

เอกสารอ้างอิง

- จรัญ จันทลักษณ. 2540. สติ๊ติวีชีวิเคราะห์และวางแผนงานวิจัย. สำนักพิมพ์ไทยวัฒนาพานิช.
กรุงเทพฯ. 468 หน้า.
- ชัยนรงค์ คันธพนิต. 2529. วิทยาศาสตร์เนื้อสัตว์. บริษัทโรงพิมพ์วัฒนาพานิช. กรุงเทพฯ. 276 หน้า.
นิโอลบล เนื่องด้น. 2542. ชีวเคมี 1 คณะแพทยศาสตร์ศิริราชพยาบาล. พิมพ์ครั้งที่ 5. บริษัทธรมสาร
จำกัด. กรุงเทพฯ. 540 หน้า.
- พันทิพา พงษ์เพียจันทร์. 2539. หลักอาหารสัตว์ เล่ม 2: หลักโภชนาศาสตร์และการประยุกต์.
สำนักพิมพ์โอเดียนสโตร์. กรุงเทพฯ. 576 หน้า.
- พรพิพย์ โล่ห์เลขา. 2538. ໄລໂປໂປຣຕິນແລະກວະຫຼອດເລື່ອດແບ່ງ. พิมพ์ครั้งที่ 2. อุณาการพิมพ์.
กรุงเทพฯ. 175 หน้า.
- ไฟโรจน์ วิริยะรี. 2535. การวางแผนการวิเคราะห์ทางค้านประสานสมัมผัส. ภาควิชาวิทยาศาสตร์
และเทคโนโลยีการอาหาร, คณะเกษตรศาสตร์ มหาวิทยาลัยเชียงใหม่. เชียงใหม่. 275 หน้า.
- วิชัย เอื้อสิยาพันธุ์. 2545. ชีวเคมีทางการแพทย์ : Metabolism. บริษัทบุ๊กเน็ท จำกัด. กรุงเทพฯ. 356
หน้า.
- สัญชัย จตุรลิทชา. 2543. เทคโนโลยีเนื้อสัตว์. ชลบรรณการพิมพ์. เชียงใหม่. 244 หน้า.
- สัญชัย จตุรลิทชา. 2547. การจัดการเนื้อสัตว์. พิมพ์ครั้งที่ 3. โรงพิมพ์มิ่งเมือง. เชียงใหม่. 170 หน้า.
- สมพงษ์ สาพงษ์. 2533. ธรรมชาติบำบัด น้ำมันปลา น้ำมันลดไขมัน. สำนักพิมพ์รวมทรรศน์.
กรุงเทพฯ. 79 หน้า.
- AOAC. 1995. Official Methods of Analysis. Association of Official Analytical Chemists,
Arlington, VA.
- Ahn, D.U., S. Lutz, and J.S. Sim. 1996. Effect of dietary α -linolenic acid on the fatty acid
composition, storage stability and sensory characteristics of pork loin. *Meat Sci.* 43:291-
299.
- Allan, F.J., K.G. Thompson, K.A.C. James, B.W. Manktelow, J.P. Koolaard, R.N. Johnson, and
P.V. McNutt. 2001. Serum lipoprotein cholesterol and triglyceride concentration in pigs
fed diets containing fish oil, milk fat, olive oil and coconut oil. *Nutr. Res.* 21: 785-795.

- Azian, M.J. 2004. Role of fatty acids in adipocyte growth and development. *J. Anim. Sci.* 82: 916-924.
- Ball, R.O. 2000. Differences among genotype and gender for growth, carcass composition and meat quality. *Adv. Pork Prod.* 11: 227-235.
- Becker, R. 1992. Fatty acids in food cereal grains and grain products. In: Fatty Acids in Foods and Their Health Implication. Ed. Chow, C.K. Marcel Dekker, Inc., New York. 297-309 p.
- Bell, M.V., J.R. Dick, and A.E.A. Porter. 2003. In vivo assays of docosahexaenoic acid biosynthesis in fish. In: The Big fish Bang. Proceedings of the 26th Annual Larval Fish Conference, Bergen, Norway. 229-237.
- Bell, G., S. Gebert, and R. Messikommer. 2002. Effect of dietary energy supply and fat source on the fatty acid pattern of adipose and lean tissues and lipogenesis in the pig. *J. Anim. Sci.* 80: 1564-1574.
- Bérard, A.M., M-F. Dumon, and M. Darmon. 2004. Dietary fish oil up-regulates cholesterol 7 α -hydroxylase mRNA in mouse liver leading to an increase in bile acid and cholesterol excretion. *FEBS Lett.* 559: 125-128.
- Berlin, E., S.J. Bhathena, D. McClure, and R.C. Peters. 1998. Dietary menhaden and corn oils and the red blood cell membrane lipid composition and fluidity in hyper- and normocholesterolemic miniature swine. *J. Nutr.* 128: 1421-1428.
- Biggs, H.G., J.M. Erikson, and W.R. Moorehead. 1975. A manual colorimetric assay of triglycerides in serum. *Clin. Chem.* 21: 437-441.
- Bravo, E., A. Cantaforda, V. DeLuca, M. Tripodi, M. Avella, and K.M. Botham. 1998. The mechanism underlying the hypocholesteromic effect of chronic fish oil feeding in rats is not due to increased excretion of dietary cholesterol. *Atherosclerosis* 139: 253-263.
- Bryhni, E.A., N.P. Kjos, R. Ofstad, and M. Hunt. 2002. Polyunsaturated fat and fish oil in diets for growing-finishing pigs: effect on fatty acids composition and meat, fat, and sausage quality. *Meat Sci.* 62: 1-8.
- Busboom, J.R., D.C. Rule, D. Colin, T. Heald, and A. Mazhar. 1991. Growth, carcass characteristics, and lipid composition of adipose tissue and muscle of pigs fed canola. *J. Anim. Sci.* 69: 1101-1108.

- Calvert, C.C. 1991. Fiber utilization by swine. In: Swine Nutrition. Eds. E.R. Miller, D.E. Ullrey, and A.J. Lewis. Butterworth-Heinemann. Boston, USA. 673 p.
- Chen, E-J., and S-L. Yeh. 2003. Effect of fish oil in parenteral nutrition. *Nutr.* 19: 275-279.
- Coniglio, J.G. 1992. How does fish oil lower plasma triglycerides? *Nutr. Rev.* 50: 195-206.
- Connor, S.J., and W.E. Connor. 1997. Are fish oils beneficial in the prevention and treatment of coronary artery disease? *Am. J. Clin. Nutr.* 66(suppl): 1020S-1031S.
- Cornforth, D. 1999. Colors - its basis and importance. In: Quality Attributes and Their Measurement in Meat, Poultry and Fish Products. Eds. A.M. Pearson and T.R. Dutson. Aspen Publishers Inc., Gaithersburg, Maryland, USA. 34-78 p.
- Coronado, S.A., G.R. Trout, F.R. Dunshea, and N.P. Shah. 2002. Effect of dietary vitamin E, fish meal and wood and liquid smoke on the oxidative stability of bacon during 16 weeks' frozen storage. *Meat Sci.* 62: 51-60.
- Cummings, B. 2001. Human Anatomy & Physiology. 5th edition. [Online]. Available: <http://www.octc.kctcs.edu/gcaplan/anat/Notes/API%20Notes%20E%20%20Cell%20Membrane.htm>. [12/July/2005].
- Dal Bosco, A., C. Castellini, L. Bianchi, and C. Mugnai. 2004. Effect of dietary α-linolenic acid and vitamin E on the fatty acid composition, storage stability and sensory traits of rabbit meat. *Meat Sci.* 66: 407-413.
- De Caterina, R., and G. Basta. 2001. N-3 fatty acids and the inflammatory response-biological background. *Eur. Heart J. Supplements.* 3(suppl D): D42-D49.
- De Smet, S., K. Raes, and D. Demeyer. 2004. Meat fatty acid composition as affected by fatness and genetic factor: a review. *Anim. Res.* 53: 81-94.
- Decker, E.A., and H.O. Hultin. 1992. Lipid oxidation in muscle foods via redox iron . In: Lipid Oxidation in Food. Ed. A.J.St. Angelo. American Chemical Society, Washington, DC., USA. 33-54 p.
- Donzele, J.L., M.L.T. de Abreu, U.A.D. Orlando. 2001. Nutritional requirements and carcass quality of swine of different sexes. [Online]. Paper presentation in Second International Virtual Conference on Pork Quality, Nov. 05 – Dec. 06 2001. Available: www.conferencia.uncnet.br/pork/seg/pal/anais01p2.donzele_en.pdf. [10/July/2004].

- Ding, S-T., A. Lapillonne, W.C. Heird, and H.J. Mersmann. 2003a. Dietary fat has minimal effect on fatty acid metabolism transcript concentration in pigs. *J. Anim. Sci.* 81: 423-431.
- Ding, S-T., J-C. Wang, and H.J. Mersmann. 2003b. Effect of unsaturated fatty acids on porcine adipocyte differentiation. *Nutr. Res.* 23: 1059-1069.
- Dunshea, F.R. 1993. Effect of metabolism modifiers on lipid metabolism in pig. *J. Anim. Sci.* 71: 1966-1977.
- Enser, M. 1984. The chemistry, biochemistry and nutritional importance of animal fats. In: Fats in Animal Nutrition. Ed. J. Wiseman. Butterworths, England. 23-52p.
- Enser, M. 2001. Muscle lipids and meat quality. [Online]. Proceeding of the British Society of Animal Science. Available: <http://www.bsas.org.uk/downloads/annlproc/Pdf.2001/243.pdf>. [22 May 04].
- Enser, M., R.I. Richardson, J.D. Wood, B.P. Gill, and P.R. Sheard. 2000. Feeding linseed to increase the n-3 PUFA of pork: fatty acid composition of muscle, adipose tissue, liver and sausages. *Meat Sci.* 55: 201-212.
- Essén-Gustavsson, B. 1993. Muscle-fiber characteristics in pigs and relationships to meat-quality parameters- review. In: Pork Quality: Genetic and Metabolic Factors. Eds. E. Puolanne, D.I. Demeyer, M. Ruusunen, and S. Ellis. C·A·B International, UK. 140-159 p.
- Folch, J., M. Lee, and G.H.S. Stanley. 1957. A simple method for the isolation and purification of total lipids from animal tissue. *J. Biol. Chem.* 226: 497 – 509.
- Forrest, J. C., E. D. Aberle, H. B. Hedrick, M. D. Judge, and R. A. Merkel. 1975. Principle of Meat Science. W. H. Freeman and Company, USA. 417 p.
- Freeman, C.P. 1984. The digestion, absorption and transport of fats-non ruminants. In: Fats in Animal Nutrition. Ed. J. Wiseman. Butterworths, England. 105-122 p.
- Friesen K.G., Nelssen J.L., Unruh J.A., Goodband R.D. and Tokach M.D. 1994. Effect of the interrelationship between genotype, sex, and dietary lysine on growth performance and carcass composition in finishing pigs fed to either 104 or 127 kilograms. *J. Anim. Sci.* 72 : 946-954.
- Fritzsche, K.L., Sh-C. Huang, and N.A. Cassity. 1993. Enrichment of omega-3 fatty acids in suckling pigs by maternal dietary fish oil supplementation. *J. Anim. Sci.* 71:1841-1847.

- Gaíva, M.H., R.C. Couto, L.M. Oyama, G.E.C. Couto, V.L.F. Silveira, E.B. Ribeiro, and C.M.O. Nascimento. 2003. Diets rich in polyunsaturated fatty acids: Effect on hepatic metabolism in rats. *Nutr.* 19: 144-149.
- Grundy, S.M. 1997. What is the desirable ratio of saturated, polyunsaturated, and monounsaturated fatty acids in the diet? *Am. J. Clin. Nutr.* 66(suppl): 988S-990S.
- Halver, H.E. 1980. Lipids and fatty acids. [Online]. Available: www.fao.org/docrep/X5738E/x5738e05.htm. [20 June 2005].
- Harris, W.S. 1999. Nonpharmacologic treatment of hypertriglyceridemia: Focus on fish oils. *Clin. Cardiol.* 22(suppl. II): II-40-II-43.
- Harris, W.S., and C. von Schacky. 2004. The Omega-3 Index: A new risk factor for death from coronary heart disease? *Preventive Med.* 39: 212-220.
- Higgs, J.D. 2002. Enhancing the nutritional value of meat. In: Nutrition Handbook for Feed Processors. Eds. C.J.K. Henry, and C. Chapman. CRC Press. Cambridge, England. 206-243 p.
- Hillard, B.L., P. Lundin, and S.D. Clarke. 1980. Essentiality of dietary carbohydrate for maintenance of liver lipogenesis in the chick. *J. Nutr.* 110: 1553-1542.
- Högberg, A. 2002. Fatty acids, tocopherols and lipid oxidation in pig muscle: Effect of feed, sex and outdoor rearing. In: Doctoral Thesis. Swedish University of Agricultural Sciences. Uppsala, Sweden. 63 p.
- Holub, B.J. 2002. Clinical nutrition: 4. Omega-3 fatty acids in cardiovascular care. *CMAJ.* 166(5): 608-615.
- Honikel, K.O., and R. Hamm. 1999. Measurement of water-holding capacity and juiciness. In: Quality Attributes and Their Measurement in Meat, Poultry and Fish Products. Eds. A.M. Pearson and T.R. Dutson. Aspen Publishers Inc. Gaithersburg, Maryland, USA. 125-161 p.
- Horrock, L.A., and Y.K. Yeo. 1999. Health benefits of docosahexaenoic acid (DHA). *Pharmacol. Res.* 40(3): 211-225.
- Hoz, L., C.J. Lopez-Bote, M.I. Cambero, M. D'Arrigo, C. Pin, C. Santos, and J.A. Ordóñez. 2003. Effect of dietary linseed oil and α -tocopherol on pork tenderloin (*Psoas major*) muscle. *Meat Sci.* 65: 1039-1044.

- Irie, M., and M. Sakimoto. 1992. Fat characteristics of pigs fed fish oil containing eicosapentaenoic and docosahexaenoic acids. *J. Anim. Sci.* 70: 470-477.
- Irwin, J.W., and N. Hedges. 2004. Measuring lipid oxidation. In: Understanding and Measuring the Shelf-life of Foods. Ed. R. Steele. CRC Press LLC., Cambridge, England. 196-223 p.
- Jame, M.J., L.C. Cleand, and Meadow Lea Food Ltd. 2000. Fat and oils: the facts. A review of scientific literature regarding fats and oils and their importance in food and health. [Online]. Available: www.goldncanola.com.au. [14 July 2003].
- Jaturasitha, S., Y. Wudthithumkanaporn, P. Rurksasen, and M. Kreuzer. 2002. Enrichment of pork with omega-3 fatty acids by tuna oil supplements: Effect on performance as well as sensory, nutritional and processing properties of pork. *Asian-Aust. J. Anim. Sci.* 15:1622-1633.
- Jensen, C., C. Lauridsen, and G. Bertelsen. 1998. Dietary vitamin E: Quality and storage stability of pork and poultry. *Trends Food Sci. Tech.* 9: 62-72.
- Jørgensen, H., V.M. Gebert, M.S. Hedemann, and S.K. Jensen. 2000. Digestion of fat does not differ in growing pigs fed diets containing fish oil, rapeseed oil or coconut oil. *J. Nutr.* 130: 852-857.
- Jung, D.H., H.G. Biggs, and W.R. Moorehead. 1975. Colorimetry of serum cholesterol with use of ferric acetate uranyl acetate and ferous sulfate / sulfuric acid reagents. *Clin. Chem.*, 21: 1526 – 1530.
- Kannan, G., J.L. Heath, C.J. Wabeck, M.C.P. Souza, J.C. Howe, and J.A. Mench. 1997. Effect of crating and transport on stress and meat quality characteristic in broilers. *J. Poult. Sci.*, 76: 523 – 529.
- Kannel, W.B., W.P. Castelli, and T. Gordon. 1979. Choleaterol in the prediction of atherosclerotic disease. *Ann. Intern. Med.* 90: 85-91.
- Karmali, R.A. 1996. Historical perspective and potential use of n-3 fatty acids in therapy of cancer cachexia. *Nutr.* 12(suppl): S2-S4.
- Kerrick, N.L. 1967. Nutrition value as animal feed. In: Fish Oils: Their Chemistry, Technology, Stability, Nutrition Properties, and Uses. Ed. M.E. Stansby. The AVI publishing Company, Inc., Connecticut, USA. 361-382 p.

- Kay, M. and R. Houseman. 1974. The influence of sex on meat production. In: Meat Proceeding of the Twenty-first Easter School in Agriculture Science, University of Nottingham. R.J. Acford Ltd., Industrial Estate Chichester. 85-108 p.
- King's College London. _____. Early events in atherogenesis. [Online]. Available: www.kcl.ac.uk/kis/schools/life_sciences/health/nutrition/academics_staff/tabs/figure_9.htm. [20 July 2005].
- Kouba, M., M. Enser, F.M. Whittington, G.R. Nute, and J.D. Wood. 2003. Effect of a high-linolenic acid diet on lipogenic activities, fatty acid composition, and meat quality in the growing pig. *J. Anim. Sci.* 81: 1967-1979.
- Kouba, M., M. Enser, G.R. Nute, F.M. Whittington, J.D. Wood, and A.D. Hall. 2001. Time course of incorporation of n-3 PUFA from linseed in pigs and effects on $\Delta 9$ -desaturase activity and pork odours. [Online]. Proceeding of the British Society of Animal Science. Available: <http://www.bsas.org.uk./downloads/annlproc/Pdf.2001/071.pdf>. [28 July 05].
- Latorre, M.A., R. Lázaro, M.I. Gracia, M. Nieto, and G.G. Mattoes. 2003. Effect of sex and terminal sire genotype on performance, carcass characteristics and meat quality of pigs slaughtered at 117 kg body weight. *Meat Sci.* 65: 1369-1377.
- Latorre, M.A., R. Lázaro, M.I. Gracia, M. Nieto, and G.G. Mattoes. 2004. The effects of gender and slaughter weight on the growth performance, carcass traits, and meat quality characteristics of heavy pigs. *J. Anim. Sci.* 82: 526-533.
- Lawrence, T.L.J., and V.R. Fowler. 2002. Growth of Farm Animals. 2nd edition. CABI Publishing, UK. 347 p.
- Leibetseder, J. 1997. The effect of nutrition on the composition of animal fat. *Anim Res. Dev.* 45: 46-58.
- Leskanich, C.O., K.R. Matthews, C.C. Warkup, R.C. Noble, and M. Hazzledine. 1997. The effect of dietary oil containing (n-3) fatty acids on the fatty acid, physicochemical, and organoleptic characteristics of pig meat and fat. *J. Anim. Sci.* 75: 673-683.
- Lin, C. F. 1994. Flavor chemistry of fish oil. In: Lipids in Food Flavors. Eds Ch-T. Ho, and T. G. Hartman. American Chemical Society, Washington, DC, USA. 209-231 p.
- Liu, Y. L., D. F. Li, L. M. Gong, G. F. Yi, A. M. Gaines, and J. A. Carroll. 2003. Effect of fish oil supplementation on the performance and the immunological, adrenal, and somatotropic

- response of weaned pigs after an *Escherichia coli* lipopolysaccharide challenge. *J. Anim. Sci.* 81: 2758-2765.
- Lough, D.S., M.B. Solomon, T.S. Rumsey, T.H. Elsasser, L.L. Slyter, S. Kahl, and G.P. Lynch. 1992. Effects of dietary canola seed and soy lecithin in high-forage diets on cholesterol content and fatty acid composition of carcass tissues of growing ram lambs. *J. Anim. Sci.* 70: 1153-1158.
- Lyon, C.E., C.M. Papa, and R.L. Wilson, Jr. 1991. Effect of feed withdrawal on yields, muscle pH, and texture of broiler breast meat. *J. Poult. Sci.*, 70: 1020-1025.
- Mahaffey, K.R. 2004. Fish and shellfish as dietary sources of methylmercury and the ω -3 fatty acids, eicosahexaenoic acid and docosahexaenoic acid: risks and benefits. *Envir. Res.* 95: 414-428.
- Mason, L.M., S.A. Hogan, A. Lynch, K. O'Sullivan, P.G. Lawlor, and J.P. Kerry. 2005. Effects of restricted feeding and antioxidant supplementation on pig performance and quality characteristics of *longissimus dorsi* muscle from Landrace and Duroc pigs. *Meat Sci.* 70: 307-317.
- Mayes, P.A., and K.M. Botham. 2003. Oxidation of fatty acid: Ketogenesis, Metabolism of unsaturated fatty acids & eicosanoids. In: Harper's Illustrated Biochemistry. 26th edition. McGraw-Hill Companies, Inc. USA. 180-196 p.
- McDonald, P., R.A. Edwards, J.F.D. Greenhalgh, and C.A. Morgan. 2002 Animal Nutrition. 6th edition. Pearson Education, UK. 693 p.
- Melton, S.L. 1990. Effects of feeds on flavor of red meat: A review. *J. Anim. Sci.* 68: 4421-4435.
- Merritt, R. J., N. Auestad, C. Kruger, and S. Buchanan. 2003. Safety evaluation of sources of docosahexaenoic acid and arachidonic acid for use in infant formulas in newborn piglets. *Food Chem. Toxic.* 41: 897-904.
- Miller, M.F., S.D. Shackelford, K.D. Hayden, and J.O. Reagan. 1990. Determination of the alteration in fatty acid profiles, sensory characteristics and carcass traits of swine fed elevated levels of monounsaturated fats in the diet. *J. Anim. Sci.* 68: 1624-1631.
- Monahan, F.J. 2000. Oxidation of lipids in muscle foods: Fundamental and applied concerns. In: Antioxidants in Muscle Foods. eds. E.A. Decker, C. Faustman, and C.J. Lopez-Bote. A John Wiley & Sons Inc. Publication, Canada. 3-24 p.

- Morrison, W.R., and L.M. Smith. 1964. Preparation of fatty acid methyl esters and dimethyl-acetals from lipids with boron fluoride-methanol. *J. Lipid Res.* 5: 600 – 608.
- Morrissey, P.A., D. J. Buckley, and K. Gavin. 2000. Vitamin E and the oxidative stability of pork and poultry. In: Antioxidants in Muscle Foods. Eds. E.A. Decker, C. Faustman, and C.J. Lopez-Bote. A John Wiley & Sons Inc. Publication, Canada. 263-288 p.
- Mottram, D.S. 1994. Some aspects of the chemistry of meat flavour. In: Flavor of Meat and Meat Products. Ed. F. Shahidi. Chapman & Hall, England. 210-230 p.
- Myer, R.O., J.W. Lamkey, W.R. Walker, J.H. Brendemuhl, and G.E. Combs. Performance and carcass characteristics of swine when fed diets containing canola oil and added copper to alter the unsaturated:saturated ratio of pork fat. *J. Anim. Sci.* 70: 1417-1423.
- Nestel, P. 1997. Fish oil, lipids and coronary disease. In: Education lecture in 11th International Symposium on Atherosclerosis, 5-9 October 1997. Paris, France.
- Nguyen, L.Q., M.C.G.A. Nuijens, H. Everts, N. Salden, and A.C. Beynen. 2003. Mathematical relationships between the intake of n-6 and n-3 polyunsaturated fatty acids and their contents in adipose tissue of growing pigs. *Meat Sci.* 65: 1399-1406.
- Noblet, J. and G. Le Goff. 2001. Effect of dietary fibre on the energy value of feeds for pigs. *Anim. Feed Sci. Tech.* 90: 35-52.
- Nold, R.A., Romans J.R., Cosetello W.J., Henson J.A. and Libal G.W. 1999. Characteristics of muscle from boars, barrows, and gilts slaughtered at 100 or 110 kilograms: difference in fat, moisture, color, water-holding capacity, and collagen. *J. Anim. Sci.* 77: 1746-1754.
- Nürnberg, K., J. Wegner, and K. Ender. 1998. Factors influencing fat composition in muscle and adipose tissue of farm animals. *Livest. Prod. Sci.* 56: 145-156.
- Opstvedt, J. 1984. Fish fat. In: Fat in Animal Nutrition. Ed. J. Wiseman. Butterworths, England. 53-82 p.
- Pearson, A.M. 1999. Introduction to quality attributes and their measurement in meat, poultry and fish products In: Quality Attributes and Their Measurement in Meat, Poultry and Fish Products. Eds. A.M. Pearson and T.R. Dutson. Aspen Publishere Inc., Gaithersburg, Maryland, USA. 1-33 p.

- Pekas, J.C. 1991. Digestion and absorption capacity and their development. In: Swine Nutrition. Eds. E.R. Miller, D.E. Ullrey, and A.J. Lewis. Butterworth-Heinemann. Boston, USA. 37-74 p.
- Pettigrew, J.E., and R.L. Moser. 1991. Fat in swine nutrition. In: Swine Nutrition. Eds. E.R. Miller, D.E. Ullrey, and A.J. Lewis. Butterworth-Heinemann. Boston, USA. 133-146 p.
- Pike, I.H. 1999. Health benefits from feeding fish oil and fish meal: The role of long chain omega-3 polyunsaturated fatty acids in animal feeding. [Online]. Available: <http://www.iffo.org.uk/14flb/tbull/tb28.pdf>. [30 April 2004].
- Pinheiro Machada Filho, L.C. 2000. Pig welfare and meat quality. A Brazilian view In: I conferência Virtual Internacional sobre Qualidade de Carne Suína, 16 de novembro a 16 de dezembro de 2000.
- Ponnampalam, E.N., A.J. Sinclair, A.R. Egan, S.J. Blakeley, and B.J. Leury. 2001. Effect of diets containing n-3 fatty acid content in lambs fed low- and medium-quality roughage diets. *J. Anim. Sci.* 79: 698-706.
- Raes, K., D. De Smet, and D. Demeyer. 2004a. Effect of dietary fatty acids on incorporation of long chain polyunsaturated fatty acids and conjugated linoleic acid in lamb, beef and pork meat: a review. *Anim. Feed Sci. Tech.* 113: 199-221.
- Raes, K., L. Haak, A. Balcaen, E. Claeys, D. Demeyer, and S. De Smet. 2004b. Effect of linseed feeding at similar linoleic acid levels on the fatty acid composition of double-muscled Belgian Blue young bulls. *Meat Sci.* 66: 307-315.
- Ranken, M.D. 1994. Rancidity in meats. In: Rancidity in Food. 3rd edition. Eds. J.C. Allen and R.J. Hamilton. Blackie Academic & Professional, UK 191-202 p.
- Rey, A. I., J. P. Kerry, P. B. Lynch, C. J. Lopez-Bote, D. L. Buckley, and P. A. Morrissey. 2001. Effect of dietary oils and α -tocopherol acetate supplementation on lipid (TBARS) and cholesterol oxidation in cooked pork. *J. Anim. Sci.* 79: 1201-1208.
- Rhee, K.S. 1992. Fatty acids in meats and meat products In: Fatty Acids in Foods and Their Health Implication. Ed. C.K. Chow. Marcel Dekker Inc., New York, USA. 65-93 p.
- Roberfroid, M.B. 2000. Defining functional foods. In: Functional Foods: Concept to Product. Ed. G.R. Gibson, and C.M. Williams. Woodhead Publishing Ltd., Cambridge, England. 374 p.

- Romans, J.R., R.C. Johnson, D.M. Wulf, G.W. Libal, and W.J. Costello. 1995a. Effect of ground flaxseed in swine diets on pig performance and on physical and sensory characteristics and omega-3 fatty acid content of pork: I. Dietary level of flaxseed. *J. Anim. Sci.* 73: 1982-1986.
- Romans, J.R., R.C. Johnson, D.M. Wulf, G.W. Libal, and W.J. Costello. 1995a. Effect of ground flaxseed in swine diets on pig performance and on physical and sensory characteristics and omega-3 fatty acid content of pork: II. Duration of 15% dietary flaxseed. *J. Anim. Sci.* 73: 1982-1986.
- Rose, D.P., and J.M. Connolly. 1999. Omega-3 fatty acids as cancer chemopreventive agents. *Pharmacol. Ther.* 83(3): 217-244.
- Rosenvold, K., and H.J. Andersen. 2003. Factors of significance for pork quality - a review. *Meat Sci.* 64: 219-237.
- Rossell, J.B. 1994. Measurement of rancidity. In: Rancidity in Foods. Eds. J.C. Allen and R.J. Hamilton. Chapman & Hall, London, England. 22-53 p.
- Roynette, C.E., P.C. Calder, Y.M. Dupertuis, and C. Pichard. 2004. N-3 polyunsaturated fatty acids and colon cancer prevention. *Clin. Nutr.* 23: 139-151.
- Rule, D.C., J.R. Busboom, and C.J. Kercher. 1994. Effect of dietary canola on fatty acid composition of bovine adipose tissue, muscle, kidney, and liver. *J. Anim. Sci.* 72: 2735-2744.
- Rustan, A.C., J.Ø. Nossen, E.N. Christiansen, and C.A. Drevon. 1988. Eicosapentaenoic acid reduces hepatic synthesis and secretion of triacylglycerol by decreasing the activity of acyl-coenzyme A:1,2-diacylglycerol acyltransferase. *J. Lip. Res.* 29: 1417-1426.
- Sadler, M.J. 2004. Meat alternatives-market developments and health benefits. *Trend Food Sci. Tech.* 15: 250-260.
- SanGiovanni, J.P., and E.Y. Chew. 2005. The role of omega-3 long chain polyunsaturated fatty acids in health and disease of the retina. *Prog. Reti. Eye Res.* 24: 87-138.
- Sargent, J., G. Bell, L. McEvoy, D. Tocher, and A. Estevez. 1998. Recent developments in the essential fatty acid nutrition in fish. *Aquaculture*. 177: 191-199.
- SAS. 1990. SAS User's Guide. Statistics. SAS. Inst. Inc., Cary, NC. USA.

- Schmidt, E.B., H.A. Skou, J.H. Christensen, and J. Dyerberg. 2000. N-3 fatty acids from fish and coronary artery disease: implications for public health. *Publ. Health Nutr.* 3(1): 91-98.
- Schmidt, E.B., H. Arnesen, R. de Caterina, L.H. Rasmussen, and S.D. Kristensen. 2005. Marine n-3 polyunsaturated fatty acids and coronary heart disease: Part I. Background, epidemiology, animal data, effects on risk factors and safety. *Thrombosis Res.* 115: 163-170.
- See, M.T., and J. Odle. 2000. Effect of dietary fat source, level, and feeding interval on pork fatty acid composition. ANS Report No.248. [Online]. Available: <Http://mark.asci.ncsu.edu/SwineReports/2000/see4.htm>. [9 June 2005].
- Serhan, C.N. 2004. Mediator lipidomics. *Prostaglandin Lipid Mediators.* 77: 4-14
- Sheard, P.R., M. Enser, J.D. Wood, G.R. Nute, B.P. Gill, and R.I. Richardson. 2000. Shelf life and quality of pork and pork products with raised n-3 PUFA. *Meat Sci.* 55: 213-221.
- Simopoulos, AP. 2000. Symposium: Role of poultry products in enriching the human diet with n-3 PUFA Human requirement for n-3 polyunsaturated fatty acids. *Poult. Sci.* 79: 961-970.
- Simopoulos, AP. 2002. The importance of the ratio of omega-6/omega-3 essential fatty acids. *Biomed. Pharmacother.* 56(8): 365-379.
- Soler-Velassquez, M.P., J.H. Brendemuhl, L.R. McDowell, K.A. Sheppard, D.D. Johnson, and S.N. Williams. 1998. Effects of supplemental vitamin E and canola oil on tissue tocopherol and liver fatty acid profile of finishing swine. *J. Anim. Sci.* 76: 110-117.
- Sprecher, H. 2000. Metabolism of highly unsaturated n-3 and n-6 fatty acids. *Biochem. Biophys. Acta.* 1486: 219-231.
- Stahly, T.S. 1996. Fat as an alternative energy source. In: The University of Illinois Pork Industry Conference, December 3-4th, 1996, Urbana, Illinois, USA.
- Stenesh, J. 1998. Lipid metabolism. In: Biochemistry: III Metabolism. PlenumPress. New York, USA. 317-344 p.
- Tocher, D.R., M. Agaba, N. Hastings, A. J. Teale. 2003. Biochemical and molecular studies of the polyunsaturated fatty acid desaturation pathway in fish. In: The Big fish Bang. Proceedings of the 26th Annual Larval Fish Conference, Bergen, Norway. 211-227.
- Ulu, H. 2004. Evaluation of three 2-methylthiobarbituric acid methods for the measurement of lipid oxidation in various meats and meat products. *Meat Sci.* 67: 683-687.

- Uttaro, B.E., R.O Ball, P. Dick, W. Rae, G. Vessie, and L.E. Jeremiah. 1993. Effect of ractopamine and sex on growth, carcass characteristics, processing yield, and meat quality characteristics of crossbred swine. *J. Anim. Sci.* 71: 2439-2449.
- Van Oeckel, M. J., M. Casteels, N. Warnants, L. Van Damme, and Ch. V. Boucque. 1996. Omega-3 fatty acid in pig nutrition: Implications for the intrinsic and sensory quality of the meat. *Meat Sci.* 44: 55-63.
- Voet, D., and J.G. Voet. 1995. Lipids and membrane. In: Biochemistry. 2nd edition. John Wiley & Sons Inc., Canada. 277-329 p.
- Warnants, N., M.J. Van Oeckel, and C.V. Boucque. 1996. Incorporation of dietary polyunsaturated fatty acids in pork tissue and its implications for the quality of the end products. *Meat Sci.* 44: 125-144.
- Warnants, N., M.J. Van Oeckel, and C.V. Boucqué. 1999. Incorporation of dietary polyunsaturated fatty acids into pork fatty acid tissues. *J. Anim. Sci.* 77: 2478-2490.
- Wood, J.D., R.C.D. Jones, M.A. Francombe, and O.P. Whelehan. 1986. The effect on fat thickness and sex on pig meat quality with special reference to the problems associated with overleaness. *Anim. Prod.* 43: 535-544.
- Wood, J.D., R.I. Richardson, G.R. Nute, A.V. Fisher, M.M. Campo, E. Kasapidou, P.R. Sheard, and M. Enser. 2003. Effects of fatty acids on meat quality: a review. *Meat Sci.* 66: 21-32.
- Xiong, Y.L., A.H. Cantor, A.J. Pescatore, S.P. Blanchard, and M.L. Straw. 1993. Variations in muscle chemical composition pH and protein extractability among eight different broiler crosses. *J. Poult. Sci.* 72: 583 – 588.
- Yilmaz, H.R., A. Songur, B. Özyurt, İ. Zararsiz, and M. Sarsilmaz. The effects of n-3 polyunsaturated fatty acids by gavage on some metabolic enzymes of rat liver. *Prostaglandins Leukot. Essent. Fatty Acids.* 71: 131-135.