

on a pellet diet for 1 week, and then randomly divided into five groups: Normal control, Positive control (quercetin 20mg/kg), Onion peel 4 mg/kg, Onion peel 20 mg/kg, Onion peel 100 mg/kg. The oral administration was conducted daily. The experimental period was 4 weeks. Superoxide dismutase activity and glucose level in the serum was measured by an enzymatic method using a commercial kit.

Results: Superoxide dismutase activity was significantly higher in the onion peel extracts fed groups as compared with control group. Blood glucose level of onion peel extracts fed groups were significantly lower as compared with control group.

Conclusions: Onion peel water extracts enhanced antioxidant and antidiabetes status in rats.

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임상

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Exploration and Specimen Collection of Parasitic Vector-Arthropods from Wild, Domestic and Companion Animals

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Introduction: Without any sufficient information on the distribution and classification of certain vector-arthropods in terms of inhabiting animals or natural habitats, it is difficult to perform various biological resource researches (i.e., taxonomy, ecology, evolution, pathology, etc.). Therefore, based on a systematic collection of vector-arthropod specimens, field surveys and disease controls for vectors should be established. This research has been done to establish the fundamental information on animal parasitic vector-arthropod by exploring unrecorded parasitic vector-arthropods in wild animals, domestic, and

companion animals, and by collecting specimen samples and information on vector-arthropods. As arthropod species in this research, ticks, mites, fleas, lice, mosquitoes, and flies were included. Also, as host animals, mammals (i.e., livestock, companion animals, and wild animals), birds (i.e., poultry and wild birds), amphibians, and reptiles were included.

Materials and Methods: This study has been carried out from August 22 to December 24, 2012 (total of 4 months). Sampling has been conducted in nine national parks and other natural habitats between September and November. Mosquito and fly traps, and insect nets were used to collect mosquitoes and flies, and 1 meter x 3 meter fabrics were used to drag ticks in natural habitats. Also, Sherman traps and mist nets were used to capture wild small mammals and birds. External parasitic arthropods were collected from captured birds and wild animals. Three different specimen samples were made in this study, dried specimens, immersion specimens, and slide specimens. The immersion specimen samples were maintained in 70% ethanol. The Slide specimen samples were fixed by mounting-media on slides. In addition, 300 genetic specimen samples of ticks have been kept in absolute ethanol. The results of this research will soon be submitted in the database of the National Institute of Biological Resources (NIBR) in Republic of Korea.

Results: A total of 29 genus and 62 species (2,754 collections; 3,797 individuals) were collected. As the newly recorded species evidence specimen, 2 genus and 4 species (8 collections; 8 individuals) were first found. Two tick species (*Haemaphysalis hystricis*, 1 individual; *H. formosensis*, 1 individual) and two bat fly species (*Nycteribia allotopa*, 4 individuals; *N. formosana*, 2 individuals) were newly recorded. Twenty-nine genus and 58 species (2,381 collections; 3,424 individuals) for specimen samples, 1 genus 2 species (365 collections; 365 individuals) for genetic samples were collected.

Conclusions: Many infectious diseases of humans have been increasingly reemerged as zoonoses and is transmitted by vectors. Vector-borne diseases are a major contributor to the global health burden in the world. In conclusion, this database includes large-scaled observing and monitoring data for parasitic vector-arthropods inhabiting natural habitats as well as wild, domestic, and companion animal hosts. Therefore, these results will be used for further vector and disease researches and closely related business.

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Identification of Tissue Specific MicroRNAs in Horse

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Introduction: MicroRNA(miRNA) is small, non-encoding RNA and plays important role in various biological conditions by regulating the expression of target gene at the post-transcriptional level. Mature miRNA binds target messenger RNA at complementary sites in 3'-untranslated regions or coding sequences and thereby triggers down-regulation, suppressing target gene expression. Just as miRNA is involved in the normal functioning of eukaryotic cells, so has dysregulation of miRNA been associated with various diseases including inherited disorder, cancer, cardiomyopathy, and even obesity. Also recent studies reported that expression profile of miRNA is specific for the tissue and could be used as a biomarker for diagnosis and prognostic indicator. However, miRNA researches in animal have not been fully investigated. In especially horse, although bioinformatics identified list of expressed miRNA, no baseline laboratory results of miRNA exist. Nowadays, there is increasing growth in equine industry. Meanwhile, major equine diseases, colic and laminitis, still have been remained in horse as a main culprit of economic loss. Colic and laminitis are both lethal disease, but there is no available early diagnostic tool. As a result, a number of horses suffering from colic and laminitis show poor prognosis. In the present study, equine miRNAs were characterized in blood and several organs by Next Generation Sequencing(NGS) technology.

Materials and Methods:

1) RNA extraction

- Total RNA was extracted from the blood, muscle, colon, and liver samples by a phenol-chloroform method developed by Trizol reagent.

- The total RNA concentration and purity were measured by optical density with a spectrophotometer at 260 nm and the ratio 260/280 (Nanodrop and Bioanalyzer). The quality of total RNA was verified and the total RNA should be stored at -80°C.

2) cDNA library construction and Next Generation Sequencing

- To analyze miRNA profile, the 18-32nt RNAs were separated based on the size-fractionation by electrophoresis and were reverse transcribed using the miRNA reverse transcription kit with the appropriate miRNA-specific stem-loop primer.

- Quantitative RT-PCR was then performed.

- Small RNA cDNA library was analyzed for the characterization of statistically significant blood and tissue specific miRNAs using Next Generation Analysis(NGS) by Illumina HiSeq 2000 machine.

Results: We identified that three different organs had 95 miRNAs in common. Among them, 44 miRNAs presented more than 10-fold change relevant to those simultaneously found in serum, and 39 miRNAs were expressed exclusively in tissue of major organs including muscle, colon, and liver. Muscle had 70 miRNAs in common and 29 miRNAs of them presented more than 10-fold change relevant to those simultaneously found in serum. Colons had 97 miRNAs, and 48 miRNAs of them had more than 10-fold higher expression level compared with those simultaneously found in serum. Liver had 72 miRNAs, and 34 miRNAs of them were present more than 10-fold to those simultaneously found in serum.

Conclusions: The present study revealed lists of miRNAs expressed

in the major organs including muscle, colon, and liver. Some of these miRNAs were simultaneously found in the blood, suggesting that blood miRNAs could be utilized as a biomarker for tissue damage. The present study provides a valuable background information for further studies on the development of early diagnostic tool for equine diseases.

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Bacteremia Associated with *Globicatella* Infection in a Dairy Cow

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Introduction: *Globicatella* is a rare isolate in clinical samples of animal and human and displayed symptoms of meningitis in lamb and human. This report is to describe a case of *Globicatella* bacteremia with the necrosis of the extremities of dairy cow at Chungnam province.

Materials and Methods: A dairy cow tested by physical examination and blood sample collected by jugular vein. CBC (CDC teck, USA) and serum chemistry (Hitachi 7110, Japan) were tested. Blood cultures of patient tested by Viteck.

Results: A dairy cow raised in forty lactation diary farm at Chungnam province. The patient showed the depression, anorexia, hydration and lameness. The patient develop necrosis of the eartips and necrosis from pastern to knee in front legs. The results of CBC and serum chemistry showed normal reference ranges. Blood culture diagnosed with *Globicatella* sulfidifaciens

Conclusions: The patient with necrosis of the eartips and front legs was diagnosed by *Globicatella* sulfidifaciens infection. This is the first report with *Globicatella* infection in a dairy cow in Korea.

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Distribution of Microbiological Etiology Associated with Calf Diarrhea