



WINTER SCHOOL
ANIMAL
BIOTECHNOLOGY **2024**

PROGRAMME AND ABSTRACTS

February 1st, 2024, Nitra, SUA in Nitra, Slovakia

Proceeding of the Winter School “ANIMAL BIOTECHNOLOGY 2024”

EDITOR

prof. Ing. Peter Chrenek, DrSc. - Slovak University of Agriculture in Nitra,
Research Institute for Animal Production NPPC Nitra

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Nitra, SUA in Nitra, February 1st, 2024

SCIENTIFIC PROGRAM of the Winter School

1st February 2024, SUA Nitra, Slovak Republic

„Animal Biotechnology 2024“

Topic: Animal biotechnology and Biodiversity

8.30 – 9.00 **Registration (AgroBioTech, Slovak University of Agriculture Nitra)**

9.00 – 9.15 **Opening ceremony**

9.15 – 12.15 **Invited speakers (25 min/person)**

Chairmen: **Peter Chrenek**

9.15 – 9.40 **András GÁSPÁRDY**

University of Veterinary Medicine Budapest, HUNGARY

Biotechnology assisted approaches in preservation of rare breeds' diversity

9.40 – 10.05 **Ewa SOSIN**

National Research Institute of Animal Production, POLAND

Multidisciplinary approach to ex situ conservation of animal genetic resources

10.05 – 10.30 **Martin PTÁČEK**

Czech University of Life Sciences Prague, CZECH REPUBLIC

Sperm cryoconservation program for native sheep and goats breeds in the Czech Republic

10.30 – 11.00 **Coffee break, Poster session**

11.00 – 11.25 **Ilga ŠEMATVIČA**

Latvia University of Live Science and technologies, LATVIA

Assisted reproduction technology in cows in Latvia until 2023

11.25 – 11.50 **Ján TOMKA**

National Agricultural and Food Centre, SLOVAKIA

Challenges in conservation of animal genetic resources in Slovakia

- 11.50 – 12.15** **Ondřej PELÁK**
BD Life Sciences - Biosciences
Road to complex biology – high parameters solutions to enhance your scientific program
-
- 12.15 – 13.30** **Photo and Lunch (Mladost' dormitory)**
-
- 13.30 – 15.00** **Session I. EX SITU IN VITRO (15 min/person)**
Chairmen: **Alexander Makarevich, Dušan Fabian**
- 13.30 – 13.45** **Filipp SAVVULIDI**
Czech University of Life Sciences Prague, CZECH REPUBLIC
Dye-exclusion tests for evaluation of sperm quality by means of flow cytometry: be aware of the hidden stones
- 13.45 – 14.00** **Lenka KUŽELOVÁ**
Slovak University of Agriculture in Nitra, SLOVAKIA
Cryopreservation of stallion semen using antioxidant
- 14.00 – 14.15** **Eva TVRDÁ**
Slovak University of Agriculture in Nitra, SLOVAKIA
Bacteriospermia - a pressing issue in the preservation of the male reproductive potential
- 14.15 – 14.30** **Éva VÁRADI**
Hungarian University of Agriculture and Life Sciences, HUNGARY
Novel approaches in *in vitro* conservation of poultry genetic materials
- 14.30 – 14.45** **Elen GOCZA**
Hungarian University of Agriculture and Life Sciences, HUNGARY
The isolation and characterization of chicken primordial germ cells and their applications
- 14.45 – 15.00** **Andrea SVORADOVÁ**
National Agricultural and Food Centre, SLOVAKIA
Mesenchymal stem cells of Oravka chicken breed: promising path to biodiversity conservation
-
- 15.00 – 15.30** **Coffee break, Poster session**
-

- 15.30 – 16.45** **Session II. *IN SITU* and *EX SITU IN VIVO* (15 min/person)**
Chairmen: **Radovan Kasarda, Ľubomír Ondruška**
- 15.30 – 15.45** **Jiří BEZDÍČEK**
Palacký University Olomouc, CZECH REPUBLIC
Influence of inbreeding on reproduction of Przewalski's horse
- 15.45 – 16.00** **Wioletta SAWICKA-ZUGAJ**
University of Life Sciences in Lublin, POLAND
State of ex-situ conservation of Polish White-backed cattle
- 16.00 – 16.15** **Zolt BECKEI**
University of Belgrade, SERBIA
Past, present and future of the Tsigai sheep. - Win or loose?
- 16.15 – 16.30** **Radovan KASARDA**
Slovak University of Agriculture in Nitra, SLOVAKIA
Genetic diversity of local sheep breeds in Slovakia
- 16.30 – 16.45** **Ľubomír ONDRUŠKA**
National Agricultural and Food Centre, SLOVAKIA
Slovak national rabbit breeds
-
- 16.45 – 17.15** **Ph.D. Session (10 min/person)**
Chairmen: **Jaromír Vašíček, Andrea Svoradová**
- 16.45 – 16.55** **Kitti BUDA**
The National Centre for Biodiversity and Gene Conservation, HUNGARY
Transplantation of frozen - thawed gonadal tissue in domestic goose
- 16.55 – 17.05** **Andrea NESVADBOVÁ**
Palacký University Olomouc, CZECH REPUBLIC
High-quality Embryo Yield Prediction Based on the Evaluation of Oocyte Morphology by Artificial Intelligence
- 17.05 – 17.15** **Jakub VOZAF**
Slovak University of Agriculture in Nitra, SLOVAKIA
Cryopreservation of Tsigai ram sperm
-
- 18.30 – 00.00** **Social evening (Mladost' dormitory)**

POSTERS

- 1. The effect of diet supplementation with purified ALA on mouse preimplantation development in vivo – preliminary results**
Babeľová Janka, Šefčíková Zuzana, Fabian Dušan
- 2. The microstructure of the compact bone tissue in the European mouflon**
Babosová Ramona, Zedda Marco, Vondráková Mária
- 3. Theobromine as a protective biomolecule in the CatSper gene expression of bovine cryopreserved spermatozoa**
Baňas Štefan, Benko Filip, Ďuračka Michal, Lukáč Norbert, Tvrďá Eva
- 4. The proteomic analysis of matured porcine oocytes in various maturation media**
Rosenbaum Bartková Alexandra, Morovič Martin, Strejček František, Němcová Lucie, Benc Michal, Martinčeková Dominika, Laurinčík Jozef
- 5. Morphometric analysis of the abomasum of calves fed with a starter combination of muesli and straw**
Batik Andrej, Zuzanová Anna
- 6. Nucleolus formation in bovine blastocysts after interspecies nucleolus transfer**
Benc Michal, Stachovičová Sára, Morovič Martin, Strejček František, Nevoral Jan, Rosenbaum Bartková Alexandra, Bonnet-Garnier Amélie, Laurinčík Jozef
- 7. Gene association analysis of an osteopontin polymorphism and ketosis resistance in dairy cattle**
Bauer Edyta A, Kuľaj Dominika, Sebastian Sawicki, Pokorska Joanna
- 8. Gene and protein expression patterns of Bax and Bcl-2 genes in cryopreserved bovine spermatozoa**
Benko Filip, Fialková Veronika, Žiarovská Jana, Ďuračka Michal, Tvrďá Eva
- 9. Emerging approaches to promote *in vitro* embryo production in prepubertal small ruminants**
Bogliolo Luisa, Podda Andrea, Nieddu Stefano, Daniela Bebbere, Giovanni Giuseppe Leoni
- 10. Zygotic expression of DUX4 is essential for bovine preimplantation development**
Michelle M. Halstead, Olivier Dubois, Soahary Jean-Rene, Esmeralda Narain, Martine Lethuile, Alice Jouneau, Amélie Bonnet-Garnier
- 11. Antioxidant and anticancer activity of essential oils**
Borotová Petra, Tvrďá Eva, Hrušovská Zuzana, Osei-Duah Emmanuel, Kačániová Miroslava
- 12. The effect of various dose of sea buckthorn on HT-29 cell line**
Capcarova Marcela, Srnkova Hanka, Dupak Rudolf
- 13. The Influence of Antioxidant Supplementation on Boar Sperm**
Dragin Saša, Galić Ivan, Stančić Ivan, Apić Jelena, Grba Jovana
- 14. Coliform bacteria in rabbit semen may affect sperm quality – an *in vitro* study**
Ďuračka Michal, Benko Filip, Petrová Jana, Hleba Lukáš, Baláži Andrej, Ondruška Ľubomír, Chrenek Peter, Tvrďá Eva
- 15. Influence of Different Concentrations of Ellagic Acid on Rabbit Spermatozoa Survival Rate After Cryopreservation**
Grba Jovana, Kuželová Lenka, Makarevich Alexander, Baláži Andrej, Dragin Saša, Tekić Dragana, Chrenek Peter

- 16. Combination of taurine and caffeine improves motility parameters of stallion spermatozoa**
Halo Jr. Marko, Massányi Martin, Slanina Tomáš, Zemanová Jiřina, Dianová Lucia, Michal Lenický, Šmondrková Monika, Mlyneková Eva, Halo Marko, Massányi Peter
- 17. Integrated risk assessment of heavy metal pollution in fish: risk/benefit comparison**
Helczman Marek, Tomka Marián, Jambor Tomáš, Fik Martin, Kirchner Róbert, Kováčik Anton
- 18. Ex situ conservation of pig genetic resources in Poland**
Szyndler-Nędza Magdalena, Wierzchoś-Hilczner Agnieszka, Warchoń Julia, Gogol Piotr
- 19. The effect of cholinergic receptor antagonists on muscarinic receptor (CHRM3) expression in the small intestine of newly hatching chicks**
Jaszczka Klaudia, Grzegorzewska Agnieszka, Pierzchała-Koziec Krystyna
- 20. Serum biochemical parameters of energy profile of ZDF rats after application of sea buckthorn (*Hippophae rhamnoides*)**
Kalafova Anna, Simonova Nikoleta, Schneidgenova Monika, Simkova Patricia, Brindza Jan, Capcarova Marcela
- 21. Cadmium and zinc associations with hepatic profile markers in Hermann's Tortoises**
Kirchner Róbert, Tomka Marián, Jambor Tomáš, Kováčik Anton, Helczman Marek, Massányi Peter
- 22. Serum biochemical parameters as biomarkers of mercury toxicity in Grass carp**
Kováčik Anton, Harangozo Lúboš, Árvay Julius, Tomka Marián, Helczman Marek, Kirchner Róbert, Fik Martin, Jambor Tomáš, Kalafová Anna, Chňápek Milan, Šimonová Nikoleta, Massányi Peter
- 23. Mitochondrial contribution to the oocyte and embryonic development**
Nevoral Jan, Grygarová Kateřina, Miki Shavit, Milena Králíčková
- 24. Effect of astaxanthin on the development of bovine vitrified oocytes cultured in reduced oxygen**
Olexiková Lucia, Dujičková Linda, Makarevich A.V.
- 25. Effect of broiler chicken breed on mechanical and morphometric parameters of bone**
Pavlik Ales, Ticha Lenka, Steinerova Michala, Vevera Petr, Nedomova Sarka, Slama Petr
- 26. The use of stem cells in the treatment of mastitis in dairy cows**
Pokorska Joanna, Sawicki Sebastian, Gabrys Julia, Kułaj Dominika, Bauer Edyta A., Lenart-Boroń Anna, Bulanda Klaudia, Kuchta-Gładysz Marta, Grzesiakowska Anna, Kemilew Jerzy, Barton Patryk Mikołaj, Lasek Olga, Bugno-Poniewierska Monika
- 27. Expression of GABA_B receptors in early embryos**
Rušinová Laura, Špírková Alexandra, Šefčíková Zuzana, Kovaříková Veronika, Pisko Jozef, Fabian Dušan, Čikoš Štefan
- 28. Osteogenic potential of different calcium phosphate ceramics *in vitro***
Šebová Eva, Oliver-Urrutia Carolina, Hedvičáková Věra, Hefka Blahnová Veronika, Žižková Radmila, Wagner Alexandra, Čelko Ladislav, Filová Eva, Montufar Edgar B.
- 29. Serum minerals of ZDF rats after application of sea buckthorn (*Hippophae rhamnoides*)**
Schneidgenova Monika, Kalafova Anna, Simonova Nikoleta, Simkova Patricia, Brindza Jan, Capcarova Marcela

30. Bee bread as a treatment for *diabetes mellitus*

Simkova Patrícia, Kalafova Anna, Schneidgenova Monika, Capcarova Marcela

31. Releasing of growth factors from umbilical cord tissue

Schmiedova Iveta, Dembickaja Alena, Pavlik Ales, Slama Petr

32. The oxidative stability of Japanese quail meat after the bee bread diet supplementation

Nikoleta Šimonová, Anna Kalafová, Jana Tkáčová, Rudolf Dupák, Monika Schneidgenová, Emília Hanusová, Cyril Hrnčár, Peter Haščík, Marcela Capcarová

33. Phagocyte receptors in early embryonic cells

Špírková Alexandra, Pisko Jozef, Čikoš Štefan, Kovaříková Veronika, Šefčíková Zuzana, Fabian Dušan

34. Flow-cytometric enumeration of DBA⁺ primitive spermatogonial cells in rabbit testes

Vašíček Jaromír, Svoradová Andrea, Baláži Andrej, Vozaf Jakub

Past, present and future of the Tsigai sheep. Win or lose?

Beckeizolt^{1*}, Tarić Elmin¹, Čalović Sara¹, Gáspárdy András², Snežana Paskaš³, Bjedov Siniša⁴,
Cekić Bogdan⁵, Rašeta Mladen⁶, Savić Mila¹

¹ *Department of Animal Breeding and Genetics, Faculty of Veterinary Medicine University of Belgrade, Belgrade, Serbia*

² *Department of Animal Breeding and Genetics, University of Veterinary Medicine, Budapest, Hungary*

³ *Department of Animal Science, Faculty of Agriculture University of Novi Sad, Novi Sad, Serbia*

⁴ *Main Breeding Organization, Department for Animal Sciences, Faculty of Agriculture University of Novi Sad, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia*

⁵ *Main Breeding Organization, Department of Sheep and Goat breeding and Genetics, Institute for Animal Husbandry, Autoput 16, 11080 Belgrade, Serbia*

⁶ *Institute of Meat Hygiene and Technology, Belgrade, Serbia*

*Correspondence: beckeizolt@gmail.com

Abstract

This overview highlights the significance of conserving the Tsigai sheep, an old native transboundary breed, and emphasizes the importance of conducting a longitudinal assessment of its population status. The analysis of the FAO statistical database and the national sheep yearbooks over a 15-year period reveals fluctuations in the population size of Tsigai sheep in the Republic of Serbia. Several factors, including bio-geographic, agro-economic, socio-cultural and others, have influenced Tsigai sheep management. The observed population dynamics show a low point in 2009 with 1788 evidenced individuals, followed by a fluctuating increase, reaching its peak in 2023 with 5865 evidenced individuals in Serbia. It's noted that the breed has an endangered status if the total population size falls below 10,000 breeding ewes according to national and international regulations. Although the population has stabilized in recent years, this breed in the Republic of Serbia is still categorized as endangered and vulnerable. Challenges to the population include uncontrolled crossbreeding with more productive breeds like Ille de France, Würtemberg and Suffolk. Economic and demographic reasons, contributing to this with erosion of the population, being a significant concern. Despite economic factors, the importance of conserving Tsigai sheep is underscored by cultural, historical and heritage considerations. Long-term supportive measures are deemed essential not only for economic reasons but primarily to ensure the survival of the breed, reflecting its cultural, historical and heritage value.

Keywords: Tsigai sheep; native; breed; genetic resource

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