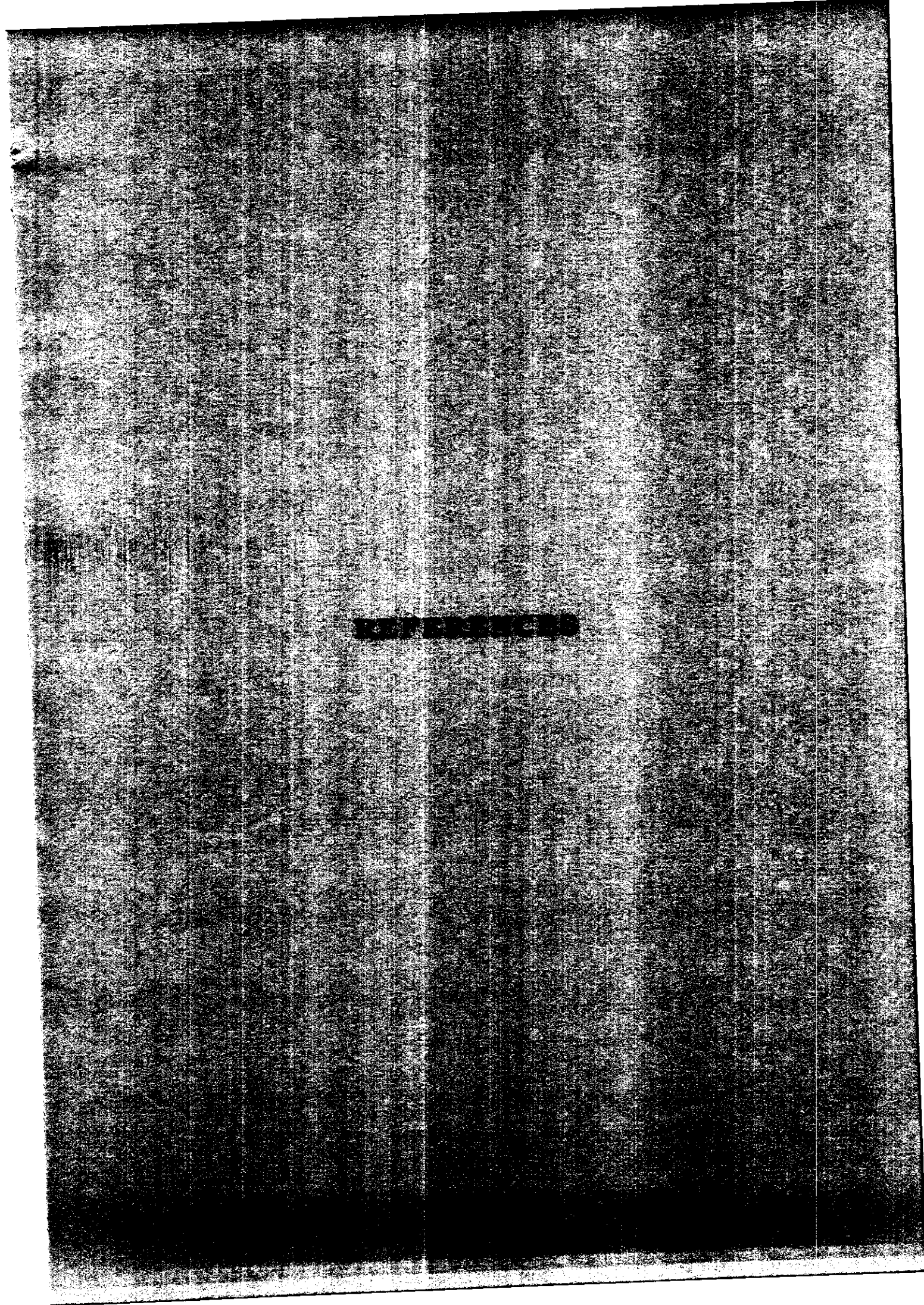




REFERENCES

- Abegg, R. (1950): Some effects of inorganic salts on blood specific gravity and tissue fluids of the bluegill (*Lepomis macrochirus*). *Physiol. Zool.*, 23 : 124-134.
- Ackerman, G.A. (1962) : Substituted naphthol- AS-phosphate derivatives for the localization of leukocyte alkaline phosphatase activity. *Lab. Invest.*, 11 :563.
- Aida, K.; Nishioka, R.S. and Bern, H.A. (1980): Changes in the corpuscles of stannius of coho salmon *Oncorhynchus kisutch* during smoltification and seawater adaptation. *Gen. Comp. Endocrinol.*, 41 :663-671.
- Ajika, K.; Kalra, S.P.; Fawcett, C.P.; Krulich, L. and McCann, S.M. (1972): The effect of stress and nembutal on plasma levels of gonadotropins and prolactin in ovariectomized rats. *Endocrinol.*, 9:707-715.
- Assem, H. (1984): Potential use of physiological changes as indices of stress in the teleost, *Cyprinus carpio*. *Bull. Inst. Oceanogr. Fish. ARE.*, 10: 111-121.

- Ball, J. N. (1969): Prolactin (Fish prolactin or paralactin and Growth hormone). In "Fish Physiology", Vol. II (Eds. W.S. Hoar and D.J. Randall). Academic press, Inc. New York, PP. 207-225.
- Ball, J.N. and Ensor, D.M. (1969): Aspects of the action of prolactin on sodium metabolism in cyprinodont fishes. In "La sepecificite Zoologique des hormones hypophysaires et de leurs activites" Collog. Intern. Centre Natl. Rech. Sci. (Paris).
- Ball, J.N. and Hawkins, E.F. (1976) : Adrenocortical (interrenal) responses to hypophysectomy and adenoypophysial hormones in the teleost *Poecilia latipinna*, Gen.Comp. Endocrinol., 28 :59-70.
- Ball, J.N. and Olivereau, M. (1966): Experimental identification of ACTH cells in the pituitary of two teleosts, *Poecilia latipinna* and *Anguilla anguilla* Correlated changes in the interrenal and in the pars distalis resulting from administration of metopirone (SU 4885). Gen.Comp. Endocrinol., 6 :5-18.

- Barton, B.A.; Peter, R.E. and Paulencu, C.R. (1980): Plasma cortisol levels of fingerling rainbow trout *Salmo gairdneri* at rest, and subjected to handling, confinement, transport and stocking. Can. J. Fish Aquat. Sci., 37:805-811.
- Basu, J.; Nandi, J. and Bern, H.A. (1965): The homologue of the pituitary- adrenocortical axis in the teleost fish, *Tilapia mossambica*. J. Exp. Zool., 59: 347-353.
- Batty, R.S. and Wardle, C.S. (1979): Restoration of glycogen from lactic acid in the anaerobic swimming muscle of plaice *Pleuronectes platessa* L. J. Fish Biol., 15 : 509-519.
- Bernard, R.F. (1963): Studies on the effects of DDT on birds. Mich. State Univ. Publ. Museum Biol. Ser., 2 (3).
- Bhatia, S.C.; Sharma, S.C. and Venkitasubramanian, T.A. (1972): Acute dieldrin toxicity: Biochemical changes in the blood. Arch Environ. Health. 24:369.
- Bieleck, E. (1981) : Developmental stages and localization of peroxidatic activity in the leucocytes of three teleost species (*Cyprinus carpio*; *Tinca tinca*; *Salmo gairdneri* Richardson). Cell Tissue Res., 220 : 163-180.

Bierich, J.R.; Hersten, R. and Maruektad, S. (1966): Plasma corticosteroids and their responsiveness after long term therapy with corticosteroids and corticotrophin. *Acta Endocrinol.*, 31 : 40-48.

Black, E.C. (1957): Alterations in the blood level of lactic acid in certain salmonoid fishes following muscular activity: Kamloops trout, *Salmo gairdneri*. *J.Fish Res. Board Can.*, 14: 117-134.

Black, E.C.; Robertson, A.C.; Hanslip, A. and Chiu, W.G. (1960): Alterations in glycogen, glucose and lactate in rainbow and Kamloops trout (*Salmo gairdneri*) following muscular activity. *J.Fish Res. Board Can.*, 17 : 487-500.

Blasco, J.; Gutierrez, J.; Fernandez, J. and Planas, J. (1988): The effect of temperature on immuno-reactive glucagon plasma level in carp *Cyprinus carpio*. *Revista Espanola de Fisiologia*, 44 (2): 157-162.

Blaxhall, P.C. and Daisley, K.W. (1973): Routine haematological methods for use with fish blood. *J. Fish Biol.*, 5: 771-781.

Blaxhall, P.C. and Doggett, T. (1987): Esterases and phosphatases in the leucocytes of rainbow trout, *Salmo gairdneri* Richardson. J. Fish Biol., 30 :35-40.

Blaxhall, P.C. and Hood, K. (1985): Cytochemical enzyme staining of fish lymphocytes separated on a percoll gradient. J.Fish Biol., 27: 749-756.

Bondareva, V.M.; Soltitskaya, L.P. and Rusacov, Yu. I. (1980): Immunobiological peculiarities of insulin in the salmon *Oncorhynchus gorbuscha* and species specific radioimmune system for its assay. Zh. Evol. Biokhim. Fiziol., 16: 518-521.

Bradbury, S.P.; McKim, J.M. and Coats, J.R. (1987): Physiological response of rainbow trout, *Salmo gairdneri* to acute fenvalerate intoxication. Pesticide Biochem. Physiol., 27 (3) :275-288.

Broughton, A. (1975): Application of adrenocorticotropin assays in a routine clinical laboratory. Am. J. Clin. Path., 64 : 618-624.

Brown, S.B.; Eales, J.G.; Evans, J.G. and Hara, T.J. (1984): Interrenal, thyroid and carbohydrate responses of rainbow trout (*Salmo gairdneri*) to environmental acidification. Can. J.Fish. Aquat. Sci., 41:36-45.

- Butler, D.G. (1966): Effect of hypophysectomy on osmoregulation in the european eel *Anguilla anguilla*. Comp. Biochem. Physiol., 18:773-781.
- Butler, D.G.; Clarke, W.C.; Donaldson, E.M. and Langford, R.W. (1969): Surgical adrenalectomy of a teleost fish (*Anguilla rostrata*) effect on plasma cortisol and tissue electrolyte and carbohydrate levels. Gen. Comp. Endocrinol., 12 : 503-514.
- Cannon, M. S.; Mollenhauer, H.H.; Eurell, T.E.; Lewis, D.H.; Cannon, A.M. and Tompkins, C. (1980) : An ultrastructural study of leucocytes of the channel catfish, *Ictalurus punctatus*. J.Morph., 164 : 1 - 23.
- Chavin, W. and Singley, J.A. (1972) : Adrenocorticosteroids of the goldfish, *Carassius auratus* L. Comp. Biochem. Physiol., 42 B : 547 - 562.
- Chavin, W. and Young, J. (1970) : factors in the determination of normal serum glucose levels of goldfish, *Carassius auratus* L. Comp. Biochem. Physiol., 33 : 629 - 653.
- Chester, I.; Chan, D.; Henderson, I. and Ball, J. (1969) : The adrenocorticotropin, and the corpuscles of stannius. In "Fish physiology", Vol. II (Eds. W.S. Hoar and D.J. Randall). Academic press, Inc. New York, PP. 321 - 376.

- Chevrel, J.F. and Tyrrell, M.J. (1973) : Oxadiazon a new persistent herbicide for rice, cotton and various other crops. proc. of the Fourth Asian -Pacific Weed Sci. Soc. Conf., Retorua, N.Z. 442.
- Chouhan, M.S.; Verma, D. and Pandey, A.K. (1963) : Herbicide induced haematological changes and their recovery in a fresh water fish *Puntius ticto*. Comp. Physiol. Ecol., 8 (4) : 249 - 251.
- Cope, M. (1970) : Physiological effect of organic phosphorus insecticides on several species of fish. Trans. Am. Fish. Soc., 90 : 143 - 152.
- Davey, F.R. and Nelson D.A. (1977) : Periodic Acid Schiff (PAS) and Sudan black - B staining. In "Hematology", (Eds. W.J. Williams, E. Bewtler, Erslev A.J., Rundles, R.W.). McGraw - Hill, New York, 2nd ed., PP. 1629 - 1632.
- Dawson, J.B. and Broughton, P.M.G. (1968) : Atomic absorption spectroscopy. Association of clinical biochemists scientific and technical comitee technical bulletin, No 14.
- Derek, M. (1971) : Salmon and Trout, St. Martin's Press, New York.
- Dheer, J.M.; Dheer, T.R. and Mahajan, C.L. (1986) : Haematological and haematopoietic response to sodium chloride stress in a fresh water airbreathing fish, *Channa Punctatus Bloch*. J.Fish Biol., 28 : 119 - 128.

- Dick, P.T. and Dixon, D.G. (1985) : Changes in circulating blood cell levels of rainbow trout, *Salmo gairdneri* Richardson, following acute and chronic exposure to copper. J. Fish Biol., 26 : 475 - 481.
- Djursing, H. (1981) : Short and long - term fluctuations in plasma prolactin concentration in normal subjects. Acta Endocrinol., 97 : 1 - 6.
- Doggett, T.A.; Wrathmell, A.B. and Harris, J.E. (1987) : Acytochemical and light microscopical study of the peripheral blood leucocytes of *Oreochromis mossambicus*, cichlidae. J. Fish Biol., 31 : 147 - 153.
- Donaldson, E.M. and Dye, H.M. (1975) : Corticosteroid concentration in sockeye salmon (*Oncorhynchus nerka*) exposed to low concentrations of copper. J. Fish Res. Board Can., 32 : 533 - 539.
- Donaldson, E.M. and Fagerlund, U.H. (1970) : Effect of sexual maturation and gonadectomy at sexual maturity on cortisol secretion rate in sockeye salmon *Onchorhynchus nerka*. J. Fish Res. Board Can., 27 : 2287 - 2296.
- Donaldson, E.M. and McBride, J.R. (1967) : The effects of hypophysectomy in the rainbow trout, *Salmo gairdneri* (Rich) with special reference to the pituitary-interrenal axis. Gen. Comp. Endocrinol., 9 : 93 - 101.

- Drezewina, A. (1911) : Contribution to the study of granular leucocytes in the blood of fishes. Arch. Anat. Mier., 13 : 319 - 376.
- Duthie, E.S. (1939) : Origin, development and formation of blood cells in some marine teleosts. J. Anat., 73 : 396 - 410.
- Dye, H.M. and Donaldson, E.M. (1974) : A preliminary study of the corticosteroid stress response in sockeye salmon to a components of kraft pulp mill effluent dehydroabiatic acid. Fish. Mar. Ser. Res. Dev. Tech. Rep., 461 : 18.
- Eaton J.G. (1970) : Chronic malathion toxicity to the blue gill *Lepomis macrochirus*. Water Res., 4 : 673 - 684.
- Einszporn - Oreka, T. (1973) : Changes in the picture of peripheral blood of tench *Tinca tinca* under the influence of *Ergasilus sieboldi* Nordm. II. Changes in the leukocytic system. Acta Parasit. Pol., 21 : 485 - 499.
- Eisler, R. and Edmunds, P.h. (1966): Effect of endrin on blood and tissue chemistry of marine fish. Trans. Am. Fish Soc., 95 : 153 - 159.
- Elarifi, A.E. (1982): The histopathology of larval anisakid nematode infections in the liver of whiting, *Merlangius merlangius* (L.) with some observations on blood leucocytes of the fish. J. Fish Dis., 5 : 411 - 419.

- Eller, L. (1971): Histopathologic lesion in cutthroat trout (*Salmo clarki*) exposed chronically to the insecticide endrin. Am. J. Clin. Pathol., 64 : 331 - 336.
- Ellis, A.E. (1976): Leucocytes and related cells in the plaice *Pleuronectes Platessa*. J. Fish Biol., 8 : 143 - 156.
- Ellis, A.E. (1977): The leucocytes of fish: a review. J. Fish Biol., 11 : 453 - 491.
- Exton, J.H. (1972): Gluconeogenesis. Metabolism, 21 : 945 - 990.
- Falkmer, S. (1961): Experimental diabetes research in fish. Acta Endocrinol., 37:1-122.
- Fey, F. (1966 a):Vergleichende Hamozytologie niederer Vertebraten. II. Thrombozyten. Folia Haemat., 85:205-217.
- Fey, F. (1966 b) : Vergleichende Hamozytologie niederer Vertebraten. III. Granulozyten. Folia Haemat., 86:1 20.
- Fey, F. (1966 c):Vergleichende Hamozytologie niederer Vertebraten. IV. Monozyten - Plasmozyten - Lymphozyten. Folia Haemat., 86:133-147.
- Finlayson, B.J. and Faggella, G.A. (1986):Comparison of laboratory and field observations of fish exposed to the herbicides Molinate and Thiobencarb. Trans. Am. Fish Soc., 115:882-890.

Förlin, L.; Hansson, T.; Haux, C.; Johansson Sjöbeck, M.L.; Larsson, A. and Lidman, U. (1979): Subletala fysiologiska effekter av PCB och DDT på skrubbskadda (*platichthys flesus*):brackish marin miljö, NBL Rapp 88, Brackish Water Toxicology Laboratory, Swedish Environment protection Board, Stockholm.

Förlin, L.; Haux, C.; Andersson, T.; Olsson, P.E. and Larsson, A. (1986): Physiological methods in Fish Toxicology: Laboratory and Field Studies. In "Fish physiology" recent advances. (Eds. Nilsson, S. and Holmgren, S.). Croom, Helm Ltd, Australia, PP. 158-169.

Fryer, J.M. (1975): Stress and adrenocorticosteroid dynamics in the goldfish, *Carassius auratus*. Can. J. Zool., 53:1012-1020.

Garavini, C. and Martelli, P. (1981): Alkaline phosphatase and peroxidase in goldfish (*Carassius auratus*) leucocytes. Bas. Appl. Histochem., 25:133-139.

Garavini, C.; Martelli, P. and Borelli, B. (1981): Alkaline phosphatase and peroxidase in neutrophils of the catfish *Ictalurus neals* (Siluriformes Ictaluridae). Histochem., 72:75-81.

Gardner, G.R. and Yevich, P.P. (1969): Studies on the blood morphology of three estuarine cyprinodontiform fishes. J. Fish Res. Board Can., 26:433-447.

- Gardner, G.R. and Yevich, P.P.(1970): Histological and hematological response of an estuarine teleost to cadmium. J. Fish Res. Board Can., 27:2185-2196.
- Garhrton, G. (1966): The periodic acid-schiff reaction in neutrophil leucocytes in chronic myeloproliferative disease. A microspectrophotometric study. Scand. J. Haemat., 3:106-117.
- Goldberg, A.F. and Barka, T.(1962): Acid phosphatase activity in human blood cells. Nature, 189:297.
- Goss, G.G. and Wood, C.M.(1988): The effects of acid and acid/aluminum exposure on circulating plasma cortisol levels and other blood parameters in the rainbow trout, *Salmo gairdneri*. J. Fish Biol., 32:63-76.
- Grabda, E.; Einszporn-Orecka, I.; Felinska, C. and Zbanyszek, R. (1974): Experimental methemoglobinemia in rainbow trout. Acta Ichthyologica et piscatoria, 2:43-70.
- Grant, W.C.; Hendler, F.J. and Banks, P.M.(1969): Studies on blood sugar regulation in the little skate *Raja erinacea*. physiol. Zool., 42:231-247.
- Grant, B.F. and Mehrle, P.M. (1970): Chronic endrin poisoning in goldfish, *Carassius auratus*. J. Fish Res. Board Can., 7:2225-2232.

- Grant, B.F. and Mehrle, P.M. (1973): Endrin toxicosis in rainbow trout (*Salmo gairdneri*). J. Fish Res. Board Can., 30: 31-40.
- Gutierrez, J.; Fernandez, J.; Carrillo, M.; Zanny, S. and Planas, J. (1987): Annual cycle of plasma insulin and glucose of sea bass, *Dicentrarchus labrax*. Fish physiol. Biochem., 4: 137-141.
- Gutmann, L. and Wahlefeld, A.W. (1974): L- lactate determination with lactate dehydrogenase and NAD. In "Methods of Enzymatic Analysis", (Ed. F.H.U. Bergmeyer), 2nd ed. Verlag Chemie Weinheim and Academic Press, Inc. New York and London. 4 vols. PP. 1464.
- Haight, W.F. and Rossiter, R.J. (1950): Acid and alkaline phosphatase in white cell: Data for the lymphocytes and the polymorphonuclear leukocytes of man and rabbit. Blood, 5: 267.
- Hane, S.; Robertson, O.H.; Wexler, B.C. and Krupp, M.A. (1966): Adrenocortical response to stress and ACTH in Pacific salmon *Oncorhynchus tshawytscha* and steelhead trout *Salmo gairdneri* at successive stages in the sexual cycle. Endocrinol., 78: 791-800.
- Hanker, J.S.; Yates, P.E.; Metz, C.B. and Rustioni, A. (1977): A new specific, sensitive and non-carcinogenic reagent for the demonstration of horseradish peroxidase. Histochem., 9: 789.

- Haux, C. and Larsson, A. (1979): Effects of DDT on blood plasma electrolytes in the flounder, *Platichthys flesus* L. in hypotonic brackish water. *Ambio.*, 8: 171-173.
- Hayhoe, F. G. and Flemans, R.J. (1969): An Atlas of Haematological Cytology, Wolfe Publ. Ltd. London.
- Hayhoe, F.G. and Quaglino, D. (1980): Haematological Cytochemistry. Churchill Livingstone, Edinburgh. PP. 320.
- Heath, A.G. and Pritchard, A.W. (1965): Effects of severe hypoxia on carbohydrate energy stores and metabolism in two species of fresh water fish. *Physiol. Zool.*, 38: 325-334.
- Hendrick, M.; DiNapoli, A.; Cammarata, P. and Pincus, S. (1986): Purification of carp putative eosinophils on metrizamide gradients. *J. Fish Biol.*, 29: 47-54.
- Henry, J.B. (1984): Clinical Diagnosis and Management by Laboratory Methods. (Ed. Henry, J.B.). Pub. W.B. Saunders Company Philadelphia.
- Hill, C.W. and Fromm, P.O. (1968): Response of the interrenal gland of rainbow trout (*Salmo gairdneri*) to stress. *Gen. Comp. Endocrinol.*, 11: 69-77.

- Hine, P.M.; Wain, J.M. and Boustead, N.C. (1987):
Theleucocyte enzyme cytochemistry of fish. N.Z.
Fish Res. Bull., 28:5-72.
- Hine, P.M.; Wain, J.M.; Boustead, N.C. and Dunlop, D.M.
(1986a): Light and electron microscopic studies
on the enzyme cytochemistry of leucocytes of
eels, *Anguilla* species. J.Fish Biol., 29:721-735.
- Hine, P.M.; Wain, J.M. and Dunlop, D.M. (1986b):
Observations on granulocyte peroxidase in New
Zealand fresh Water eels, *Anguilla* species.
J.Fish Biol., 29:711-720.
- Hirano, T. (1969): Effects of hypophysectomy and salinity
change on plasma cortisol concentration in the
japanese eel, *Anguilla japonica*. J. Exp. Biol.,
40:335-341
- Holmes, W.N. and McBean, R.B. (1963): Studies on the
glomerular filtration rate of rainbow trout *Salmo
gairdneri*. J. Exp. Biol., 40:335-341.
- Horrobin, D.G. (1973): Prolactin: Physiology and clinical
significance. Medical and Technical Publishing.
St. Leonardgate. Lancaster, Ohio. PP. 239.
- Ince, B.W. (1979) : Insulin secretion from in situ perfused
pancreas of the european silver eel, *Anguilla
anguilla*. Gen. Comp. Endocrinol.; 37 : 533-540.

- Inui, Y. and Gorbman, A. (1977) : Sensitivity of pacific hagfish, *Eptatretus touti*, to mammalian insulin. Gen Comp. Endocrinol.; 33 : 423-427.
- Iwama, G.K. ; Greer, G.L. and Randall, J.R. (1986) : Changes in selected haematological parameters in juvenile chinook salmon subjected to a bacterial challenge and toxicant. J.Fish Biol. , 28 : 562-572.
- Jackim, E.; Hamlin, J.M. and Sonis, S. (1970) : Effects of metal poisoning of five enzymes in the killi fish (*Fundulus heteroclitus*). Fish Res. Board Can., 27 : 383-390.
- Johannson, M.L. (1973) : Peroxidase in blood cells of fishes and cyclostomes. Acta Reg. Soc. Sci. Litt. Gothoburg, Zool., 8 : 53-56.
- Johnson, D.W. (1973) : Endocrine control of hydromineral balance in teleosts. Am. Zool. , 13 : 799-818.
- Karnovsky, M.L. and Lazdins, J.k. (1978) : Biochemical criteria for activated macrophages. J. Immunology, 121:809-813.
- Karnovsky, M.; Robinson, J.M.; Briggs, R.T. and karnovsky, M.L. (1981): Oxidative cytochemistry in phagocytosis the interface between structure and function (Review). Histochem., 13:1922.

- Kelenyi, G. and Larsen, L.O. (1976): The haematopoietic supraneural organ of adult, sexually immature river lampreys (*Lampetra fluviatilis*) (L.) Gray with particular reference to azurophil leucocytes. Acta Biol. Acad. Sci. Hung., 27:45-56.
- Kelenyi, G. and Nemeth, A. (1969): Comparative histochemistry and electron microscopy of the eosinophil leucocytes of vertebrates I. A study of avian, reptile, amphibian and fish leucocytes. Acta Biol. Acad. Sci. Hung., 20 : 405-422.
- Kenny, J.J. and Moloney, W.C. (1957) : Leukocytic alkaline phosphatase : behavior during prolonged incubation and infection in normal and leukemic leucocytes. Blood, 12 : 295-302.
- Khorunova, I.V. and Baranova, V.S. (1987) : Activity of certain enzymes in the blood of carp poisoned with pirimiphosmethyl. Problemy biologii Pathologii sel'skokhozyaistvennykh zhivothkh, 23-25.
- Kindle, K.R. and Whitmore, D.H. (1986) : Biochemical indicators of thermal stress in *Tilapia aurea* (Steindachner). J. Fish Biol., 29 : 243-255.
- Kowalski, A. and Paul, W. (1976) : Cortisol radioimmunoassay of D.P.C. Clin. Chemi. , 25 : 1152.

- Kreutzmann, H.L. (1976) : Untersuchungen zur morphologie des blutes vom europäischen aal (*Anguilla anguilla*). II. Untersuchungen zur granulopoese. Folia Haemat., 103 : 686.
- Kreutzmann, H.L. (1977) : Untersuchungen zur morphologie des blutes vom europäischen aal (*Anguilla anguilla*). III. Beobachtungen an monozytaren und lymphatischen zellen. Folia Haemat., 104 : 538-557.
- Kreutzmann, H.L. (1978) : Untersuchungen zur morphologie des blutes vom europäischen aal (*Anguilla anguilla*). IV. Die thrombozyten und ihre entwicklungsreihe. Folia Haemat., 105 : 239-247.
- Lakota, S.; Anna, R. ; Roszkowski, J. ; Hlond, S. and Kozlowski, F. (1984) : Toxic effect of DDT, Lindane and Toxaphene on the fry of carp, *Cyprinus carpio* as revealed by an acute test. Folia Biol., 3 (1) : 93-100.
- Lam, T.J. and Leatherland, J.F. (1969) : Effect of prolactin on fresh water survival of the marine form (trachurus) of the three spine stickleback, *Gasterosteus aculeatus* in the early winter. Gen. Comp. Endocrinol., 12 : 385-387.
- Larsson, A. (1973) : Metabolic effects of epinephrine and norepinephrine in the eel, (*Anguilla anguilla*) . Gen. Comp. Endocrinol., 20 : 155-167.

- Larsson, A.; Bengtsson, B.E. and Svanberg, L. (1976) : Some haematological and biochemical effects of cadmium on fish. In "Effects of pollutants on aquatic organism", (Ed. A.P.M. Lockwood), Society for Experimental Biology Seminar series. Vol. 2. University Press, Cambridge, pp. 35-45.
- Larsson, A.; Haux, C. and Sjobeck, M.L. (1985) : Fish physiology and metal pollution : Results and experiences from laboratory and field studies. *Ecotoxicol. and Environ. Safety.*, 9 : 250-281.
- Latif, A.F.A. ; Salem, S.A.; Fayek, K. I. and Gaafar, K.M. (1989) : Biochemical and histological studies on diabetogenic effect of alloxan in *Tilapia nilotica*. *Egypt J. Histol.*, 12 (2) : 283-292.
- Leatherland, J.F. and McKeown, B. A. (1973) : Circadian rhythm in the plasma levels of prolactin in gold fish, *Carassius auratus* L. *J. Interdiscip Cycle Res.*, 4 137-143.
- Liebmann, H. (1966) : Fish as an indicator of water pollution. *Bull. Off. Int. Epiz.*, 65 (5-6) : 565-569.
- Lorz, H. W.; Williams, R.H. and Fustish, C.A. (1978) : Effects of several metals on smolting of coh salmon, *Oncorhynchus kisutch* U. S. Environ Prot. Agency. Environ. Res. Lab., Corvallis. (In Press).

- Love, R. M. (1970) : The chemical biology of fish. Academic Press, London, N.Y. pp. 262.
- Luppa, H. and Andra, J. (1983) : The histochemistry of carboxylester hydrolases : Problems and possibilities. *Histochem.*, 15 : III, 137.
- Maetz, J. (1974) : Aspects of adaptation to hypoosmotic and hyperosmotic environments. In "Biochemical and biophysical perspectives in marine biology", (Eds. D.C. Malins and J.R. Sargent), pp. 1-167. Vol. I. Academic Press, London, N.Y.
- Maetz, J.; Mayer, N.; Forster, M.E. and Chan, D.K.O. (1967) : Axe hypophysiointerrenalien et osmoregulation chez des poissons d'eau de mer. *Gen. Comp. Endocrinol.*, 9 : 471.
- Mahajan, C.L. and Dheer, J.S. (1979) : Cell types in the peripheral blood of an air breathing fish, *Channa punctatus*. *J. Fish Biol.*, 14 : 481-487.
- Mainwaring, G. and Rowley, A. F. (1985) : Studies on granulocyte heterogeneity in elasmobranchs. In "Fish Immunology", (Eds. Mannin, M. J. and Totner, M.F.) , pp. 57-69. Academic Press, London.
- Mangili, G.; Motta, M. and Martini, L. (1966) : Control of adrenocortical hormone secretion. In "Neuro-endocrinology" , (Eds. L. Martini and W.F. Ganong), Vol. I. Academic Press, New York.

- Maximovitch, A.A.; Bartkova, A.D.; Plyusnin, V.V.; Bondareva, V.M.; Soltitskaya, L.P. and Plisetskaya, E.M. (1978) : Ultrastructure and function of pancreatic B-cells in the pacific salmon (*Oncorhynchus gorbuscha*) during spawning migration. *Biologija marya*, 6 : 61-69.
- Mazeaud, F. (1964) : Vitesse de production de L'hyperglycemie adrenale en fonction de la temperature chez la carpe. Intensite de la response en fonction de la dose d'hormone. *C.R. Soc. Biol.*, 158 : 36-40.
- Mazeaud, M.M. and Mazeaud, F. (1981) : Adrenergic response to stress in fish. In "Stress and Fish", (ed. A.D. Pickering), Academic Press, New York.
- Mazeaud, M.M.; Mazeaud, F. and Donaldson, E.M. (1977) : Stress resulting from handling in fish : primary and secondary effects. *Trans. Am. Fish. Soc.*, 106 : 201-212.
- Mc Arthur, C.P. (1977) : Haematology of the New Zealand fresh water eels, *Anguilla australis* and *A. dieffenbuchii*. *N.Z. J. Zool.*, 4 : 5-20.
- McBride, J. Strasdine, G. and Fagerlund, U.H.M. (1975) : Acute toxicity of kanamycin to steelhead trout (*Salmo gairdneri*). *J. Fish Res. Board Can.*, 32 : 554-558.

- McCall, C.E.; Katayama, L.; Cotrar, R.A. and Finland, M. (1969) : Lysosomal and ultrastructural changes in human toxic neutrophils during bacterial infection. *J.Exp.Med.*, 129 : 267-293.
- McDonald, D.G. (1983) : The effects of H⁺ upon the gills of freshwater fish. *Can. J. Zool.*, 61 : 691-703.
- McLeay, D.J. (1973) : Effects of a 12-hr and 25 day exposure to kraft pulp mill effluent on the blood and tissues of juvenile coho salmon (*Oncorhynchus kisutch*). *J. Fish Res. Board Can.*, 30 : 395-400.
- McLeay, D.J. and Brown, D.A. (1975) : Effects of acute exposure to bleached kraft pulpmill effluent on carbohydrate metabolism of juvenile coho salmon, *Oncorhynchus kisutch* during rest and exercise. *J. Fish Res. Board Can.*, 32 : 753-760.
- Mitus, W.J.; Bergna, L.J.; Mednicoff, I.B. and Dameshek, W. (1958) : Alkaline phosphatase of mature neutrophils in chronic forms of the myeloproliferative syndrome. *Am.J.Clin. Path.*, 30 : 285-294.
- Mukhopadhyay, P.K. and Dehadrai, P.V. (1980) : Studies on air breathing catfish, *Clarias batrachus* (Linn.) under sublethal malathion exposure. *J. Exp. Biol.*, 18 : 348-352.

- Murat, J.; Castilla, C. and Paris, H. (1978) : Inhibition of gluconeogenesis and glucagon induced hyperglycemia in carp , *Cyprinus carpio*. Gen. Com. Endocrinol., 34 : 243-246.
- Murat, J. ; Plisetskaya, E. and Woo, N.Y.S. (1981) : Endocrine control of nutrition on cyclostomes and fish. Comp. Biochem. Physiol., 68 A : 149-158.
- Murphy, S. D. (1969) : Some relationships between effects of insecticides and other stress conditions. A.N.Y. Acad. Sci., 160 : 366-377.
- Nakano, T. and Tomlinson, N. (1967) : Catecholamine and carbohydrate concentrations in rainbow trout (*Salmo gairdneri*) in relation to physical disturbance. J. Fish Res. Board Can., 24 : 1701-1715.
- Narain, A.S. and Srivastava, P.N. (1979) : Haematohistological response of the indian freshwater catfish, *Heteropneustes fossilis* to environmental pollution by sewage, fertilizers and insecticides. Arch. Biol., 90 (2) : 141-159.
- Nemeth, U. (1974) : Hepatic tyrosine aminotransferase (TAT) in stressed trouts and rats. Gen.Comp. Endocrinol., 22 : 388.
- Norris, O. (1985) : Vertebrate Endocrinology. Second edition. LEA, Febiger Philadelphia. PP. 417.

- Oduleye, S.O. (1975) : The effect of hypophysectomy and prolactin therapy on water balance of the brown trout, *Salmo trutta*. J. Exp. Biol., 63 : 357-366.
- Oguri, M. and Nace, P.F. (1966) : Blood sugar and adrenal histology of the gold fish after treatment with mammalian adrenocorticotrophic hormone. Sci., 7 : 198-202.
- Oliverreau, M. and Chartier-Baraduc, M.M. (1966) : Action de la prolactine chez L'Anguille intacte et hypophysectomisee. III. Effect sur les electrolytes plasmatiques (sodium, potassium et calcium). Gen. Comp. Endocrinol., 7 : 27-36.
- Ottolenghi, C.; Puviani, A. C.; Baruffaldi, A. and Brighenti, L. (1982) : In vivo effects of insulin on carbohydrate metabolism of catfish *Ictalurus melas*. Comp. Biochem. Physiol., 72 A : 35-41.
- Page, M. and Rowley, A.F. (1983) : A cytochemical, light and electron microscopical study of the leucocytes of adult river lamprey, *Lampetra fluviatilis* (L. Gray). J. Fish Biol., 22 : 503-517.
- Palmer, T.N. and Ryman, B.E. (1972) : Studies on oral glucose intolerance in fish. J. Fish Biol., 4 : 311-319.

- Pandy, A.K.; Shukla, L.; Fujii, R. and Yoko, M. (1982) : Effect of sublethal malathion exposure on melanophores of a cichlid *Sarotherodon mossambicus*. J. Lib. Arts. Sci. Sapor. Med. Coll., 22 : 77-82.
- Parish, N.; Wrathmell, A.; Hart, S. and Harris, E. (1986) : The leucocytes of the elasmobranch *Scyliorhinus canicula* L. a morphological study. J. Fish Biol., 28 : 545-561.
- Patent, G.J. (1970) : Comparison of some hormonal effects on carbohydrate metabolism in an elasmobranch *Squalus acanthias* and a holocephalan *Hydrolagus colliei*. Gen. Comp. Endocrinol., 14 : 215-242.
- Patent G.J. and Foa, P.P. (1971) : Radioimmunoassay of insulin in fishes, experiments in vivo and in vitro. Gen. Comp. Endocrinol., 16 : 41-46.
- Perrier, C.; Terrier, M. and Parrier, H. (1978) : A time-course study of the effects of angling stress on cyclic AMP, lactate and glucose plasma levels in the rainbow trout (*Salmo gairdneri* Richardson) during a 64 hour recovery period. Comp. Bioch. Physiol., 60 A : 217-219.
- Philips, J.G. and Bellamy, D. (1963) : Adrenocortical hormones. In "Comparative Endocrinology", (Eds. U.S. Von Euler and H. Heller), Vol. I. Glandular Hormones, pp. 208-257. Academic Press, New York.

- Pickering, A.D.; Pottinger, T.G. and Christie, P. (1982)
Recovery of the brown trout, *Salmo trutta* L. from
acute handling stress : a time-course study. J.
Fish Biol., 20 : 229-244.
- Pitombeira, S.M. and Martins, M.J. (1970) : Haematology of
the Spanish mackerel, *Scomberomorus maculatus*.
Copeia, 182-186.
- Plisetskaya, E.; Dickhoff, W.W.; Paquette, T.L. and Gorbman,
A. (1986) : The assay of salmon insulin by
homologous radioimmunoassay. Fish Physiol.
Biochem., 1 : 37-43.
- Plisetskaya, E.; Donaldson, E.M. and Dye, H.M. (1987) :
Plasma insulin levels during the spawning
migration of the pink salmon, *Oncorhynchus*
gorbuscha. J. Fish Biol., 31 : 21-26.
- Plisetskaya, E.; Leibush, B.N. and Bondavera, V. (1976): The
secretion of insulin and its role in cyclostomes
and fishes. In "The Evolution of Pancreatic
Islets" (Eds. A. Grillo, L. Leibson and A.
Epplé), PP. 251-269, Pergamon, Oxford.
- Plisetskaya, E.; Sower, S.A. and Gorbman, A. (1983): The
effect of insulin insufficiency on plasma thyroid
hormones and some metabolic constituents in
pacific hagfish, *Eptatretus stouti*. Gen Comp.
Endocrinol., 49:315-319.

- Poels, C.L. and Strik, J.J. (1975): Chronic toxic effects of the water of the river Rhine upon rainbow trout. In "Sublethal Effects of Toxic Chemicals on Aquatic Animals", (Eds. J.H. Koeman and J.J. Strik), PP. 81-90. Amsterdam, Elsevier Scientific publ.
- Potts, W.T.W. and Evans, D.H. (1966): The effects of hypophysectomy and bovine prolactin on salt fluxes in freshwater-adapted *Fundulus heteroclitus*. Biol. Bull., 131:362-369.
- Redgate, E.S. (1974): Neural control of pituitary activity in *Cyprinus carpio*. Gen. Comp. Endocrinol., 22:35-41.
- Reichenbach, H.H. (1966): The blood components of fish with relation to parasites, infections and water pollution. Bull. Off. Int. Epiz., 65 (7-8):1039-1054.
- Robertson, O.H.; Hane, S.; Wexler, B.C. and Rinfret, A.P. (1963): The effect of hydrocortisone on immature rainbow trout (*Salmo gairdnerii*). Gen. Comp. Endocrinol., 3:422-436.
- de Roos, R. and de Roos, C. (1973): Elevation of plasma glucose levels by mammalian ACTH in the spiny dogfish shark *Squalus acanthias*. Gen. Comp. Endocrinol., 21:403-409.
- de Roos, R. and de Roos, C. (1978): Elevation of plasma glucose levels by catecholamines in elasmobranch fish. Gen. Comp. Endocrinol., 34:447-452.

- de Roos, R. and de Roos, C. (1979): Severe insulin-induced hypoglycemia in the spiny dogfish shark *Squalus acanthias*. Gen Comp. Endocrinol., 37:186-191.
- Roubal, F. R. (1986): Blood and other possible inflammatory cells in the sparid *Acanthopagrus australis* (Gunther). J. Fish Biol., 28:573-593.
- Sage, M. and Purrott, R.J. (1969): The control of teleost ACTH cells. Z. Vergl. Physiol., 63:85-90.
- Saunders, D.C. (1968): Variations in thrombocytes and small lymphocytes found in the circulating blood of marine fishes. Trans. Am. Microsc. Soc., 87:39-43.
- Sayers, G. and Sayers, M.A. (1947): Regulation of pituitary adrenocorticotrophic activity during the response of the rat to acute stress. Endocrinol., 40:265.
- Schade, D.S.; Eaton, R.P. and Spencer, W. (1980): Normalization of plasma insulin profiles in diabetic subjects with programmed insulin delivery. Diabetes Care, 9-14.
- Schiffman, R. and Fromm, F. (1959): Measurement of some physiological parameters in rainbow trout, (*Salmo gairdneri*). Can. J. Zool., 37:25-32.
- Schreck, C.B. and Lorz, H.W. (1978): Stress response of coho salmon (*Oncorhynchus kisutch*) elicited by cadmium and copper and potential use of cortisol as an indicator of stress. J. Fish Res. Board Can., 35:1124-1129.

- Schreck, C.B.; Whaley, R.A.; Bass, M.L.; Maughan, O.E. and Solazzi, M. (1976): Physiological responses of rainbow trout *Salmo gairdneri* to electroshock. J. Fish Res. Board Can., 33:76-84.
- Schultz, D.P. (1972): Proliferative endocarditis on the heart of carp after exposure to the herbicide "Karmex". Zentralblatt für veterinärmedizin, 19 (5):390-406.
- Schultz, D.P. and Whitney, E.W. (1974): Monitoring 2, 4-D residues at Ioxabatchee National Wildlife Refuge. Pesticide Monitoring J., 7 (4):146-152.
- Selye, H. (1950): Stress and the general adaptation syndrome. Brit. Med. J., 1:1383-1392
- Selye, H. (1976): Stress in health and disease. Butterworth, Boston. PP. 1256.
- Shobha-Rani, V.; Venkateshwarlu, P. and Janaiah, C. (1989): Changes in carbohydrate metabolism of *Clarias batrachus* when exposed to two organophosphorus insecticides. J. Environ. Biol., 10 (2):197-204.
- Silbergeld, E.K. (1974): Blood glucose: A sensitive indicator of environmental stress in fish. Bull. Envir. Conta. Toxicol., 11 (1):20-25.
- Singley, A. and Chavin, W. (1971): Cortisol levels of normal gold fish, *Carassius auratus*, and response to osmotic change. Am. Zool., 11:653.

- Singley, A. and Chavin, W. (1972): Response of the adrenocortical-hypophyseal axis of gold fish *Carassias auratus* to osmotic stress. Am.Zool., 12:679.
- Snedcor, G. and Cochran, W. (1969): Statistical methods 6th Ed. Jowa state Univer. Press, Ames, Iowa, USA.
- Soivio, A. and Oikari, A. (1976): Haematological effects of stress on a teleost fish, *Esox lucius* L. J. Fish Biol., 8:397-411.
- Soybel, D.; Jaspan, J.; Polonsky, K.; Goldberg, I. and Tager, H. (1983): Differential immunoreactivity of plasma glucagon in man: studies with different glucagon antibodies. J. Clin. End. Met., 56: 612-618.
- Spieler, R.E. (1974): Short-term serum cortisol concentrations in goldfish *Carassius auratus* subjected to serial sampling and restraint. J. Fish Res. Board Can., 31:1240-1242.
- Spieler, R.E. and Meier, A. H. (1976): Short-term serum prolactin concentrations in gold fish *Carassius auratus* subjected to serial sampling and restraint. J. Fish Res. Board Can., 33:183-186.
- Srivastava, A.K. and Singh, N.N. (1981): Effects of acute exposure to methyl parathion on carbohydrate metabolism of indian catfish (*Heteropneustes fossilis*). Acta Pharmacol. et Toxicol., 48:26-31.