

REFERENCE

- Abbas, A. K., A. H. Lichtman, and J. S. Pober, 1997. Cellular and Molecular Immunology. 3rd ed. W. B. Saunders Co., Philadelphia, PA.
- Abdulrahim, S. M., M. S. Haddadin, N. H. Odetallah, and P. K. Robinson. 1999. Effects of Lactobacillus acidophilus and zinc bacitracin as dietary additive to broilers chickens. Br. Poult. Sci. 40: 91-94.
- Abee, T., Klaenhammer, T.R. and Letellier, L. (1994) Kinetic studies of the action of lactacin F, a bacteriocin produced by *Lactobacillus johnsonii* that forms porationcomplexes in the cytoplasmic membrane. Appl. Environ. Microbiol. 60, 1006 – 1013.
- Abraham S. N. and M. Arock. 1998. Mast cells and basophils in innate immunity. Immunology. 10:373-381.
- Aftahi A., Munim T., Hoque M.A. and Ashraf M.A. 2006. Effect of Yoghurt and Protexin Boost on Broiler Performance. Int. J. Poult. Sci., 5 (7): 651-655.
- Al-Attar, M. A., and M. A Fernando. 1987. Transport of *Eimeria necatrix* sporozoites in the chicken: effects of irritants injected intraperitoneally. J.Parasitol. 73:494–502.
- Allen, P. C., H. D. Danforth, and O. A. Levander. 1996a. Diet high in n-3 fatty acids reduces caecal lesion scores in chickens infected with *Eimeria tenella*. Poult. Sci. 75: 179-185.
- Allen, P. C., H. D. Danforth, and O. A. Levander. 1996b. Association of lower

- plasma carotenoid with protection against caecal coccidiosis by diet high in n-3 fatty acids. *Poult. Sci.* 75: 966-972.
- Allen, P. C., H. D. Danforth, and O. A. Levander. 1997a. Interaction of dietary flaxseed with coccidiosis infection in chickens. *Poult. Sci.* 76: 822-827.
- Allen, P. C., J. Lydon, and H. D. Danforth. 1997b. Effects of components of *Artemisia annua* on coccidia infections in chickens. *Poult. Sci.* 76: 1156-1163.
- Allen, P. C., H. D. Danforth, and C. Augustine. 1998. Dietary modulation of avian coccidiosis. *Int. J. Parasitol.* 8: 1131-1140.
- Allen, P. C., and R. H. Fetterer. 2002. Recent advances in biology and immunobiology of *Eimeria* species and in diagnosis and control of infection with these coccidian parasites of poultry. *Clin. Microbiol. Rev.* 15: 58-65.
- Attia, M. EL-S., I. M. Fathy, and A. M. N. Attia. 1979. The effect of dietary vitamin C on the severity of coccidiosis in Fayomi chicks. *Vet. Med. J. Cairo University* 20: 65-74.
- Augustine, E., J. L. McNaughton, E. Virtanen, and L. Rodi. 1997. Effect of betaine on the growth performance of chickens inoculated with a mixed culture of avian *Eimeria* species and on invasion and development of *E. tenella* and *E. acervulina* in vitro and vivo. *Poult. Sci.* 76: 802-809.
- Augustine, P. C., and H. D. Danforth. 1999. Influence of betaine and salinomycin on the intestinal absorption of methionine and glucose and on the ultrastructure of intestinal cells and parasite development stages in chicks infected with *Eimeria acervulina*. *Avian Dis.* 43: 89-97.
- Bafundo, K. W., and T. K. Jeffers. 1990. Anticoccidial Methods: Mixed Status Patent. 4: 935-007.

- Banfield, M. J., R. P. Kwakkel, M. Groenveld, R. A. Ten Doeschate, and J. M., Forbes. 1999. Effects of whole wheat substitution in broiler diets and viscosity on a coccidial infection in broilers. Br. Poult. Sci. 40: S58-S60.
- Banfield, M. J., R. P. Kwakkel, and J. M. Forbes. 2002. Effects of wheat structure and viscosity on coccidiosis in broiler chickens. Anim. Feed Sci. Technol. 98: 37- 48.
- Bassett, C. A. 1993. Beneficial effects of electromagnetic fields. J. Cell Biochem. 51: 387-393.
- Barrow, P.A., B.E. Brooker, R. Fuller and M.J. Newport. 1980. The attachment of bacteria to the gastric epithelium of the pig and its importance in the microecology of the intestine. J. Appl. Bacteriol. 48: 147–154.
- Barrow, P. A. 1992. Probiotics for chickens. Pages 224-257 in Probiotics. R. Fuller. ed. Chapman & Hall, London
- Bar-Shira, E., Sklan, D. and Friedman, A. 2003. Establishment of immune competence in the avian GALT during the immediate posthatch period. Developmental and Comparative Immunology, 27: 147 - 157.
- Beach, J. R. and J. C. Corl. 1925. Studies in control of avian coccidiosis. Poult. Sci. 4: 83-93.
- Becker, E. R. 1937. Dietary control in experimental coccidiosis. Science 86: 403-404.
- Bedford, M. R. 2000. Removal of antibiotic growth promoters from poultry diet: implication and strategies to minimize subsequent problems. World's Poult. Sci. 56: 347-365.
- Befus AD, Johnston N, Leslie GA, Bienenstock J. 1980. Gut-associated

- lymphoid tissue in the chicken. I. Morphology, ontogeny, and some functional characteristics of Peyer's patches. *J Immunol.* 125:2626±32.
- Bekhti, K., and P. Pery. 1989. In vitro interaction between murine macrophages and *Eimeria falciformis* sporozoites. *Res. Immunol.* 140: 697-709.
- Berner, L.A. and O'Donnell, J.A. 1998. L. Berner and J. O'Donnell, Functional foods and health claims legislation: Applications to dairy foods. *Int. Dairy Journ.* 8 (1998), p. 355 –362 .
- Billiau, A., 1996. Interferon-gamma: biology and role in pathogenesis. *Adv. Immunol.* 62, 61±130.
- Billiau, A., Heremans, H., Vermeire, K., Matthys, P., 1998. Immunomodulatory properties of interferon-gamma. An update. *Ann. N. Y. Acad. Sci.* 856, 22±32.
- Blank, M., O. Khorkova, and R. Goodman. 1992. Changes in polypeptide distribution stimulated by different levels of electromagnetic and thermal stress. *Bioelectrochem. Bioenerg.* 3: 109-114.
- Bloksma, N., E. de Heer, M. van Duk, and M. Willers. 1979. Adjuvanticity of lactobacilli. I. Differential effects of viable and killed bacteria. *Clin. Exp. Immunol.* 37:367–375.
- Blom, H. and Mortvedt, C. 1991. Anti-microbial substances produced by food Associated micro-organisms. *Biochem. Soc. Trans.* 19, 694 - 698.
- Blum, S. and Reneiro, R. 2000. Industrial panel statements: adhesion of Selected Lactoabcillus strains to enterocyte-like Caco-2-cells in vitro: a critical evaluation of the reliability of in vitro adhesion assays. *Proceedings of*

- the 4th Workshop of the PROMEBO-FAIR CT 96-1028 project 'Functional Foods for EU health in 2000'.
- Biggs, P. M. 1982. The world of poultry disease. Avian Pathology. 11:281-300.
- Bradley, R. E, and C. V. Radhakrishnan. 1973. Coccidiosis in chickens: obligate relationship between *E. tenella* and certain species of caecal microflora in the pathogenesis of the disease. Avian Dis. 17: 461-76.
- Brandtzaeg, P., K. Baklien, K. Bjerke, T. O. Rognum, H. Scott, and K. Valnes. 1987. Nature and properties of the human gastrointestinal immune system. Pages 1 - 85 in Immunology of the Gastrointestinal Tract. K. Miller, and S. Nicklin, eds. Boca Raton, CRC Press Florida.
- Braun EJ, Campbell CE. 1989. Uric acid decomposition in the lower gastrointestinal tract. J Exp Zool Suppl. 3:70±4
- Bricknell, K.S., and S.M. Finegold. 1969. Deconjugation of bile acids by Intestinal bacteria: review of the literature and additional studies. J. Infect. Dis. 119: 273-281.
- Brzoska F, Grzybowski R, Steck K and Pieszka M. 1999. Nutritive efficiency of selected probiotic microorganisms in chicken broiler. Roczniki Naukowe Zootechniki, 26 : 291-301.
- Bruce C. Morris. 2002. Intestinal mucosa mast cell immune response and pathogenesis of two *Eimeria acervulina* isolates in broiler chickens. Master of Science. Virginia Polytechnic Institute and State University.
- Buchanan, R. E.; Gibbons, N. E. 1994. Bergey's Manual of Determinative Bacteriology. 8th ed., Williams & Wilkins, Baltimore.

- Byrne B.M., and J. Dankert. 1979. Volatile fatty acids and aerobic flora in the gastrointestinal tract of mice under various conditions. *Infect. Immun.* 23: 559-563.
- Cane, V., P. Botti, and S. Soana. 1993. Pulsed magnetic fields improve osteoblast activity during the experimental osseous defect. *J. Orthop. Res.* 11: 664-670.
- Cano PG and Perdigon G (2003). Probiotics induce resistance to enteropathogens in a renourished mouse model. *Journal of Dairy Research* 70: 433–440.
- Cavazzoni V, Adami A and Castrovilli C. 1998. Performance of chickens supplemented with bacillus coagulans as probiotic. *Br. J. Poult. Sci.*, 39: 526 – 529.
- ChoiKD, LillehojHS. 2000. Role of chicken IL-2 on gammadelta T-cells and *Eimeria acervulina*-induced changes in intestinal IL-2 mRNA expression and gammadelta T-cells. *Vet Immunol Immunopathol.* 73:309–21.
- Chapman, H. D. 1982. Anticoccidial Drug Resistance. Pages. 430-481 in The Biology of the Coccidia. P. L. Long, ed. University Park Press: Baltimore.
- Chapman, H. D. 1994. Sensitivity of field isolates of *Eimeria* to monensin following the use of coccidiosis vaccine in broiler chickens. *Poult. Sci.* 73: 476-478.
- Chapman, H. D. 1997. Biochemical, genetic and applied aspects of drug resistance in *Eimeria* parasite of the fowl. *Avian Pathol.* 26: 221-244.
- Chapman, H. D. 1998. Evaluation of the efficacy of anticoccidial drugs against *Eimeria* species in the fowl. *Int. J. parasitol.* 28: 1141-1144.

- Chapman, H. D. 2000. Practical use of vaccines for the control of coccidiosis in the chickens. World's Poult. Sci. 56: 7-20.
- Chapman, H. D., and T. E. Cherry. 1997a. Eye spraying vaccination: infectivity and development of immunity to *Eimeria acervulina* and *Eimeria tenella*. J. Appl. Poult. Res. 6: 274-278.
- Chapman, H. D., and T. E. Cherry. 1997b. Comparison of two methods of administrating live coccidiosis vaccines to newly hatched chicks: infectivity and development of immunity to *Eimeria* species. Proc. VIth Int. Coccidiosis Conf., Oxford, UK.
- Chapman, H. D., T. E. Cherry, H. D. Danforth, G. Richards, M. W. Shirley, and R. B. Williams. 2002. Sustainable coccidiosis control in poultry production: The role of live vaccines. Int. J. Parasitol. 32: 617-629.
- Choct, M. R., and M. R. Bedford. 1999. Effects of xylanase on individual birds variation, starch digestion through the intestine, and ileal and caecal volatile fatty acid production in chickens fed wheat. Br. Poult. Sci. 40: 419-422.
- Choct, M. and M. Sinlae. 2000. Clostridium perfringens in broiler chickens: The role of xylanase in controlling necrotic enteritis in broilers fed wheat diet without anti-microbial drugs. Rural Industries Research and Development Corporation. 0642/UNE, 70A. Canberra.
- Choi, K. D., H. S. Lillehoj, and D. S. Zalenga. 1999. Changes in local IFN- γ and TGF- β 4 mRNA expression and intraepithelial lymphocytes following *Eimeria acervulina* infection. Vet. Immunol. Immunopathol. 71:263-275.
- Choi KD, Lillehoj HS. 2000. Role of chicken IL-2 on gammadelta T-cells and

- Eimeria acervulina-induced changes in intestinal IL-2 mRNA expression and gammadelta T-cells. *Vet Immunol Immunopathol* 73:309–21.
- Clarkson, K., B. Jones, R. Bott, B. Bower, G. Chotani, and T. Becker. 2001. Enzymes: screening, expression, design, and production. Pages 325-352, in Enzymes in Farm Animal Nutrition. M. R. Bedford, ed. CABI Publication. Wilshire.
- Colnago, G. L., L. S. Jansen, and P. L. Long. 1984a. Effect of selenium and vitamin E on the development of immunity to coccidiosis in chickens. *Poult. Sci.* 63: 1136-1143.
- Colnago, G. L., L. S. Jansen, and P. L. Long. 1984b. Effect of selenium on peripheral blood leucocytes of chickens infected with *Eimeria*. *Poult. Sci.* 63: 896-903.
- Conway, P.L., Gorbach, S.L. and Goldin, B.R. 1987. Survival of lactic acid bacteria in the human stomach and adhesion to intestinal cells. *J. Dairy Sci.* 70, 1 - 12.
- Crawford J. S., 1979: Probiotics in animal nutrition. Proceedings of the Arkansas Nutrition Conference, Arkansas, USA, pp. 45–55.
- Cumming, R. B. 1987. The effect of dietary fibre and choice feeding on coccidiosis in chickens. Proc. 4th AAAP. Anim. Sci. Congr. Page 216.
- Cumming, R. B. 1992. The biological control of coccidiosis. 19th World Poult. Congr. 2: 425-428.
- Cumming, R. B. 1994. Opportunities for whole wheat grain feeding. 9th European Poult. Conf. 2: 219-222.
- Cummings, J. H., and G. T. MacFarlane. 2000. Gastrointestinal effects of

- prebiotics. Br. J. Nutr. 87: 145S-151S.
- Daghir, N.J. 1995. Poultry Production in Hot Climates. The University Press, Cambridge.
- Dakpogan H.P. 2005. Free-range chick survivability in improved conditions and the effect of 3 medicinal plants on *Eimeria tenella*. Master of Science. Department of Veterinary Pathobiology, The Royal Veterinary and Agricultural University, Denmark.
- Dalloul, R. A., H. S. Lillehoj, T. A. Shellen, and J. A. Doerr. 2002. Effect of vitamin A deficiency on host intestinal immune response to *E. acervulina* in broiler chickens. Poult. Sci. 81:1509-1515
- Dalloul, R.A., H.S. Lillehoj, T.A. Shellem and J.A. Doerr, 2003a. Intestinal immunomodulation by vitamin A deficiency and lactobacillus-based probiotics in *Eimeria acervulina*-infected broiler chickens. Avian Dis., 47: 1313-1320.
- Dalloul, R., H. S. Lillehoj, T. A. Shellem, and J. A. Doerr. 2003b. Enhanced mucosal immunity against *Eimeria acervulina* in broilers fed Lactobacillus-based probiotic. Poult. Sci. 82: 62-66.
- Dalloul, R.A., H.S. Lillehoj, N.M.Tamin, T. A. Shellem, J. A. Doerr. 2005. Induction of local protective immunity to *eimeria acervulina* by a Lactobacillus-based probiotics. Comp. Immun. Microbiol. Infect. Dis. 28: 351 – 361.
- Dalloul, R. A., and H. S. Lillehoj. 2005. Recent advances in Immunomodulation and vaccination strategies against coccidiosis. Avian Dis. 49:1-8.

Dalloul, R. A., and Lillehoj, H. S. 2006. Poultry coccidiosis: recent advancements in control measures and vaccine development. Expert Rev. Vaccines 5: 143-63

Davies, S. F. M., S. B. Jonyer, and S. B. Kendall. 1963. Coccidia of the domestic fowl. Pages 86-114 in Coccidiosis. OLIVER AND BOYD LTD. Tweeddale Court Edinburgh UK.

De Man, J.D., M. Rogosa and M.E. Sharpe. 1960. A medium for the cultivation of lactobacilli, *Journal of Applied Bacteriology* 23: 130–135.

del Cacho E, Gallego M, Sanz A, Zapata. 1993. A Characterization of distal lymphoid nodules in the chicken caecum. Anat Rec. ;237:512±7.

Delzenne, N. M. 2003. Oligosaccharides: state of the art. Proc. Nutr. Soc. 62: 177 - 182.

Doelling, V. W., A. Martin, J. E. Hutchins, and J. K. Tyczkowski. 2001. Infectivity of *E. acervulina* oocysts, sporocysts and sporozoites with in ovo delivery. Proc. VIIth Int. Coccidiosis Conf. Palm Cave pp 163-164. Sydney, Australia.

Dunhan H. J., C. Williams, F. W. Edens, I. A. Casas and W. J. Dobrogosz, 1993: Lactobacillus reuteri immune modulation of stress-associated diseases in newly hatched chickens and turkeys. Poultry Sci. 72 (Suppl. 2), 103.

Dimier-Poisson IH, Soundouss Z, Naciri M, Bout DT, Quere P. 1999. Mechanisms of the *Eimeria tenella* growth inhibitory activity induced by concanavalin A and reticuloendotheliosis virus supernatants with interferon gamma activity in chicken macrophages and fibroblasts. Avian Dis 43:65–74.

- Dofing, J., and J.M. Tiedje. 1988. Acetate inhibition of methanogenic, Syntrophic benozoate degradation. *Appl. Environ. Microbiol.* 54:1871-1873.
- Dofing, J., and Gottschal. 1997. Microbe-microbe interactions. Pages 373-389 In *Gastrointestinal Microbiology*. Mackie, R.I. ed. Chapman & Hall. New York, Drasar, B.S., and M.J. Hill. 1974 *Human Intestinal Flora*. Academic Press, New York.
- Dubos, R., R.W. Schaedler, R. Costell, and P. Hoet. 1965. Indigenous, normal And autochthonous flora of the gastrointestinal tract. *The J. Exp. Med.* 122: 67-76.
- Duke, G.E. 1986. Alimentary canal: secretion and digestion, special digestive functions and absorption. Page in 295. *Avian Physiology*. Sturkie, P.D. ed. Springer-Verlay, New York, Inc.
- Dunham HJ, Wiliams C, Edens FW, Casas IA and Dobrogosz WJ. 1993. Lactobacillus reuteri immunomodulation of stressor associated diseases in newly hatched chickens and turkeys. *Poult. Sci.*, 72(S2): 203.
- Edelman, S., S. Leskela, E. Ron, J. Apajalahti, and T. K. Korhonen. 2003. In Vitro adhesion of an avian pathogenic *Escherichia coli* O78 strain to surfaces of the chicken intestinal tract and to ileal mucus. *Vet. Microbiol.* 91: 41-56.
- Edgar, S. A. 1992. Field diagnosis of coccidiosis in chickens. Agri-Bio Corporation.
- Erdogan, Z., 1999. The use of antibiotics and probiotics in broiler diets. Lalatham-Hayvancilik-Arastirma enstitusu-Dergisi, 39: 37-69.
- El-Boushy A. R. 1988. Vitamin E affects viability and immune response of poultry. *Feed Stuffs* 60: 20-26.

- Elmusharaf, M. A., V. Bautista, L. Nollet, and A. C. Beynen. 2006. Effect of a mannanoligosaccharide preparation on *Eimeria tenella* infection in broiler chickens. Int. J. Poult. Sci. 5: 583-588.
- Elmusharaf, M. A., H. W. Peek, L. Nollet, and A. C. Beynen. 2007. The Effect of an in-feed mannanoligosaccharide preparation (MOS) on a coccidiosis infection in broilers. Anim. Feed Sci. Technol. 134: 347-354.
- Evan, T. 2002a. Executive Guide to world Poultry Trends 2002. Watt Publishing Co.,Hamshire.
- Evan, T. 2002b. Southeast Asia- an important growth area. Poultry Production 41(7): 34 - 40.
- Ewing, W. N., and D. J. A. Cole. 1994. Lactic acid bacteria. Pages 91-112 in The living Gut: An Introduction to Microorganisms in Nutrition. W. N. Ewing and D. J. A. Cole, eds. Context, Duncannon.
- Farner, D. S. 1942. The hydrogen ion concentration in avian digestive tracts. Poult. Sci..21, 445.
- Fayer, R., and M. C. Jenkins. 1992. Colostrum from cows immunized with *Eimeria acervulina* antigens reduces parasite development in vivo and in vitro. Poult. Sci. 71:1637-1645.
- Fernando, M. A., A. M. Lawn, M. E. Rose, and M. A. Al-Attar. 1983. Invasion of chicken cecal and intestinal lamina propria by crypt epithelial cells infected with coccidia. Parasitology 86:391–398.
- Fiorelli, V., Barillari, G., Toschi, E., Sgadari, C., Monini, P., Sturzl, M.,

- Ensoli, B., 1999. IFN- ν induces endothelial cells to proliferate and to invade the extracellular matrix in response to the HIV-1 Tat protein: implications for AIDS-Kaposi's sarcoma pathogenesis. *J. Immunol.* 162: 1165±1170.
- Foo, M.C., and A. Lee. 1974. Antigenic cross-reaction between mouse intestine and a member of the autochthonous microflora. *Infect. Immun.* 9: 1066-1069.
- Franti, C. E., H. E. Adler, and L. M. Julian, 1971. Antibiotic growth promotion: effects if bacitracin and oxytetracycline on intestines and selected lymphoid tissues of New Hampshire cockerels. *Poultry Sci.* 50: 94-99.
- Francis RJ, Bornet MD, Brouns F. 2002. Immune-stimulating and gut health promoting properties of short-chain fructo-oligosaccharides. *Nutr Rev* 60:326 – 334.
- Freter, R. 1974. Gut-associated immunity to cholera. In Varua D, Burrows W, eds. *Cholera*. Pp. 315-333. Philadelphia: Sanders.
- Fukata, T., K. Sasai, T. Miyamoto, and E. Baba. 1999. Inhibitory effect of competitive exclusion and fructooligosaccharide, singly and in combination, *Salmonella* colonization of chicks. *J. Food Prot.* 62:229–233.
- Fuller, R. 1973. Ecological studies on the lactobacillus flora associated with the crop epithelium of the fowl. *J. Appl. Bacteriol.* 36: 131-139.
- Fuller, R. 1977. The importance of lactobacilli in maintaining normal microbial balance in the crop. *Br. Poult. Sci.* 18:85-94.
- Fuller R., 1989: Probiotics in man and animals: A review. *Journal of Applied Bacteriology*, 66, 365–378.
- Fuller, R., 1992. Probiotics. The Scientific Basis. Chapman and Hall, London.

- Fuller, R. 1994. Probiotics: an overview. In: Human health: the contribution of microorganisms (Ed. by S.A.W. Gibson), pp. 63-73. New York: Springer-Verlag.
- Gardner, R.V., 1998. Interferon-gamma (IFN- γ) as a potential radio- and chemo-protectant. Am. J. Hematol. 58: 218±223.
- Gilliland, S.E., T.E. Staley, and L.J. Bush, 1984. Importance of bile tolerance of *Lactobacillus acidophilus* used as dietary adjunct. Journal of Dairy Science 67:3045-3051.
- Gilliland, S. E.; Walker, D.K. 1990. Factors to consider when selecting a culture of *Lactobacillus acidophilus* as a dietary adjunct to produce a hypocholesterolemic effect in humans. *J. Dairy Sci.*, 73:905-911.
- Gillis S, Ferm MM, Ou W., Smith KA. 1978. T-cell growth factor: parameters of production and a quantitative microassay for activity. J.Immunol. 120: 2027 – 2032.
- Goldin B. R. and S. L. Gorbach, 1984. Alterations of the intestinal microflora by diet, oral antibiotic and *Lactobacillus*: Decreased production of free amines from aromatic nitro compounds, azo dyes and glucuronides. J. National Cancer Institute 73, 689–695.
- Haddadin, M.S., S.M. Abulrahim and S.M. Hashlamoun, 2001. The effect of *lactobacillus acidophilus* on the production and chemical composition of Hens egg. Br. J. Poult. Sci., 75: 491-494.
- Hammond DM. 1982. Life cycles and development of coccidia. In: Hammond DM, Long PL, editors. The coccidia. Baltimore, Maryland: University Park Press: 45-79.

- Hamid, A., F.Z. Khan, A. Munid and M.A. Qadeer, 1994. Probiotics in poultry production. *Bang. J. Sci. Ind., Res.*, 29: 1-10.
- Haq, A., A.S. Khan, M.Z. Siddiqui, A.B. Haq and S. Rasool, 1997. Effect of feeding Biofeed on the performance of broiler chicks. *Pak. J. Agri. Sci.*, 34: 50-52.
- Havenaar R., B. T. Brink, J. H. H. Huis Veld and R. Fuller, 1992: Selection of strains For probiotics use. In: *Probiotics: The Scientific Basis* (Ed. Fuller R.), Chapman and Hall, London, pp. 209–224
- Helm J.D. 1990. Coccidiosis in Poultry. Clemson University Livestock Poultry HealthPrograms.
- Henken, A. M., H. W. Ploeger, E. A. M. Graat, and T. E. Carpenter. 1994. Description of a simulation model for the population dynamics of *Eimeria acervulina* infection in broilers. *Parasitology* 108:503-512.
- Hong, Y.H., H.S. Lillehoj, E.P. Lillehoj and S.H. Lee. 2006. Changes in immune-related gene expression and intestinal lymphocyte subpopulations following *Eimeria maxima* infection of chickens, *Vet. Immunol. Immunopathol.* **114** : 259–272.
- Hossain, M.A., 2004. Effect of yoghurt and protexin boost on gut microflora and broiler performance. M. S. Thesis, Department of Poultry Science, Bangladesh Agricultural University, Mymensingh 2202.
- Hyronimus, B., Le Marrec, C., Hadj Sassi, A. and Deschamps, A. 2000. Acid and bile tolerance of spore-forming lactic acid bacteria. *International Journal of Food Microbiology* 61: 193-197.
- Isolauri, E., Joensuu, J., Suomalainen, H., Luomala, M., Vesikari, T., 1995.

- Improved immunogenicity of oral D _ RRV reassortant rotavirus vaccine by Lactobacillus casei GG. Vaccine 13, 310–312.
- Jacobsen, C.N., Rosenfeldt Nielsen, V., Hayford, A.E., Moller, P.L., Michaelsen, K.F., Paerregaard, A., Sandstrom, B., Tvede, M. and Jakobsen, M. 1999. Screening of probiotic activities of forty-seven strains of Lactobacillus spp. by in vitro techniques and evaluation of the colonization ability of five selected strains in humans. Appl. Environ. Microbiol. 65, 4949 - 4956.
- Jayne-Williams, D.J., and R. Fuller. 1971. The influence of the intestinal microflora on nutrition. In: Bell DJ, Freeman BM, eds. Physiology and Biochemistry of the Domestic Fowl, Vol I. pp. 73-92. New York: Academic Press
- Jenkins MC, Augustine PC, Danforth HD, Barta JR. 1991. X-irradiation of *Eimeria tenella* oocysts provides direct evidence that sporozoite invasion and early schizont development induce a protective immune response(s). Infect Immun.59:4042 - 4048.
- Jernigan, M.A., R.D. Miles and A.S. Arafa, 1985. Probiotics in poultry nutrition. A review. World Poult. Sci. J., 41: 99-107.
- Jeurissen, S.H.M., Janse, E.M., Vermeulen, A.N., and L. Vervelde, 1996. *Eimeria tenella* infection in chickens: aspects of host- parasite interaction. Vet. immunol. immunopathol., 54: 231-238.
- Jeurissen, S. H. M., and B. Veldman. 2002. The interaction between feed (components) and *Eimeria* infection in poultry health. Pages 159-182 in Nutrition and Health of the Gastrointestinal Tract. M. C. Blok, H.A. Vahl, L.

- de Braak, G. Hemke, and M. Hessing, eds. Wageningen Academic Publisher, Wageningen, The Netherlands.
- Jin L.Z., Y.W Ho., N. Abdullah and S. Jalaludin 1997 Probiotics in poultry : modes of action. World's Poult. Sci. J., 53:351-368.
- Jin, L.Z., Y.W. Ho, N. Abdullah and S. Jalaludin, 1998. Growth performance, intestinal microbial populations and serum cholesterol of broilers diets containing lactobacillus cultures. Poult. Sci., 77: 1259-1265.
- Johnson, J. and W.M. Reid, 1970. Anticoccidial drugs: Lesion scoring techniques in battery and floor-pen experiments with chickens. Exp. Parasitol., 28:30-36.
- Johnson, J. and W.M. Reid, 1972. The development of E. tenella in germfree chickens. Fourth International Symposium on Germfree Research, New Orleans, LA., April 16-20.
- Johansson, K.R. and W.B. Sarles, 1948. Bacterial population changes in the caeca of young chickens infected with *Eimeria tenella*., J. Bacteriol., 56: 635-647.
- Kaspers, B., H. S. Lillehoj, M. C. Jenkins, and G. T. Pharr. 1994. Chicken interferon-mediated induction of major histocompatibility complex class II antigens on peripheral blood monocytes. Vet. Immunol. Immunopathol. 44:71–84.
- Kabir SML, Rahman MM, Rahman MB and Ahmed SU. 2004. The dynamics of probiotics on growth performance and immune response in broilers. Int. Jour. of Poult. Sci. 3: 361 – 164.
- Kaur, I.P., Chopra, K. and Saini, A. 2001. Probiotics: potential pharmaceutical

- applications. *Eur. J. Pharm. Sci.*, 15: 1-9.
- Kim, C.J., H.A. Namkung and I.K. Paik, 1988. Supplementation of probiotics to the broiler diets containing moldy corn. *Kor. J. Anim. Sci.*, 30: 342- 548.
- Kitagawa H, Hiratsuka Y, Imagawa T, 1998. Uehara M. Distribution of lymphoid tissue in the caecal mucosa of chickens. *J Anat.* 192:293±8.
- Khaksefidi A. and Ghoorchi T. 2006. Effect of Probiotic on performance and Immunocompetence in broiler chicks. *J. Poult. Sci.* 43: 296 – 300.
- Koenen, M.E., J. Karmer, R. van der Hulst, L. Heres, S.H. Jeurissen and W.J. Boersma, 2004. Immunomodulation by probiotic lactobacilli in layer and meat-type chickens. *Br. Poult. Sci.*, 45: 355-366.
- Koenen M.E., van der Hulst R., Leering M., Jeurissen S.H.M., Boersma W.J.A. 2005. Development and validation of a new in vitro assay for selection of probiotic bacteria that express immune-stimulating properties in chickens *in vivo*. *FEMS Immunology and Medical Microbiology* 40:119 – 127.
- Koh, K., E. Ibradolaza, and Y. Isshuki, 1992: Effect of administered lactic acid Bacteria on feed utilization in chickens. *Japanese Poultry Sci.* 29, 242– 246.
- Kyriakis SC, Georgoulakis I, Spais A, Alexopoulos C, Miliotis CC, Kritas SK. 2003. Evaluation of Toyocerin, a probiotic containing *Bacillus toyoi* spores, on health status and productivity of weaned, growing and finishing pigs. *Asian-Aust J Anim Sci* 16:1326 – 1331.
- Kwon, O.S., I.H. Kim, J.W. Hong, Y.K. Han, S.H. Lee and J.M. Lee, 2002.

- Effects of probiotics supplementation on growth performance, blood composition and fecal noxious gas of broiler chickens. Kor. J. Poult. Sci., 29: 1-6.
- Lan Y., S. Xun, S. Tamminga, B. A. Williams, M. W. A. Verstegen and G. Erdi. 2004. Real-Time PCR Detection of Lactic Acid Bacteria in Cecal Contents of *Eimeria tenella*-Infected Broilers Fed Soybean Oligosaccharides and Soluble Soybean Polysaccharides. Poul. Sci. 83:1696–1702.
- Lange, A., Karabon, L., Klimczak, A., Dlubek, D., Bogunia-Kubik, K., Swider, C., Suchnicki, K., 1996. Serum interferon-gamma and C-reactive protein levels as predictors of acute graft-vs.-host disease in allogeneic hematopoietic precursor cell (marrow or peripheral blood progenitor cells) recipients. Transplant Proc. 28: 3522 - 3525.
- Larpent, J.P. and M. Larpent. 1985. Manual pratique de Microbiology. Herman. Paris.
- Laurent, F., Mancassola, R., Lacroix, S., Menezes, R., Naciri, M. 2001. Analysis of chicken mucosal immune response to *Eimeria tenella* and *Eimeria maxima* infection by quantitative reverse transcription-PCR. Infect. Immun. 69: 2527–2534.
- Lawn, A. M., and M. E. Rose. 1982. Mucosal transport of *Eimeria tenella* in the Cecum of the chicken. J. Parasitol. 68:1117–1123.
- Lee S., H.S. Lillehoj, D.W. Park, Y.H. Hong, J.J. Lin. 2007. Effects of *Pediococcus*- and *Saccharomyces*- based probiotics (Mitomax) on coccidiosis in broiler chickens. Comp. Immun. Microbiol. Infect. Dis. 30: 261 – 268.
- Ledoux, D.R., G.E. Rottinghaus, A.J. Bermudez and M. Alonso-Debolt, 1999.

- Efficiency of hydrated sodium calcium aluminosilicate to ameliorate the toxic effects of aflatoxin in broiler chicks. Poult Sci., 78: 204-210.
- Lessard, M and G.J. Brisson. 1987. Effect of A Lactobacillus fermentation product on Growth, immune response and fecal enzyme activity in weaned pigs. Can . J. Anim. Sci. 67 : 509 - 516.
- Lilly D. M. and R. H. Stillwell, 1965: Probiotics: Growth promoting factors produced by microorganisms. Science 147, 747–748.
- Lillehoj, H. S., and M. D. Ruff. 1987. Comparison of disease susceptibility and subclass-specific antibody response in SC and FP chickens experimentally inoculated with *Eimeria tenella*,*E. acervulina*, or *E. maxima*. Avian Dis. 31:112–119.
- Lillehoj HS, Kaspers B, Jenkins MC, Lillehoj EP. 1992. Avian interferon and interleukin-2. A review by comparison with mammalian homologues. Poult Sci Rev 4:67–85.
- Lillehoj, H. S. and J. M Trout. 1993. Coccidia: A review of recent advances on immunityand vaccine development. Avian Pathology. 22:3-31.
- Lillehoj HS. 1994. Analysis of *Eimeria acervulina*-induced changes in the intestinal T lymphocyte subpopulations in two chicken strains showing different levels of susceptibility to coccidiosis. Res Vet Sci 56:1–7.
- Lillehoj, H. S., and J. M. Trout. 1996. Avian gut-associated lymphoid tissues and intestinal immune responses to *Eimeria* parasites. Clin. Microbiol. Rev.9:349–360.
- Lillehoj HS. 1998. Role of T lymphocytes and cytokines in coccidiosis. Int. J. Parasito 28:1071 - 1081.

- Lillehoj, H. S., and K. D. Choi. 1998. Recombinant chicken interferon-gamma-mediated inhibition of *Eimeria tenella* development in vitro and reduction of oocyst production and body weight loss following *Eimeria acervulina* challenge infection. Avian Dis. 42:307–314.
- Lillehoj H. S. and E. P. Lillehoj. 2000. Avian coccidiosis. A review of acquired intestinal immunity and vaccination strategies. Avian Diseases. 44:408-425.
- Lillehoj HS, Min W, Dalloul RA. 2004. Recent progress on the cytokine regulation of intestinal immune responses to *Eimeria*. Poult Sci. 83:611–23.
- Linden, J. 2003. Poultry International: Around the world. Watt Publishing Co., Hamshire.
- Loddi, M.M., L.S.O. Nakaghi, F. Edens, F.M. Tucci, M.I. Hannas, V.M.B. Moraes and J. Ariki, 2002. Mannanoligosaccharide and organic acids on intestinal morphology of broilers evaluated by scanning electrons microscopy. In: Proc. 11th European Poult. Sci. Conf. Bremen Germany., Sep. 6-10 p.121.
- Long, P.L. 1970. Coccidiosis: development of new techniques in coccidiostat evaluation. Exp. Parasitol., 28: 151-155.
- Lory, S. 1992. Determinants of extracellular protein secretion in gram-negative bacteria. J. Bacteriol. 174:3423-3428.
- Lu, J., U. Idris, B. Harmon, C. Hofacre, J.J. Maurer, and M.D. Lee. 2003. Diversity and succession of the intestinal bacterial community of the maturing broiler chicken. Appl. Environ. Microbiol. 69: 6816-24.
- Luty, A.J., Lell, B., Schmidt-Ott, R., Lehman, L.G., Luckner, D., Greve, B.,

- Matousek, P., Herbich, K., Schmid, D., Migot-Nabias, F., Deloron, P., Nussenzweig, R.S., Kremsner, P.G., 1999. Interferon-gamma responses are associated with resistance to reinfection with Plasmodium falciparum in young African children. *J. Infect. Dis.* 179, 980±988.
- Mahdavi, A.H., H.R. Rahmani and J. Pourreza, 2005. Effect of probiotic supplements on egg quality and laying hens performance. *Int. J. Poult. Sci.*, 4: 488- 492.
- Martin, A., H. S. Lillehoj, B. Kaspers, and L. D. Bacon. 1994. Mitogeninduced lymphocyte proliferation and interferon production following coccidian infection. *Avian Dis.* 38:262–268.
- Maruta K, Miyazaki H, Masuda S, Takahashi M, Marubashi T, Tadano Y and Takahashi H. 1996. Exclusion of intestinal pathogens by continuous feeding with *Bacillus subtilis* C-3102, and its influence on the intestinal microflora in broilers. *Ani. Sci. and Tech.* 67; 273 - 280.
- Mcauline, O., Ryan, M.P., Ross, R.P., Hill, C., Breeuwer, P. and Abee, T. 1998. Lacticin 3147, a broad-spectrum bacteriocin which selectively dissipates the membrane potential. *Appl. Environ. Microbiol.* 64, 439 - 445.
- McDougald, L.R. 2003. Coccidiosis. Eds. Diseases of poultry. 11th edn. Ames: Iowa State University Press, 974-976
- Macfarlane, G.T., Macfarlane, S. and Gibson, G.R. 1998. Validation of a three-stage compound continuous culture system for investigating the effect of retention time on the ecology and metabolism of bacteria in the human colon. *Microb. Ecol.* 35, 180 - 187.
- Mann, G. V. 1977. A factor of yoghurt which lower cholesterolaemia in man.

- Atherosclerosis 26: 335-340.
- Mead, G.C. 1997. Bacteria in the gastrointestinal tract of birds. Pages 217-222. In *Gastrointestinal Microbiology*. Mackie, R.I. ed. Chapman & Hall. New York.
- Metchnikoff E., 1961: Attitude of humans' nature. USSR Academy of Science, Moscow, 289.
- Meynell, G.G. 1963 Antibacterial mechanisms of the mouse gut. II. The role of Eh and volatile fatty acids in the normal gut. Br. J. Exp. Pathol. 44: 209-219.
- Miazzo, R., C.A.R. Rosa, E.C.D. Queiroz, G.Magnolis and S.M. Chiacchiera, 2000. Efficacy of synthetic zeolite to reduce the toxicity of aflatoxin in broiler chicks. Poult. Sci., 79: 1-6.
- Miles R. D. and S. M. Bootwalla, 1991: Direct-fed microbials in animal production. In: Direct-fed microbials in animal production. A review, National Feed Ingredient Association, West Des Moines, Iowa, USA, pp. 117–132.
- Miyamoto, T., W.G. Min and H.S. Lillehoj. 2002. Lymphocyte proliferation response during *Eimeria tenella* infection assessed by a new, reliable, non-radioactive colorimetric assay. Avian Disease 46 : 10–16.
- Mohan, B., R. Kadirvel, M. Bhaskaran and A. Natarajan, 1995. Effect of probiotic supplementation on serum/yolk cholesterol and an egg shell thickness in layers. Br. Poult. Sci., 36: 799-803.
- Mohan B, Kadirvel R, Natarajan M and Bhaskaran M. 1996. Effect of probiotic supplementation on growth, nitrogen utilisation and serum cholestrol in broilers. Br. Poult. Sci., 37: 395 - 401.

- Morelli, L. 2000. In vitro selection of probiotic lactobacilli : a critical appraisal. *Curr.Issues Intest. Microbiol.* 1, 59 - 67.
- Mutus, R., N. Kocabagli, M. Alp, N. Acar, M. Eren and S. Gezen, 2006. The effect of dietary probiotics supplementation on tibial bone characteristics and strength in broilers. *Poult. Sci.*, 85: 1621-1625.
- Muralidhara, K.S., G.G. Sheggeby, P.R. Elliker, D.C. England and W.E. Sandine. 1977. Effect of feeding lactobacilli on the coliform and lactobacillus flora of intestinal tissue and feces from piglets, *J. Food Prot.* 40 : 288–295.
- Murray, P.J., Young, R.A., Daley, G.Q., 1998. Hematopoietic remodeling in interferon-gamma-deficient mice infected with mycobacteria. *Blood* 91: 2914 - 2924.
- Murray J. Kennedy. 2001. Coccidiosis in Chickens. Agri – Facts Practical Information for Alberta's Agricultural Industry. Agdex 663-35.
- Nahanshon S. N., H. S. Nakaue and L. W. Mirosh, 1994: Performance of Single Comb White Leghorn laying pullets fed diets supplemented with direct – fed microbials. *Poultry Sci.* 73, 1699–1711.
- Ogawa Tomohiko, Yasuyuki Asai, Hiromi Sakamoto and Kenji Yasuda. 2006. Oral immunoadjuvant activity of *Lactobacillus casei* subsp. *casei* in dextran-fed layer chickens. *British Journal of Nutrition* 95: 430–434
- Panda AK, Reddy MR, Rao SVR, Raju MVLN and Praharaj N. 1999. Effect of dietary inclusion of probiotic on growth, carcass traits and immune response in broilers. *Ind. Jour. of Poult. Sci.* 34: 343 – 346.
- Panda AK, Reddy MR, Rao SVR, Raju MVLN and Praharaj NK. 2000.

- Growth, carcass characteristics, immunocompetence and response to *Escherichia coli* of broilers fed diets with various levels of probiotic. Archiv Fur Geflugelkunde. 64: 152 – 156.
- Pandey, A. *Studies on lactic acid fermentation*. 1979. PhD Thesis, University Of Allahabad, India.
- Papaioannou, D., P.D. Katsoulos, N. Panousis and H.Karatzias, 2005. The role of natural and synthetic zeolites as feed additives on the prevention and/or the treatment of certain farm animal disease. A review. Microporous and Mesoporous Materials, 84: 161-170.
- Parker R. B., 1974: Probiotics, the other half of the antibiotics story. Animal Nutrition and Health 29, 4–8.
- Pelicia, K., A.A. Mendes, E.S. Saldanha, C. Piazzolante and S. Takahashi, 2004. Probiotic and prebiotics utilization in diets for free-range broiler chickens. Br. J. Poult. Sci., 92: 99-104.
- Perdigon G, Alvarez S, Rachid M, Aguero G, Gobbato N. 1995. Immune System stimulation by probiotics. J Dairy Sci 78:1597 – 1606.
- Perdigon G, Locascio M, Medici M, Pesce de Ruiz Holgado A and Oliver G. 2003. Interaction of bifidobacteria with the gut and their influence in the immune function. Biocell 27: 1–9.
- Peretz L., 1932: Soviet News-letter of Medicine, 14–16.
- Priyankarage, N., S. Silva, S.P. Gunaratne, H. Kothalawala, M.W.C.D. Palliyaguru and G.A. Gunawardana, 2003. Efficacy of probiotics and their effects on performance, carcass characteristics, intestinal microflora and salmonella incidence in broilers. Br. Poult. Sci., 44 (Suppliment): 26-27.

- Reque E.F. ; Pandey A. ; Franco S.G. ; Soccol C.R. 2000. Isolation, Identification and Physiological study of *Lactobacillus fermentum* LPB for use as Probiotic in Chickens. Brazilian Journal of Microbiology 31:303-307
- Ringenbach, L., Bohbot, A., Tiberghien, P., Oberling, F., Feugeas, O., 1998. Polyethylenimine-mediated transfection of human monocytes with the IFN-g gene: an approach for cancer adoptive immunotherapy. Gene Ther. 5, 1508±1516.
- Roura, E., J. Homedes, and K. C. Klasing, 1992. Prevention of immunologic stress contributes to the growth-permitting ability of dietary antibiotics in chicks. J. Nutr. 122: 2383-2390.
- Rose ME, Hesketh P. 1976. Immunity to coccidiosis: stages of the life-cycle of *Eimeria maxima* which induce. Parasitology. 73:25 - 37.
- Rose, M. E. 1982. Host immune responses. Pages 329-371 in The Biology of Coccidia. P. L. Long ed., University Park Press, Baltimore.
- Rose, M. E. 1987. Immunity to *Eimeria* infections. Veterinary Immunology And Immunopathology. 17:333-343.
- Rose, M. E., P. Hesketh, and D. Wakelin. 1994. Immunization against Experimental coccidiosis produces contrasting results in inbred mice of differing susceptibility to infection. Infect. Immun. 62:733–737.
- Rose, S.P. 1997. Principles of Poultry Science. Biddles Ltd., Guildford.
- Rothwell, L., Young, J.R., Zoorob, R., Whittaker, C.A., Hesketh, P., Archer, A., Smith, A.L., Kaiser, P. 2004. Cloning and characterization of chicken IL-10 and its role in the immune response to *Eimeria maxima*. J. Immunol. 173: 2675–2682.

- Rowghani E., Arab M., Akbarian A. 2007. Effects of a probiotics and other feed additives on performance and immune response of broiler chicks. *Int. J. Poult. Sci.*, 6 (4): 261 – 265.
- Rusch, V. 1980. Medicine and the microbial world. *Microecol Ther* 10:163-172.
- Salanitro, J.P., I.G. Blake, P.A. Muirhead, M. Maglio, and J.R. Goodman. 1978. Bacteria isolated from the duodenum, ileum and cecum of young chicks. *Appl. Environ. Microbiol.* 35: 782-790.
- Salminen, S., Bouley, M.C., Boutron-Ruault, M.C., Cummings, J., Franck, A., Gibson, G., Isolauri, E., Moreau, M.-C., Roberfroid, M., and Rowland, I. 1998. Functional food science and gastrointestinal physiology and function. *Brit. J. Nutr. Suppl.* 1: 147–171.
- SAS, 2002. SAS Users Guide. SAS. Inst. Inc., Cary, NC.
- Sato, T., Selleri, C., Young, N.S., Maciejewski, J.P., 1997. Inhibition of interferon regulatory factor-1 expression results in predominance of cell growth stimulatory effects of interferon-gamma due to phosphorylation of Stat1 and Stat3. *Blood* 90, 4749 - 4758.
- Sarra, P.G., F. Dellaglio, and V. Bottazzi. 1985. Taxonomy of lactobacilli isolated from the alimentary tract of chickens. *System Appl. Microbiol.* 6: 86-89.
- Savage D.C. 1983. Association of indigenous microorganisms in Gastrointestinal epithelial surfaces, Pages 175-206 in: *Human Intestinal Microflora in Health and Disease*. D. J. Hentges. ed. Academic Press, New York.

- Saville, P. 1996. Coccidiosis in poultry. Animal health advisory leaflet / South Pacific Commission Cataloguing-in-publication data.
- Sawai, N., Kita, M., Kodama, T., Tanahashi, T., Yamaoka, Y., Tagawa, Y., Iwakura, Y., Imanishi, J., 1999. Role of gamma interferon in Helicobacter pylori-induced gastric inflammatory responses in a mouse model. Infect. Immun. 67, 279±285.
- Schaedler, R. W. 1973. The relationship between the host and its intestinal microflora. Proc Nutr Soc. 32: 41-7.
- Schneitz C, Khokinen T, Toivonen, V and Nasi M. 1998. Effect of Broilact on the physicochemical conditions and nutrient digestibility in the gastrointestinal tract of broilers. Poult. Sci., 77: 426-432
- Schultz, U., Chisari, F.V., 1999. Recombinant duck interferon gamma inhibits duck hepatitis B virus replication in primary hepatocytes. J. Virol. 73, 3162±3168
- Selleri, C., Sato, T., Anderson, S., Young, N.S., Maciejewski, J.P., 1995. Interferon-gamma and tumor necrosis factor-alpha suppress both early and late stages of hematopoiesis and induce programmed cell death. J. Cell Physiol. 165: 538 - 546.
- Sklan, D. 2001. Development of the digestive tract of poultry. World's Poultry Science Journal , 57 , 415 _ 428.
- Skorupski, K., and R.K. Taylor. 1997. Control of the ToxR virulence regulon in *Vibrio cholerae* by environmental stimuli. Molec. Microbiol. 25:1003-1009.
- Smith, H. W. 1965. Observations on the flora of the alimentary tract of

- animals and factors affecting its composition. *J Pathol Bacteriol.* 89:95-122.
- Smith, A. L., M. E. Rose, and D. Wakelin. 1994. The role of natural killer cells in resistance to coccidiosis: investigations in a murine model. *Clin. Exp. Immunol.* 97:273–279.
- Sohail SS, Bryant MM, Voitle RA and Roland, DA. 2002. Influence of Calsporin on commercial leghorns. *J. of App. Poult. Res.*, 11: 379 – 387.
- Stavric, S. and E.T. Kornegay, 1995. Microbial probiotics for pigs and poultry biotechnology in animal feeds and animals feeding. R.J. Wallace and A. Cheesen, Eds. V.C.H., Weinheim, Germany, pp: 205-231.
- Shoaib HK, Sayed AN, Sotohy SA, Abdel Ghaffar SK. 1997. Response of broiler chicks to probiotic (pronifer) supplementation. *Assiut Veterinary Medical Journal* 36: 103 – 116.
- Shuaib, H.K., Sajid-ur-R., and Muhammad A. 2006. Humoral Immune Response to Newcastle Disease Vaccine (Lasota strain) in Broilers. *Int. Journ. Poult. Sci.* 5(5): 411 – 414.
- Sullivan, M. G. O; Thornton, G.; Sullivan, G.C.O; Collins, J.K. 1992 Probiotic bacteria: myth or reality? *Trends Food Sci. Technol.*, 3:309-314.
- Sutas Y, Hurme M and Isolauri E. 1996. Down-regulation of anti-CD3 antibody-Induced IL-4 production by bovine caseins hydrolysed with Lactobacillus GG- derived enzymes. *Scandinavian Journal of Immunology* 43: 687–689.
- Talebi, A. and Mulcahy, G. 1995. Correlation between immune responses and oocyst production in chickens monospecifically infected with *Eimeria maxima*, *Avian Pathology*,24:3,485 — 495

- Tannock, G.W. 1984. Control of gastrointestinal pathogens by normal flora.
 Pages 374 - 382 in Current Perspectives in Microbial Ecology. Khug, M.J.,
 and C.A. Reddy. eds. American Society for Microbiology. Washington, DC.
- Tamus T. and Ostlind, D.A. 1996. Method for controlling coccidiosis. United States
 Patent 5646135.
- Tellez, G., Petrone, V.M., Escoria, M., Morishita, T.Y., Cobb, C.W. &
 Villasenor, L. 2001. Evaluation of avianspecific probiotic and *Salmonella*
enteritidis-, *Salmonella typhimurium*- and *Salmonella heidelberg*-specific
 antibodies on cecal colonization and organ invasion of *Salmonella enteritidis*
 in broilers. *J. Food Prot.* 64: 287–291.
- Tessitore, A., Pastore, L., Rispoli, A., Cilenti, L., Toniato, E., Flati, V., Farina,
 A.R., Frati, L., Gulino, A., Martinotti, S., 1998. Two gamma-interferon-
 activation sites (GAS) on the promoter of the human intercellular adhesion
 molecule (ICAM-1) gene are required for induction of transcription by IFN- γ .
Eur. J. Biochem. 258, 968 - 975.
- Thanassi, D. G., L. W. Cheng and H. Nikaido, 1997 Active efflux of bile salts
 by *Escherichia coli*. *J. Bacteriol.* 179: 2512–2518.[
- Timbuntam W., Rodprapakorn M., Sassanarakkit S., Jareonkitmongkol S. and
 Saman P. 2001. Screening of microorganisms as probiotic for feeding giant
 freshwater prawn (*Macrobrachium rosenbergii*). Proceedings of the 39th
 Kasetsart University Annual Conference: Fisheries, Agro-Industry. 370 – 377.
- Toivanen P., Naukkarinen E H., Vannino O., 1987. Avian immunology, vol.,1:
 79-92
- Tortuero, F., 1973. Influence of implantation of *Lactobacillus acidophilus* in

- chicks on the growth, feed conversion, malabsorption of fats syndrome and intestinal flora. Poult. Sci., 64: 832-840.
- Trout, J. M., and H. S. Lillehoj. 1993. Transport of *Eimeria acervulina* sporozoites, evidence of a role for intestinal CD8₋ lymphocytes and macrophages. J. Parasitol. 79:790–792.
- Trout, J. M., and H. S. Lillehoj. 1995. *Eimeria acervulina* infection: evidence for the involvement of CD8₋ T lymphocytes in sporozoite transport and host protection. Poult. Sci. 74:1117–1125
- Trout JM, Lillehoj HS. 1996. T lymphocyte roles during *Eimeria acervulina* and *Eimeria tenella* infections. Vet Immunol Immunopathol 53:163±72.
- Tuomola, E., Crittenden, R., Playne, M., Isolauri, E. and Salminen, S. 2001. Quality assurance criteria for probiotic bacteria. Am. J. Clin. Nutr. 73, 393S - 398S.
- Tuomola, E.M., Ouwehand, A.C. and Salminen, S.J. 1999. The effect of Probiotics bacteria on the adhesion of pathogens to human intestinal mucus. FEMS Immunol. Med. Microbiol. 26, 137 - 142.
- Turk, D. E., and V. P. LittleJohn. 1987. Coccidiosis infection and gut microflora. Poult. Sci. 66: 1466-1469.
- Vanbelle M., E. Teller and M. Focant, 1990: Probiotics in animal nutrition: a review. Arch. Animal Nutrition (Berlin) 40,543–556.
- Van Den berg T.P., Eterradossi N., Toquin D., Meuleman S G., 2000. Rev. Sci. Tech. Off. Int. Epiz., 19 (2), 527-543
- van der Wielen, P. W., L. J. Lipman, F. van Knapen, and S. Biesterveld. 2002. Competitive exclusion of *Salmonella enterica* serovar Enteritidis by

- Lactobacillus crispatus* and *Clostridium lactatiformans* in a sequencing fed-batch culture. Appl. Environ. Microbiol. 68:555–559.
- Van Der Werf, M.J. and Venema, K. 2001. Bifidobacteria: genetic modification and The study of their role in the colon. J. Agric. Food Chem. 49, 378 - 383
- Veldkamp, M.J.W., and H. van Gemerden. 1986. Competition between purple and brown phototropic bacteria in stratified lakes: sulfide, acetate, and light as limiting factors. FEMS Microbiol Ecol. 38: 31-38.
- Vervelde L, Vermeulen AN, Jeurissen SH. 1996. In situ characterization of leucocyte subpopulations after infection with *Eimeria tenella* in chickens. Parasite Immunol. 18:247±56.
- Vidal, K., A. Donnet-Hughes, and D. Granato. 2002. Lipoteichoic acids from *Lactobacillus johnsonii* strain La1 and *Lactobacillus acidophilus* strain La10 antagonize the responsiveness of human intestinal epithelial HT29 cells to lipopolysaccharide and gramnegative bacteria. Infect. Immun. 70:2057–2064.
- Wakelin, D., and M. E. Rose. 1990. Immunity to Coccidiosis. CRC Press Inc., Boca Raton, FL.
- Wallach M, Pillemer G, Yarus S, Halabi A, Pugatsch T, Mencher D. 1990. Passive immunization of chickens against *Eimeria maxima* infection with a monoclonal antibody developed against a gametocyte antigen. Infect Immun. 58:557 - 562.
- Wallach M, Smith NC, Petracca M, Miller CM, Eckert J, Braun R. 1995. *Eimeria maxima* gametocyte antigens: potential use in a subunit maternal vaccine against coccidiosis in chickens. Vaccine. 13:347 - 354.

- Williams, R. B. 1998. Epidemiological aspects of the use of live anticoccidial vaccines for chickens. *Int. J. Parasitol.* 28:1089–1098
- Williams, R. B. 1999. A Compartmentalized model for the estimation of the cost of coccidiosis to the world's chicken production industry. *International Journal for Parasitology.* 29:1209-1229.
- Williams RB. 2002. Anticoccidial vaccines for broiler chickens: pathways to success. *Avian Pathol.* 31: 317–53.
- Wilson, K.H., and F. Perini. 1988. Role of competition for nutrients in suppression of *Clostridium difficile* by the colonic microflora. *Infect Immun.* 56:2610-2614.
- Wong RL., Lingerheld EG., Fitzgerald L., Clak RB. 1989. Murine T helper cell clones secrete granulocyte-macrophage colony-stimulating factor (GmCSF) by both interleukin-2-dependent and interleukin-2-independent pathways. *Cell Immunol.* 123: 445 – 455.
- Yasui H, Nagaoka N, Mike A, Hayakawa K, Ohwaki M. 1992. Detection of bifidobacterium strains that induce large quantities of IgA. *Microb Ecol Health Dis* 5:155 – 162.
- Yeo, J. and K.I. Kim, 1997. Effect of feeding diets containing an antibiotic, a probiotic or Yucca extract on growth and intestinal urease activity in broiler chicks. *Poult. Sci.*, 76: 381-385.
- Yun, C. H., H. S. Lillehoj, and K. D. Choi. 2000a. Chicken IFN-g monoclonal antibodies and their application in enzyme-linked immunosorbent assay. *Vet. Immunol. Immunopathol.*, *Vet. Imm. and Immmunopath.* 73: 297 - 308.
- Yun, C. H., H. S. Lillehoj, and K. D. Choi. 2000b. *Eimeria tenella* infection

- induces local gamma interferon production and intestinal lymphocyte subpopulation changes. *Infect. Immun.* 68(3): 1282 – 1288.
- Yun CH, Lillehoj HS, Zhu J, Min W. 2000c. Kinetic differences in intestinal and systemic interferon-gamma and antigen-specific antibodies in chickens experimentally infected with *Eimeria maxima*. *Avian Dis* 44: 305–12.
- Yurong Y., S. Ruiping, Z. ShiMin, and J. Yibao. 2005. Effect of probiotics on intestinal mucosal immunity and ultrastructure of cecal tonsils of chickens. *Arch. of Ani. Nutri.* 59 (4): pages 237 – 246.
- Zulkifli, I., N. Abdullah, N.M. Azrin and Y.W. Ho, 2000. Growth performance and immune response of two commercial broiler strains fed diets containing lactobacillus cultures and oxytetracycline under heat stress conditions. *Br. Poult. Sci.*, 41: 593-597.