R.T. (1991) Oxidant, mixed-function oxidase and peroxisomal responses in channel catfish to a bleached kraft mill effluent. *Arch. Environ. Contam Toxicol.* 20: 391-397.
- Mattioli, F., Robbiano, L., Adamo, D., Federa, R., Martelli, A., Brambilla, G. (1996) Genotoxic effects of a  $\alpha$ -hexachlorocyclohexane in primary cultures of rodent and human hepatocytes. *Mutagenesis* 11 (1): 79-83.
- Mayer, D., Ahne, W., Storch, V. (1988) Cytotoxicity of chemicals to fibroblastic fish cell cultures (R1 cells) investigated by electron microscopy. *J. Appl. Zool.* 2: 147-157.
- McCarty, J.F., Shugart, L.R. (1990) *Biomarkers of environmental contamination*. Lewis Publishers, CRC Press, Boca Raton, Florida, pp. 1-457.

## 10. Literatur

---

- McKelvey-Martin, V.J., Green, M.H.L., Schmezer, P., Pool-Zobel, B.L., DeMeo, M.P., Collins, A. (1993) The single cell gel electrophoresis (Comet Assay): A European Review. *Mutat. Res.* 288: 47-63.
- McKim, J.M. (1977) Evaluation of tests with early life stages of fish for predicting long-term toxicity. *J.Fish. Res. Board Can.* 34: 1148-1154.
- McKim, J.M., Arthur, J.W., Thorslund, T.W. (1975) Toxicity of linear alkylate sulfonate detergent to larvae of four species of freshwater fish. *Bull. Environ. Contam. Toxicol.* 14: 1-7.
- McMahon, G., Huber, L.J., Moore, M.J., Stegemann, J.J., Wogan, G.N. (1990) c-K-ras oncogenes: prevalence in livers of winter flounder from Boston Harbor. In: McCarthy, J.F., Shugart, L.R. (eds.): *Biological Markers of Environmental Contaminants*. Lewis Publishers, Boca Raton, FL, 229-235.
- Meier, J.R. (1988) Genotoxic activity of organic chemicals in drinking water. *Mutat. Res.* 196: 211-245.
- Melancon, M.J. Jr., Lech, J.J. (1976) Distribution and biliary excretion products of di-2-ethyl-hexyl-phthalate in rainbow trout. *Drug Metab. Disp.* 4: 112-118.
- Metcalf, C.D., Nanni, M.E., Scully, N.M. (1995) Carcinogenicity and mutagenicity testing of extracts from bleached kraft mill effluent. *Chemosphere* 30 (6): 1085-1095.
- Meyers, T.R., Hendricks, J.D. (1985) Histopathology. In: Rand, G.M., Petrocelli, S.R.: *Fundamentals of aquatic toxicology: Methods and applications*. Hemisphere Publ. Corp., Washington, pp. 264-282.
- Michibata, H. (1981) Uptake and distribution of cadmium in the egg of the teleost, *Oryzias latipes*. *J. Fish. Biol.* 19: 691-696.
- Miltenburger, H.G. (1992) Biologische Prüfstrategien zur Erfassung mutagener Stoffe in Wasserproben und ihre Relevanz für Risikobeurteilungen. In: Zahn, R.K., Schröder, H.C., Miltenburger, H.G. (Hrsg.), *Erbgutverändernde und mutagene Stoffe im Wasser*, G. Fischer, Stuttgart, pp. 61-75.
- Mitchell, D.B., Santone, K.S., Acosta, D. (1980) Evaluation of cytotoxicity in cultured cells by enzyme leakage. *J. Tissue Cult. Meth.* 6 (3&4): 113-116.
- Mitchellmore, C.L., Chipman, J.K. (1998) DNA strand breakage in aquatic organisms and the potential value of the comet assay in environmental monitoring, *Mut. Res.* 399: 135-147.
- Moerland, T.S., Sidell, B.D. (1981) Characterization of metabolic carbon flow in hepatocytes isolated from thermally acclimated killifish *Fundulus heteroclitus*. *Physiol. Zool.* 54: 379-389.
- Mommsen, T.P. (1985) Comparative glyconeogenesis in hepatocytes from salmonid fishes. *Can. J. Zool.* 64: 1110-1115.
- Monod, G. (1985) Egg mortality of Lake Geneva charr (*Salvelinus alpinus* L.) contaminated by PCB and DDT derivatives. *Bull. Environ. Contam. Toxicol.*, 35: 531-536.
- Monod, G., Devaux, A., Valotaire, Y., Cravedi, J.P. (1998) Primary cell cultures from fish in ecotoxicology. In: Braunbeck, T., Hinton, D.E., Streit, B. (Hrsg.), *Fish Ecotoxicology*, Birkhäuser Verlag, Basel, pp. 39-60.
- Moon, T.W., Walsh, P.J., Mommsen, T.P. (1985) Fish hepatocytes A model metabolic system. *Can. J. Fish Aquat. Sci.* 42: 1772-1782.
- Moretti, M., Villarini, M., Scassellati-Sforzolini, G., Monarca, S., Libraro, M., Fatigoni, C., Donato, F., Leonardis, C., Perego, L. (1996) Biological monitoring of genotoxic hazard in workers of the rubber industry, 104: 543-545.
- Morgens, H., Rej, R. (1970) Alanin Aminotransferase. In: Bergmeyer HU (Hrsg.) *Methods of enzymatic analysis*, Vol. III, VCH, Weinheim, pp. 444-456.

## 10. Literatur

---

- Mosmann, T. (1983) Rapid colorimetric assay for cellular growth and survival; Application to proliferation and cytotoxicity assays. *J. Immunol. Methods* 65: 55-63.
- Moss, D.W. (1983) Acid phosphatases - orthophosphoric monoester phosphohydrolase. In: Bergmeyer, H.U. (Hrsg.), *Methods in enzymatic analyses*, Vol. 3: 93-106.
- Mudroch, A., Bourbonniere, R.A. (1994) Sediment preservation, processing and storage. In: Mudroch, A., MacKnight, S.D. (Hrsg.) *Handbook of techniques for aquatic sediments sampling*, 2. Auflage, Kapitel 6, Lewis Publishers, Boca Raton, pp. 131-171.
- Mudroch, A., Sarazin, L., Leaney-East, A., Lomas, T., deBarros, C. (1986) Report on the Progress of the Revision of the MOE Guidelines for Dredged Material Open Water Disposal, 1984/1985: Environment Canada, Inland Waters Directorate, Environmental Contaminants Division, pp. 1-15.
- Mukhopadhyay, P.K., Mukherji, A.P., Dehadrai, P.V. (1982) Certain biochemical responses in the air-breathing catfish *Clarias batrachus* exposed to sublethal carbofuran. *Toxicology* 23: 337-345.
- Müller, G. (1992) Untersuchung der Neckar-Altsedimente und Bewertung ihres möglichen Einflusses auf die Gewässergüte und auf das Grundwasser. In: Regierungspräsidium Stuttgart, Abteilung V-Wasserwirtschaft (Hrsg.) *Altsedimente in den Stauhaltungen des Neckars, Anlage A*, pp. 1-127.
- Müllerschön, H., Miltenburger, H.G. (1987) Mutagenicity testing of water samples by evaluation of fragmentation of interphase nuclei. *Mutat. Res.* 182: 287-288.
- Müllerschön, H., Miltenburger, H.G. (1988) Der Nachweis von mutagenen Stoffen in Wasserproben mit der Zelllinie V79. *Vom Wasser* 71: 195-206.
- Müllerschön, H., Miltenburger, H.G. (1992) Genotoxizitätsuntersuchungen an Abwasserproben. In: Zahn, R.K., Schröder, H.C., Miltenburger, H.G. (Hrsg.), *Erbgutverändernde und mutagene Stoffe im Wasser*, G. Fischer, Stuttgart, pp. 97-116.
- Nagel, R. (1986) Untersuchungen zur Eiproduktion beim Zebraäbrbling (*Brachydanio rerio*, Ham-Buch.). *J. Appl. Ichthyol.* 2: 173-181.
- Nagel, R. (1988) Umweltchemikalien und Fische - Beiträge zu einer Bewertung. Habilitationsschrift, Universität Mainz, pp. 1-256.
- Nagel, R., Bresch, H., Caspers, N., Hansen, P.D., Markert, M., Munk, R., Scholz, N., Ter Höfte, B.B. (1991) Effect of 3,4-Dichloroaniline on the early life stages of the zebrafish (*Danio rerio*): Results of a comparative laboratory study. *Ecotox. Environ. Safety* 21: 157-164.
- Neilson, A.H., Allard, A.S., Fischer, S., Malmberg, M., Viktor, T. (1990) Incorporation of a subacute test with zebrafish into a hierarchical system for evaluating the effect of toxicants in the aquatic environment. *Ecotoxicol. Environ. Saf.* 20: 82-97.
- Neskovic, N.K., Elezovic, I., Karan, V., Poleksic, V., Budimir, M. (1993) Acute and subacute toxicity of atrazine to carp (*Cyprinus carpio* L.). *Ecotoxicol. Environ. Saf.* 25: 173-182.
- Neumüller, D. (1995) Etablierung der Einzelzellgelelektrophorese (SCG, COMET-Assay) mit Fibrocyten und isolierten Hepatocyten aus der Leber der Regenbogenforelle (*Oncorhynchus mykiss*) zum Nachweis genotoxischer Substanzen im Wasser. Diplomarbeit, Universität Heidelberg.
- Nikolaev V., Naydenova, E., Kerimova, M., Dimov S., Ivanov E. (1986) Rat liver plasma membrane damage in hexachlorobenzene intoxication and its potentiation by ethanol. *Toxicol. Letters* 32: 269-273.
- Oda, Y., Nakamura, S., Oki, I., Kato, T., Shinagawa, H. (1985) Evaluation of the new system (*umu-test*) for the detection of environmental mutagens and carcinogens. *Mutat. Res.* 147: 219-229.
- Oesch, F. (1994) Fremdstoffmetabolismus. In: Marquardt, H., Schäfer, S.G. (Hrsg.), *Lehrbuch der Toxikologie*, 1. Auflage, BI-Wissenschaftsverlag, Mannheim, pp. 68-105.



## 10. Literatur

---

- Olive, P.L., Banáth, J.P. (1993) Induction and rejoining of radiation-induced DNA single-strand breaks: tail moment as a function of position in the cell cycle. *Mutation Res.* 294: 275-283.
- Olive, P.L., Durand, R.E. (1992) Detection of hypoxic cells in a murine tumor with the use of the comet assay. *J. Natl. Cancer Inst.* 84: 707-711.
- Oser, M., Carson, S. (1965) Toxicologic studies of petrolatum in mice and rats. *Tox. and Appl. Pharmacol.* 7: 445.
- Oulmi, Y., Braunbeck, T. (1996) Toxicity of 4-chloroaniline in early life-stages of zebrafish (*Danio rerio*): I. Cytopathology of liver and kidney after microinjection. *Arch. Environ. Contam. Toxicol.* 30: 390-402.
- Oulmi, Y., Negele, R.D., Braunbeck, T. (1995a) Cytopathology of liver and kidney in rainbow trout *Oncorhynchus mykiss* after long-term exposure to sublethal concentrations of linuron. *Dis. aquat. org.* 21: 35-52.
- Oulmi, Y., Negele, R.D., Braunbeck, T. (1995b) Segment specificity of the cytological response in rainbow trout (*Oncorhynchus mykiss*) renal tubules following prolonged exposure to sublethal concentrations of atrazine. *Ecotoxicol. Environ. Saf.* 32: 39-50.
- Padrangi, R., Petras, M., Ralph, S., Vrzoc, M. (1995) Alkaline single cell (comet): assay and genotoxicity monitoring using bullhead and carp. *Environmental and Molecular Mutagenesis* 26: 345-356.
- Panda, B.B., Das, B.L., Lenka, M., Panda, K.K. (1988) Water hyacinth (*Eichhornia crassipes*) to biomonitor genotoxicity of low levels of mercury in aquatic environment. *Mutat. Res.* 206: 275-279.
- Pavlou, S.P. (1987) The use of the equilibrium partitioning approach in determining safe levels of contaminants in marine sediments. In: Dickson, K.L., Maki, A.W., Brungs, W.A. (Hrsg.): *Fate and Effects of Sediment-Bound Chemicals in Aquatic Systems*. Pergamon Press, Toronto, Ontario, pp. 388-412.
- Pawlowski, S. (1998) Nachweis (xeno-)östrogenen Aktivität von Umweltchemikalien in isolierten Hepatocyten der Regenbogenforelle (*Oncorhynchus mykiss*) durch Detektion der Vitellogenin-mRNA. Diplomarbeit, Universität Heidelberg.
- Peakall, D. (1992) *Animal biomarkers as pollution indicators*. Chapman & Hall, London, New York, Tokyo, Melbourne, Madras.
- Peng, J., Singh, A., Ireland, W.P., Chu, I. (1997) Polychlorinated biphenyl congener 153-induced ultrastructural alterations in rat liver: a quantitative study. *Toxicology* 120: 171-183.
- Phillips, D.H. (1996) DNA adducts in human tissues: biomarkers of exposure to carcinogens in tobacco smoke. *Environ. Health Perspect. Suppl.* 104: 453-458.
- Phillips, M.J., Poucell, S., Patterson, J., Valencia, P. (1987) *The liver - an atlas and text of ultrastructural pathology*. Raven Press, NY, pp. 1-585.
- Pickering, Q.H., Gast, M.H. (1972) Acute and chronic toxicity of cadmium to the fathead minnow (*Pimephales promelas*). *J. Fish. Res. Board Can.* 29: 1099-1106.
- Plaa, G.L., Whitschi, H. (1976) Chemicals, drugs and peroxidation. *Ann. Rev. Pharmacol. Toxicol.* 16:125-142.
- Plappert, U., Stocker, B., Fender, H., Fliedner, T.M. (1997) Changes in the repair capacity of blood cells as a biomarker for chronic low-dose exposure to ionizing radiation. *Environmental and Molecular Mutagenesis*, 30: 153-160.
- Pool-Zobel, B.L., Klein, R.G., Liegiebel, U.M., Kuchenmeister, F., Weber, S., Schmezer, P. (1992) Systemic genotoxic effects of tobacco-related nitrosamines following oral and inhalation administration to Sprague-Dawley rats, *Clin. Invest.* 70: 299-306.

## 10. Literatur

---

- Power, E.A., Chapman, P.M. (1992) Assessing sediment quality. In: Burton, Jr. G.A. (Hrsg.): Sediment Toxicity Assessment. Lewis Publishers, Boca Raton, FL: 1-18.
- Power, E.A., Munkittrick, K.R., Chapman, P.M. (1991) An ecological impact assessment framework for decision-making relative to sediment quality. In: Mayes, M.A., Barron, M.G. (Hrsg.): Aquatic Toxicology and Risk Assessment, 14. Volume. ASTM STP 1124, American Society for Testing and Materials, Philadelphia, PA., pp. 48-64.
- Puri S., Kohli K.K. (1995) Differences in hepatic metabolizing enzymes and their response to lindane in rat, rabbit and monkey. *Pharmacol. & Toxicol.* 77: 136-141.
- Ralph, S., Petras, M. (1997) Genotoxicity monitoring of small bodies of water using two species of tadpoles and the alkaline single cell gel (Comet): assay. *Environmental and Molecular Mutagenesis* 29: 418-430.
- Reiferscheid, G., Heil, J., Oda, Y., Zahn, R.K. (1991a) A microplate version of the SOS/umu-Test for rapid detection of genotoxins and genotoxic potentials of environmental samples. *Mutat. Res.* 253: 215-222.
- Reiferscheid, G., Heil, J., Zahn, R.K. (1991b) Die Erfassung der Genotoxinen in Wasserproben mit dem *umu*-Mikrotest. *Vom Wasser*, 75: 153-166.
- Reynolds, E.S. (1963). The use of lead citrate at high pH as an electron-opaque stain in electron microscopy. *J. Cell Biol.* 17: 208-212.
- Reynoldson, T.B., Zarull, M.A. (1989) The biological assessment of contaminated sediments - the Detroit River example. In : Munawar, M., Dixon, G., Mayfield, C.I., Reynoldson, T., Sadar, M.H. (Hrsg.): Environmental Bioassay Techniques and Their Application. Kluwer Academic Publishers. *Hydrobiologia* 188/189: 463-476.
- Rez, G. (1986) Electron microscopical approaches to environmental toxicity. *Acta Biol. Hung.* 37: 31-45.
- Rippen, G. (1994) Handbuch Umweltchemikalien. Ecomed Verlagsgesellschaft, Landsberg.
- Roberts Jr., M.H., Hargis, W.J., Strobel, C.H., De Lisle, P.F. (1989) Acute toxicity of PAH contaminated sediments to the estuarine fish, *Leiostomus xanthurus*. *Bull. Environ. Contam. Toxicol.* 42: 142-149.
- Rodriguez-Ariza, A., Martínez-Lara, E., Pascual, P., Pedrajas, J.R., Abril, N., Dorado, G., Toribio, F., Bárcena, J.A., Peinado, J., Pueyo, C., López-Barea, J. (1993) Biochemical and genetic indices of marine pollution in Spanish littoral. *Scienc. of Tot. Environ. Supp.* Elsevier Science Publisher B.V., Amsterdam, pp. 109-116.
- Rojik, I., Nemcsók, J., Boross, L. (1983) Morphological and biochemical studies on liver, kidney and gill of fishes affected by pesticides. *Acta Biol. Hung.* 34: 81-92.
- Ronen, A., Heddle, J.A. (1984) Site-specific induction of nuclear abnormalities (apoptotic bodies and micronuclei) by carcinogens in mice. *Cancer Res.* 44: 1536-1540.
- Rosas, I., Carbajal, M.E., Gomez-Arroyo, S., Belmont, R., Villalobos-Pietrini, R. (1984) Cytogenetic effects of Cadmium accumulation on water hyacinth (*Eichhornia crassipes*). *Environ. Res.* 33: 386-395.
- Roux, Guillam, C., Bescol-Liversac, J. (1978) Pathologique toxique de l'hépatocyte en culture histiotypique - II Action d'un organochlore: le lindane. *Ann. Anat. Pathol.* 23: 253-285.
- Rudolph, P., Boje, R. (1986) Ökotoxikologie. Grundlagen für die ökotoxikologische Bewertung von Umweltchemikalien nach dem Chemikaliengesetz. Ecomed, Landsberg, pp. 1-166.

## 10. Literatur

---

- Rump, H.H., Krist, H. (1992) Laborhandbuch für die Untersuchung von Wasser, Abwasser und Boden. In: Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (Hrsg.), 2. Auflage, VCH - Verlag, Weinheim, pp. 1-20.
- Saito, H., Sudo, M., Shigeoka, T., Yamauchi, F. (1990) *In vitro* cytotoxicity of chlorophenols to goldfish GF-scale (GFS) cells and quantitative structure-activity relationships. *Environ. Toxicol. Chem.* 10: 235-241.
- Salas, M., Tuchweber, B., Kourounakis, P. (1980) Liver ultrastructure under acute stress. *Pathol. Res. Pract.* 167: 217-233.
- Sander, K., Baumann, M. (1983) Auslösung von embryonalen Fehlbildungen beim Zebrafisch. *BIUZ* 13 (3) 87-94.
- Sayato, Y., Nakamuro, K., Ueno, H. (1987) Studies on preconcentration methods for detecting the mutagenicity of organics in drinking water. *Eisei Kagaku*, 33: 328-336.
- Sayato, Y., Nakamuro, K., Ueno, H., Goto, R. (1990) Mutagenicity of adsorbates to a copper-phthalocyanine derivative recovered from municipal river water. *Mutat. Res.* 242: 313-317.
- Schiavon, M. (1988) Studies of the leaching of atrazine, of its chlorinated derivatives and of hydroxyatrazine from soil using <sup>14</sup>C ring-labeled compounds under outdoor conditions. *Ecotoxicol. Environ. Saf.* 15: 46-54.
- Schnurstein, A., Froschauer, A., Leist, E., Braunbeck, T. (1998) Detection of genotoxic substances in primary cultures of liver and gill cells from zebrafish (*Danio rerio*). 8 th annual Meeting of SETAC - Europe, Bordeaux, France P2A / 014.
- Schnurstein, A., Leist, E., Froschauer, A., Braunbeck, T. (1997) Activation of indirectly acting genotoxic substances in primary cell cultures of liver and gill cells from zebrafish (*Danio rerio*). *Verh. Dtsch. Zool. Ges.* 90 (1) 384.
- Schüürmann, G., Segner, H. (1994) Wirkungsforschung in der Chemischen Ökotoxikologie. *UWSF - Z. Umweltchem. Ökotox.* 6: 351-358.
- Schwartzman, R.A., Cidlowski, J.A. (1993) Apoptosis: The biochemistry and molecular biology of programmed cell death. *Endocr. Rev.* 14: 133-151.
- Segal, L.M. (1989) Cholinesterase inhibition by organophosphorus and carbamate pesticide in aggregate cultures of neural cells from the foetal rat brain: the effects of metabolic activation and pesticide mixtures. *Toxic. in Vitro* 3 (2): 123-128.
- Seglen, P.O. (1972) Preparation of rat liver cells. I. Effects of Ca<sup>2+</sup> on enzymatic dispersion of isolated, perfused liver. *Exp. Cell Res.* 74: 450-454.
- Seglen, P.O. (1976) Preparation of isolated rat liver cells. *Methods Cell Biol.* 13: 29-83.
- Segner, H., Braunbeck, T. (1998) Cellular response profile to chemical stress. In: *Ecotoxicology*, Schüürmann, G., Markert, B. (Hrsg.), John Wiley & Sons, Inc. and Spektrum Akademischer Verlag, part 3: 521-569.
- Segner, H., Lenz, D. (1993) Cytotoxicity assays with the rainbow trout R1 cell line. *Toxic. in vitro*, 7: 537-540.
- Seim, W.K., Curtis, L.R., Glenn, S.W., Chapman, G.A. (1984) Growth and survival of developing steelhead trout (*Salmo gairdneri*) continuously or intermittently exposed to copper. *Can. J. Fish. Aquat. Sci.* 41: 433-438.
- Sengutta, U. (1993) Adsorption von Blei und Cadmium an Tonen. *UWSF - Z. Umweltchem. Ökotox.* 5 (2): 72-76.
- Sharma, C.B. (1990) *In situ* detection of genotoxicity-possibilities and measurements. In: Mortimer, L.M., Albertini, R.J.: *Mutation and the Environment, Part E*. Wiley-Liss, pp. 67-76.

## 10. Literatur

---

- Simmons, J.E. (1994) Toxicology studies of a chemical mixture of 25 groundwater contaminants: hepatic and renal assessment, response to carbon tetrachloride challenge, and influence of treatment-induced water restriction. *J. Toxicol. and Environ. Health*, 43: 305-325.
- Singh, A., Gilroy, C. (1997) Toxicity of PCB 105 in the rat liver: an ultrastructural and biochemical study. *Ultrast. Path.* 21: 143-151.
- Skalski, C. (1991) Laboratory and in situ sediment toxicity evaluations with early life stages of *Pimephales promelas*. M.S. Thesis, Wright State University, Dayton, OH.
- Smith A.G. (1991) Chlorinated hydrocarbon insecticides. In *Handbook of Pesticide Toxicology*. Vol. 2. Classes of Pesticides (W.J. Hayes, Jr. and E.R. Laws, Jr., Eds.) Academic Press, San Diego.
- Spehar, R.L. (1976) Cadmium and zinc toxicity to the flagfish *Jordanella floridae*. *J. Fish. Res. Board Can.* 33: 1939-1945.
- Speit, G., Hartmann, A. (1995) The contribution of excision repair to the DNA effects seen in the alkaline single cell gel test (comet assay). *Mutagen.* 10: 555-559.
- Spurr, A.R. (1969) A low viscosity embedding medium for electron microscopy. *J. Ultrastr. Res.* 26: 31-43.
- Stahl, R.G. (1991) The genetic toxicology of organic compounds in natural waters and wastewaters. *Ecotoxicol. Environ. Safety* 22: 94-125.
- Steinhäuser, G.S. (1996) Prüfung und Bewertung wassergefährdender Stoffe. Sachstand und Probleme. *UWSF - Z. Umweltchem. Ökotox.* 8 (1): 22-33.
- Storch, V. (1985) Die Zelle als Spiegel der Umwelt. *Umschau* 85 (1): 21-23.
- Strauss, G.H.S. (1991) Non-random cell killing in cryopreservation: implication for performance of the battery of leucocyte tests (BLT). *Toxic and immunotoxic effects. Mutation Research* 252: 1-15.
- Streit, B. (1994) *Lexikon Ökotoxikologie*, 2. Auflage, VCH, Weinheim, pp. 1-896.
- Strik, J.J., Koeman, H.J. (1979) In *Chemical Porphyria in Man*. Elsevier/North Holland Biomedical Press, Amsterdam pp. 181.
- Strmac M., Braunbeck T. (1997a) Toxikologische Untersuchung an isolierten Hepatocyten aus der Regenbogenforelle (*Oncorhynchus mykiss*) und Frühstadien des Zebrafisch (*Danio rerio*) zur Bewertung der Belastung kleiner Fließgewässer mit Umweltchemikalien. Tagung der Gesellschaft für Ichthyologie e.V. (GfI) in Düsseldorf: 48.
- Strmac M., Braunbeck T. (1997b) Toxikologische Untersuchung zur Bewertung der Belastung kleiner Fließgewässer mit Umweltchemikalien an RTG-2-Zellen und isolierten Hepatocyten aus der Regenbogenforelle (*Oncorhynchus mykiss*). *Verh. Dtsch. Zool. Ges.* 90. 1: 391.
- Strmac, M., Braunbeck, T. (1999) Effects of triphenyltin acetate on survival, hatching success and liver ultrastructure of early life stages of zebrafish (*Brachydanio rerio*). *Ecotoxicol. Environ. Saf.* 44: 25-39.
- Tan, L.P., Ng, M.L., Kumar Das, V.G. (1978) The effect of trialkyltin compounds on tubulin polymerisation. *J. Neurochem.* 31: 1035-1041.
- Thomé, J.P., Roelandt, L., Goffinet, G., Stouvenakers, N., Kremers, P. (1995) Cytotoxic effects of Aroclor 1254 on ultrastructure and biochemical parameters in cultured foetal rat hepatocytes. *Toxicology* 98: 83-94.
- Tice, R.R., Andrews, P.W., Hirai, O., Singh, N.P. (1990) The single cell gel (SCG) assay: An electrophoretic technique for the detection of DNA damage in individual cells. *Biological Reactive Intermediates IV*. Plenum Press, New York, pp. 157-164.
- Tilghman Hall, A., Oris, J.T. (1991) Anthrocene reduces reproductive potential and is maternally transferred during long-term exposure in fathead minnows. *Aquatic. Toxicol.* 19: 249-264.

## 10. Literatur

---

- Tischmeyer, A. (1998) Optimierung und Anwendung des Comet-Assays als *In vitro*-Testsystem mit Primärzellen aus Fischen zum Nachweis genotoxischer Substanzen in Gewässern. Diplomarbeit, Universität Heidelberg.
- Triebskorn, R., Köhler, H.R., Honnen, W., Schramm, M., Adams, S.M., Müller, E.F. (1997) Induction of heat shock proteins, changes in liver ultrastructure, and alterations of fish behavior: are these biomarkers related and are they useful to reflect the state of pollution in the field? *J. Aquat. Ecosys. Stress Recov.* 6: 57-73.
- Triebskorn, R., Schramm, M., Pawert, M., Adam, S., Müller, E. (1996) 1. Zwischenbericht zum BMBF - Verbundprojekt: Validierung und Einsatz biologischer, chemischer und mathematischer Tests und Biomarkerstudien zur Bewertung kleiner Fließgewässer mit Umweltchemikalien. pp. 1-15.
- Triebskorn, R., Schramm, M., Pawert, M., Adam, S., Müller, E. (1995) Abschätzung der Belastung kleiner Fließgewässer im Raum Stuttgart. Zwischenbericht, Zoologisches Institut, Abteilung Physiologische Ökologie, Universität Tübingen.
- True, C.J., Heyward, A.A. (1990) Relationships between Microtox test results, extraction methods, and physical and chemical compositions of marine sediment samples. *Tox. Assess.* 5: 29-45.
- Tye, R.J. (1986) Mutagens in water source: detection and risk assessment. *J. Inst. Water Eng. Sci.* 40: 541-548.
- Valverde, M. (1997) DNA damage in leukocytes and buccal and nasal epithelial cells of individuals exposed to air pollution in Mexico City. *Environ. Mol. Mutagen.* 30: 147-152.
- Van de Kerkhoff, J.F., van der Gaag, M.A. (1985) Some factors affecting optimal differential staining of sister chromatids *in vivo* in the fish *Nothobranchius rachowi*. *Mutat. Res.* 143: 39-43.
- Van der Gaag, M.A., van de Kerkhoff, J.F. (1985) Mutagenicity testig of water with fish: a step forward to a reliable assay. *Sci. Total Environ.* 47: 293-298.
- Van Hummelen, P., Zoll, C., Paulussen, J., Kirsch-Volders, M., Jaylet, A. (1989) The micronucleus test in *Xenopus*: a new and simple *in vivo* technique for detection of mutagens in freshwater. *Mutagenesia* 4: 12-16.
- Van Leeuwen, C.J., Griffioen, P.S., Vergouw, W.H.A., Maas-Diepeveen, J.L. (1985) Differences in susceptibility of early life stages of rainbow trout (*Salmo gairdneri*) to environmental pollutants. *Aquat. Toxicol.* 7: 59-78.
- Van Schooten, F.J., Maas, L.M., Moonen, J.C., Kleinjans, C.S., van der Oost, R. (1995) DNA dosimetry in biological indicator species living on PAH-contaminated soils and sediments. *Ecotox. and Environ. Safety* 30: 171-179.
- Varanasi, U., Reichert, W.L., Stein, J.E. (1989) <sup>32</sup>P-Postlabeling analysis of DNA adducts in liver of wild english sole (*Parophrys vetulus*) and winter flounder (*Pseudopleuronectes americanus*). *Cancer Res.* 49: 1171-1177.
- Vigano, L., Arillo, A., Bagnasco, C., Bennicelli, C., Melodia, F. (1994) Time course of xenobiotic biotransformation enzyme activities of rainbow trout caged in the River Po. *Total. Environ.* 151: 37-46.
- Vogelbein, W.K., Fournie, J.W., Van Veld, P.A., Huggett, R.J. (1990) Hepatic neoplasms in the mummichog *Fundulus heteroclitus* from a creosote-contaminated site. *Cancer Res.* 50: 5978-5986.
- Von Westernhagen, H., Dethlefsen, V. (1975) Combined effects of cadmium and salinity on development and survival of flounder eggs. *J. Mar. Biol. Assoc. U.K.* 55: 945-957.
- Von Westernhagen, H., Rosenthal, H., Dethlefsen, V., Ernst, W., Harms, U., Hansen, P.D. (1981) Bioaccumulating substances and reproductive success in Baltic flounder *Platichthys flesus*. *Aquat. Toxicol.* 1: 85-99.

## 10. Literatur

---

- Walton, D.G., Acton, A.B., Stich, H.F. (1983) DNA repair synthesis in cultured mammalian and fish cells following exposure to chemical mutagens. *Mutat. Res.* 124: 153-161.
- Waters, M.D., Stack, H.F., Brady, A.L., Lohmann, P.H., Haroun, L., Vainio, H. (1988) Use of computerized data listings and activity profiles of genetic and related effects in the review of 195 compounds. *Mutat. Res.* 205: 295-312.
- Wedemeyer, G. (1968) Uptake and distribution of <sup>65</sup>Zn in the coho salmon eggs (*Oncorhynchus kisutch*). *Comp. Biochem. Physiol.* 26: 271-279.
- Weinbach, E.C., Garbus, J. (1965) The interaction of uncoupling phenols with mitochondria and with mitochondrial protein. *J. Biol. Chem.* 240: 1811-1819.
- Weishaar, D., Gossrau E., Faderl, B. (1975) Normbereiche von  $\alpha$ -HBDH, LDH, AP und LAP bei Messung mit substratoptimierten Testansätzen. *Med. Welt* 26: 387-390.
- Westrich, B. (1988) Fluvialer Feststofftransport - Auswirkung auf die Morphologie und Bedeutung für die Gewässergüte. *Schriftenreihe gwf Wasser Abwasser* 22: 1-173.
- White, P.A., Rasmussen, J.B. (1998) The genotoxic hazards of domestic wastes in surface waters, *Mutat. Res.* 410: 223-236.
- White, P.A., Rasmussen, J.B., Blaise, C. (1998) Genotoxic substances in the St. Lawrence system I: Industrial genotoxins sorbed to particulate matter in the St. Lawrence, St. Maurice, and Sagueny Rivers, Canada, *Environ. Toxicol. Chem.* 17: 286-303.
- WHO, (1986) Organophosphorus Insecticides: A general introduction. *Environ. Health Criteria* 63. World Health Organization, Geneva.
- Wilcox, P., Williamson, S., Lodge, D.G., Bootman, J. (1988) Concentrated drinking water extracts, which cause bacterial mutation and chromosome damage in CO cells, do not induce sex-linked recessive lethal mutations in *Drosophila*. *Mutagenesis*, 3: 381-387.
- Williams, C.S., Chung, R.A. (1987) Ultrastructural effects of DDT on cells grown *in vitro*. *J. Environ. Pathol. Toxicol. Oncol.* 7: 35-58.
- Williams, C.S., Jones, B.C., Nchege, O., Chung, R.A. (1993) Hepatocyte ultrastructure following exposure to Aroclors and pure polychlorinated biphenyls. *J. Environ. Tox. and Onc.* 12(1): 17-33.
- Wilson, M.P., Savage, E.P., Adrian, D.D., Aaronson, M.J., Keefe, T.J., Hamar, D.H., Tessari, J.T. (1987) Groundwater transport of the herbicide atrazine, Weld County, Colorado. *Bull. Environ. Contam. Toxicol.* 39: 807-814.
- Wirgin, I.I., Currie, D., Gorunwald, C., Garte, S.Y. (1989) Molecular Mechanisms of carcinogenesis in a natural population of Hudson River fish. *Proc. AACR Mtg.* 30: 1-194.
- Wolf, K., Quimby, M.C. (1962) Established eurythermic line of fish cells *in vitro* - *Science* 135: 1065-1066.
- Woltering, D.M. (1984) The growth response in fish chronic and early life stage toxicity tests: a critical review. *Aquat. Toxicol.* 5: 1-21.
- Wrisberg, M.N., van der Gaag, M.A. (1992) *In vivo* detection of genotoxicity in waste water from a wheat and rye straw paper pulp factory. *Sci. Tot. Environ.* 121: 95-108.
- Younes, M. (1994) Freie Radikale und reaktive Sauerstoffspezies. In: Marquardt, H., Schäfer, S.G. (Hrsg.), *Lehrbuch der Toxikologie*, 1. Auflage, BI-Wissenschaftsverlag, Mannheim, pp. 94-105.
- Zahn, T. (1995) Akute und subletale Cytotoxizitätstests mit Primärzellkulturen und Dauerzelllinien zur Ermittlung der Toxizität akuter und sublethaler Dosen von Umweltschadstoffen als Ersatz- und Ergänzungsmethoden zum Fischttest - Dissertation Universität Heidelberg pp. 1-218.
- Zahn, T., Braunbeck, T. (1993) Isolated fish hepatocytes as a tool in aquatic toxicology: sublethal effects of dinitro-*o*-cresol and 2,4-dichlorophenol. *Sci. Total. Environ. Suppl.* pp. 721-734.

## 10. Literatur

---

- Zahn, T., Braunbeck, T. (1995) Cytotoxic effects of sublethal concentrations of malachite green in isolated hepatocytes from rainbow trout (*Oncorhynchus mykiss*) Toxic. *In Vitro* 9 (5): 729-741.
- Zahn, T., Hauck, C., Braunbeck, T. (1993) Cytological alterations in the fish fibrocytic R1 cells as an alternative test system for the detection of sublethal effects of environmental pollutants: a case-study with 4-chloroaniline. In: Braunbeck, T., Hanke, W., Segner, H. (Hrsg.), fish - Ecotoxicology and Ecophysiology, 1. Auflage, VCH-Verlag, Weinheim, pp. 103-126.
- Zahn, T., Hauck, C., Holzschuh, J., Braunbeck, T. (1995) Acute and sublethal toxicity of seepage waters from garbage dumps to permanent cell lines and primary cultures of hepatocytes from rainbow trout (*Oncorhynchus mykiss*): a novel approach risk assessment for chemicals and chemical mixtures. Zbl. Hyg. 196: 455-479.
- Zahn, T., Hollert, H., Braunbeck, T. (1996) Vergleich der Cytotoxizität von umweltrelevanten Chemikalien bei isolierten Hepatocyten aus der Regenbogenforelle und S9-supplementierten RTG-2-Zellen. Verh. Deut. Zool. Gesell. 89 (1): 332.
- Zaleski, J., Steward, A.R., Sikka, H.C. (1991) Metabolism of benzo[a]pyrene and (-)-trans-benzo[a]pyrene-7,8-dihydrodiol by freshly isolated hepatocytes from mirror carp. Carcinogen. 12: 167-174.
- Zeitoun, I.H., Ullrey, D.E., Bergen, W.G., Magee, W.T. (1977) DNA, protein and free amino acids during ontogenesis of rainbow trout (*Salmo gairdneri*). J. Fish. Res. Board Can. 34: 83-88.
- Zimmer, M., Ahlf, W. (1994) Erarbeitung von Kriterien zur Ableitung von Qualitätszielen für Sedimente und Schwebstoffe, Texte des Umweltbundesamtes, Technische Universität Hamburg-Harburg, Berlin.

