properties of probiotics include the ability to reduce antibiotic use, the apparently very high index of safety, and the public’s perception about ‘natural’ or ‘alternative’ therapies. Probiotic organisms must survive the acidic environment of the stomach and resist to the digestion process, adhere to the intestinal lining, colonize the intestinal tract and produce beneficial factors and inhibit pathogens (disease-causing bacteria). Other properties such as immunomodulation and modulation of metabolic activities are also desirable. Probiotics must be identified at the strain level from faecal and intestinal samples by means of molecular tools (DGGE, Real-time PCR analysis) and testing must be performed on individual strains.

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A2

Mechanical test simulations using FEA of sheep tibia verified by the engineering data of the biomechanical tests

Ibrahim Kutay Yilmazcoban 1, Nursel Kiratli Yilmazcoban 2, Ahmet Tasci 1, Aykut Kahraman 1, Isu Unal 1

1 Sakarya University, Mechanical Engineering Department, Sakarya, Turkey
2 Sakarya University, Environmental Engineering Department, Sakarya, Turkey

E-mail address: ahmettasci@gmail.com (A. Tasci)

To understand the body behaviour and motion mechanics, primarily the skeleton system should be understood correctly. To determine the bone properties and a reference guide, basic mechanical tests are required. In this study, tibia bones were used for the basic mechanical tests. To get more reliable and usable data, many tests should be performed. To decrease the difficulty of the test conditions and time, and to obtain more results, CAD models of bones were simulated in Finite Element Analysis (FEA). For a simple approach, sheep tibias, similar to human humerus bones, were used for the tensile, compression and three point bending tests. To define a reliable biomechanical test in a computer simulation, mechanical properties are required. The properties of sheep tibia bones obtained from the tests were used to prepare the FEA models. Finally the tibia bones test results of forces and stresses were compared to computer simulation results and the differences shown. The study gives different test results as reference data and demonstrates that FEA modeling of bones are helpful and supportive for the human or animal biomechanics in real life conditions.

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A3

Tensile tests and finite element analysis of different animal skins

Ibrahim Kutay Yilmazcoban 1, Nursel Kiratli Yilmazcoban 2, Tuncay Avci 1, Yasar Kahraman 1, Sedat Iric 1

1 Mechanical Eng Dept, Engineering Faculty, Sakarya University, Sakarya, Turkey
2 Environmental Eng. Dept, Engineering Faculty, Sakarya University, Sakarya, Turkey

E-mail address: kyilmaz@sakarya.edu.tr (I.K. Yilmazcoban)

To determine the flexibility and mechanical properties of skins, basic tensile tests of different animal skins were carried out. To see the stresses, strains and forces of skin while in various conditions in daily life with the help of test results, different animal skins’ tensile tests were calculated by Finite Element Analysis (FEA). For the skin tensile tests, skin sample of sheep, cows and chickens were used. To define a setup for real life conditions in computer simulations, mechanical properties are required. The properties of skins were received from the tensile tests. The FEA models were prepared up to the mechanical test results of the sheep, cows and chickens skin samples. The tensile test results and computer simulation results of different animal skin samples were compared by forces and stresses and the differences shown. The results of this study give considerable correlation between the test results and the FEA modeling of skins. Simulation and test results are helpful and a reference guide for the human or the animal biomechanics in real life conditions in different activities.

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A4

Different four PCR-multiplex systems via twenty microsatellite loci in goat

Ozgecan Korkmaz Agaoglu 1, Bengi Cinar Kul 2, Bilal Akyuz 3, Emel Ozkan 4, Okan Ertugrul 2

1 Department of Animal Science, Faculty of Veterinary Medicine, Mehmet Akif Erysov University, Burdur, Turkey
2 Department of Genetic, Faculty of Veterinary Medicine, Ankara University, Ankara, Turkey
3 Department of Animal Science, Faculty of Veterinary Medicine, Erciyes University, Kayseri, Turkey
4 Department of Animal Science, Agricultural Faculty, Namik Kemal University, Tekirdag, Turkey

E-mail address: ozgecanagaoglu@mehmetakif.edu.tr (O.K. Agaoglu)

Fluorescent based automated fragment analysis with multiplexing is a cost-effective, time-effective and labor-effective way to increase the throughput for simultaneous typing of numerous microsatellite markers. It is aimed to develop different multiplex systems via twenty microsatellites in goat for genetic characterization. PCR with the amplification of DNA used per reaction the amount of DNA, MgCl2, primer and dNTPs concentrations and primers binding to each of temperatures (Ta) have been optimized. All microsatellites used in this study successfully amplified in four multiplex sets designed considering annealing temperature, product size and Beckman Coulter for specific dye label. Multiplexing reduces the time, labor and cost of microsatellite typing. Multiplex PCR amplifications are technically more difficult than single-locus amplifications. However, optimization of the method used successfully established, multiplex-PCR system is more appropriate. The applicability of these systems was demonstrated for population structure and genetic diversity in goat.

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