J Fisheries Livest Prod 2016, 4:2 (Suppl)
http://dx.doi.org/10.4172/2332-2608.C1.006

Influence of SNPs in myostatin promoter gene to growth and muscling traits in Bali cattle

Himmatul Khasanah
Bogor Agricultural University, Indonesia

Improvement of genetic qualities in Bali cattle can be done by selection based on genetic marker. MSTN (Myostatin) gene is known as an inhibitor or negative regulator of muscles development in embryogenesis and myogenesis. Mutation of this gene caused double muscling characteristic in cattle and it was identified has significant associated with some growth traits in cattle, sheep, pigs and mice. A total 48 Bali cattle from Bali cattle breeding centre was screened to identified genetic polymorphisms in MSTN promoter region by using direct-sequencing method (GenBank: AF348479.1). The weights and bodies measurement of Bali cattle were collected at 12 months. The muscling traits were evaluated by using ultrasound veterinary scanner at frequency 6.5 Hz and 130 mm of deep. The polymorphic SNPs in this region were 23 SNPs (g.-8495C>T, g.-8455A>C, g.-8444G>A, g.-8428A>G, g.8361G>A, g.-8350A>G, g.-8313A>G, g.-8254T>G, g.-8223C>T, g.-8313A>G, g.-8.184C>A, g.-8173A>G, g.-8161C>T, g.-8158C>A, g.-8144T>C, g.-8141G>C, g.-8124T>C, g.-8098C>T, g.-8087C>G, g.-8086C>T. Based on statistical analyses, SNPs g.-8444G>A, g.-8428A>G, g.8361G>A, g.-8313A>G and g.-8313A>G were significantly associated with ultrasound back fat thickness. SNP g.-8.184C>A and g.-8087C>G was significantly associated with ultrasound rump thickness and ultrasound longissimus dorsi thickness ($P \leq 0.05$) respectively. This result showed that SNPs in MSTN gene could be suggested as good marker for muscling traits in Bali cattle.

himmatulk@gmail.com

A next generation delivery system of bioactive nutrients to dairy cattle for the production and optimization of new, value added, medicinal, milk products

James Templeman
University of Guelph, Canada

This project takes aim at developing a novel and natural nutrient delivery system that incorporates an active ingredient (holy basil, HB) into molecular gels. These gels or emulsions are fed to dairy cows alongside their regular diets and are efficiently transferred to the mammary gland, while resisting degradation during digestion. Gel creation is preformed via emulsification of a stable wax polymer and a sodium alginate (NaAlg) solution followed by a two-tier gelation process initiated by calcium salts. The wax complex makes up 25% of the gel and is comprised of rice bran wax (2% w/v) and canola oil. It was selected based on its stability (<10% degradation) during 48 hours artificial rumen incubation. The NaAlg solution (75% of the gel) is added to the wax solution to be homogenized and emulsified, creating a low viscosity emulsification. A 9:1 solution ($CaCO_3$:$CaCl_2$) is then added to our emulsification at the same time as the HB. The calcium salts induce encapsulation of the HB through immediate and long-term gelation. The insoluble calcium ($CaCl_2$) activates instantaneously, causing rapid gelation, while the insoluble calcium ($CaCO_3$) activated by a drop in pH is triggered once the gel reaches the cow's acidic digestive system. The $CaCO_3$ activation creates sustained gelation; this helps ensure the encapsulated HB survives rumination while on its way to the mammary gland for deposition. This target-specific delivery system will enhance the functional food properties of milk and can be applied to attain marketable, medicinal milk products, unique to the industry in their therapeutic qualities.

jtemplem@uoguelph.ca