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## Review Paper

- 385** Role of antioxidants in fertility preservation of sperm — A narrative review  
Ahmad Yar Qamar, Muhammad Ilyas Naveed, Sanan Raza, Xun Fang,  
Pantu Kumar Roy, Seonggyu Bang, Bereket Molla Tanga, Islam M. Saadeldin,  
Sanghoon Lee, Jongki Cho (Korea)
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## Animal Breeding and Genetics

- 404** Comprehensive analysis of miRNAs, lncRNAs and mRNAs profiles in  
backfat tissue between Daweizi and Yorkshire pigs  
Chen Chen, Yitong Chang, Yuan Deng, Qingming Cui, Yingying Liu, Huali Li,  
Huibo Ren, Ji Zhu, Qi Liu, Yinglin Peng (China)
- 417** Monitoring changes in the genetic structure of Brown Tsaiya duck selected  
for feeding efficiency by microsatellite markers  
Yi-Ying Chang, Hsiu-Chou Liu, Chih-Feng Chen (Taiwan)
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## Animal Reproduction and Physiology

- 429** 12-Oxoeicosatetraenoic acid, a candidate signal for placenta separation,  
activates matrix metalloproteinase and induces apoptosis in bovine  
trophoblast cells  
Hachiro Kamada (Japan)
- 441** Conceptus-derived cytokines interleukin-1 $\beta$  and interferon- $\gamma$  induce  
the expression of acute phase protein serum amyloid A3 in endometrial  
epithelia at the time of conceptus implantation in pigs  
Soohyung Lee, Inkyun Yoo, Yugyeong Cheon, Hakhyun Ka (Korea)
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## Ruminant Nutrition and Forage Utilization

- 451** Quantitation of relationship and development of nutrient prediction  
with vibrational molecular structure spectral profiles of feedstocks  
and co-products from canola bio-oil processing  
Alessandra M. R. C. B. de Oliveira, Peiqiang Yu (Canada)
- 461** Effects of supplementing sweet sorghum with rapeseeds on carcass  
parameters, and meat quality, amino acid, and fatty acid composition of  
lambs  
Jianxin Jiao, Ting Wang, Shanshan Li, Nana Gou, A. Allan Degen, Ruijun Long,  
Hucheng Wang, Zhanhuan Shang (China)
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## Nonruminant Nutrition and Feed Processing

- 471** Interaction between dietary digestible tryptophan and soy oligosaccharides  
in broiler chickens: effects on caecal skatole level and microflora  
Jing Chen, Hansong Jing, Haiying Liu, Xin Zhu, Guiqin Yang (China)

- 484** Effect of supplementation and withdrawal of selenium-enriched kale sprouts on productivity and egg selenium concentration of laying hens  
Anut Chantiratikul, Pinyada Thongpitak, Orawan Arunsangseesod,  
Eakapol Wangkahart, Kwanyuen Leamsamrong, Worapol Aengwanich,  
Juan Boo Liang, Wu Xin, Piyanete Chantiratikul (Thailand)
- 492** Demonstration of constant nitrogen and energy amounts in pig urine under acidic conditions at room temperature and determination of the minimum amount of hydrochloric acid required for nitrogen preservation in pig urine  
Jongkeon Kim, Bokyung Hong, Myung Ja Lee, Beob Gyun Kim (Korea)
- 498** Efficacy evaluation of novel organic iron complexes in laying hens: effects on laying performance, egg quality, egg iron content, and blood biochemical parameters  
Jiui Cao, Jiaming Zhu, Qin Zhou, Luyuan Zhao, Chenhao Zou, Yanshan Guo,  
Brian Curtin, Fei Ji, Bing Liu, Dongyou Yu (China)
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## Animal Products

- 506** Metabolomic profiling of postmortem aged muscle in Japanese Brown beef cattle revealed an interbreed difference from Japanese Black beef  
Susumu Muroya, Riko Nomura, Hiroataka Nagai, Koichi Ojima, Kazutsugu Matsukawa (Japan)
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## Animal Behavior and Welfare

- 521** Effect of knife castration on leukocyte cytokine expression and indicators of stress, pain, and inflammation in Korean cattle bull calves  
Seonpil Yoo, Seok-Hyun Beak, Hyeok Joong Kang, Da Jin Sol Jung,  
Dilla Mareistia Fassah, InHyuk Jeong, Seung Ju Park, Md Najmul Haque,  
Myunghoo Kim, Myunggi Baik (Korea)