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List of abstracts

(Categories: AH=Animal Health; AP=Animal Production; BS=Biological Sciences MT=Meat Technology; DT=Dairy Technology; BRM=Biorisk Management; PH=Public Health; QC=Quality Control; EP=Entrepreneurship)

Code	Category	Title/authors/corresponding email	Institution	Presentation
001	BRM	SEROPREVALENCE AND POTENTIAL RISK FACTORS ASSOCIATED WITH BOVINE BRUCELLOSIS UNDER DIVERSE PRODUCTION SYSTEMS IN PAKSITAN Aman Ullah Khan*, Iahtasham Khan, Muhammad Younus, Syed Ehtisham-Ul-Haque, Usman Waheed, Falk Melzer, Hosny El-Adawy, Heinrich Neubauer, Muhammad Asif, Idrees, *amanullah.khan@uvas.edu.pk	UVAS Lahore, Pakistan	Oral
002	BRM	CRIMEAN CONGO HEMORRHAGIC FEVER (CCHF) IN THE SCENARIO OF DSP-BIORISK MANAGEMENT IN PAKISTAN P.R. Nasrullah, M.A. Kakar, Azizullah, M.S. Qureshi and Mithat Direk adagul@yahoo.com	AUP Peshawar	
003	BRM	QUALITY ASSESMENT OF PASTEURIZED MILK THROUGH THE INCIDENCE OF SPORE FORMING BACTERIA IN PASTEURIZED MILK Muhammad Asim Ikram*, Imran Javed, Saima Inayat, Khalid Javed, M. Junaid, H. Arslan Amin, Usman Mir Khan *asim.ikram@uvas.edu.pk	UVAS Lahore	
004	EP	CHALLENGES AND FUTURE SCOPE OF OSTRICH (STRUTHIO CAMELIUS) FARMING IN PAKISTAN Muhammad Fiaz Qamar*, Muhammad Arfan Zaman, and Kazim Ali *fiaz.qamar@uvas.edu.pk	UVAS Lahore	Oral

Code	Category	Title/authors/corresponding email	Institution	Presentation
005	BRM	ESTIMATION OF COMPOSITION, ADULTERATION AND MICROBIAL LOAD IN RAW MILK SAMPLES COLLECTED FROM DAIRY FARMS AND URBAN AREAS OF LAHORE DISTRICT, PAKISTAN Atta Muhammad Arif, Muhammad Ali* *Muhammadali.uvas@gmail.com	UVAS Lahore	Oral
006	AH	ANTHELMINTIC AND ANTIPROTOZOAL ACTIVITIES OF *CALOTROPIS PROCERA* UNDER FIELD CONDITIONS *Muhammad. Ashraf, A. Javeed, M. Adil Rasheed, Qamar Niaz and Mukhtar Ahmad *drashraf2001@uvas.edu.pk	UVAS Lahore	Oral
007	BRM	TOXICOLOGICAL EFFECTS OF AFLATOXIN B1 ON GROWTH PERFORMANCE, HUMORAL IMMUNE RESPONSE AND BLOOD PROFILE OF JAPANESE QUAIL *Muhammad Younus, Sakhra Mahmood, Asim Aslam, Aftab Ahmed Anjum, Aman Ullah Khan, Asif Idrees, M.L. Sohail *younusrana@hotmail.com	UVAS Lahore	Oral
008	AH	DISPOSITION KINETICS OF CIPROFLOXACIN AFTER INTRAMUSCULAR ADMINISTRATION IN *LOHI* SHEEP *Zahid Iqbal, Ijaz Javed, Riaz Hussain, Mudassar Mohiuddin *zahid1.iqbal1@gmail.com	Isra University	Oral
009	AP	EFFECTS OF DIETARY VITAMIN C ON ARSENIC INDUCED TOXICITY ON SEMEN QUALITY, REPRODUCTIVE HORMONES AND HISTOPATHOLOGY OF TESTES IN TEDDY GOAT BUCKS *Muhammad Zubair, Maqbool Ahmad, Mushtaq Ahmad, Saqib Umar, Shujait Ali *drzubairabbasi@gmail.com	University of Ponch, Azad Kashmir	Oral

Code	Category	Title/authors/corresponding email	Institution	Presentation
010	MT	CHARACTERISTICS OF MEAT EMULSION SYSTEMS WITH BEEF REPLACED BY SOY PRODUCTS Neslihan Polat, Mustafa Karakaya, *Ali Samet Babaoğlu, Kübra Ünal *asmtbb@gmail.com	Selcuk University, Konya, Turkey	Oral
011	QC	A REVIEW ON AFLATOXIN M1 PREVALENCE IN MILK AND RECENT UPDATES ON DECONTAMINATION STRATEGIES *Amir Ismail, Muhammad Riaz, Saeed Akhtar *amirismail@bzu.edu.pk	Bahauddin Zakariya University, Multan, Pakistan	Oral
012	DT	COLOSTRUM WHEY: A POTENTIAL INGREDIENT FOR DAIRY SECTOR IN NUTRITIONAL ASPECTS *Maryam Batool, Saima Inayat, Muhammad Asim Ikram *maryambatool17@gmail.com	UVAS, Lahore	Oral
013	BRM	DIFFERENTIAL GROWTH OF SALMONELLA PULLORUM AND SALMONELLA GALLINARUM USING MODIFIED SS AGAR AND RV MEDIUM *Bakhtawar Maqbool, Sajjad-ur-Rahman *bakhtawardogar@yahoo.com	University of Agriculture, Faisalabad, Pakistan	Oral
014	AH	COMPARATIVE RESILIENCE OF TEDDY AND BEETAL GOAT BREEDS AGAINST ARTIFICIAL INFECTION OF HAEMONCHUS CONTORTUS THROUGH IMMUNOGLOBULINS AND HISTAMINE *Asim Shamim, Muhammad Sohail Sajid, Muhammad Nisar Khan, Muhammad Saqib, Muhammad Arfan Zaman, Muhammad Imran, Hafiz Muhammad Rizwan *asimshamimuajk@gmail.com	University of Poonch Rawalakot Azad Kashmir, Pakistan	Oral

Code	Category	Title/authors/corresponding email	Institution	Presentation
015	AH	HIGH PROTEIN DIET INDUCES B-CELL REGENERATION AND RESTORES NORMAL GLYCAEMIA IN ALLOXAN INDUCED DIABETIC RATS *Humaira Muzaffar, Muhammad Naeem Faisal, Tanweer Khaliq, Junaid Ali Khan, Bilal Aslam, Aisha Mahmood *2007ag1556@uaf.edu.pk	University of Agriculture Faisalabad, Pakistan	Poster
016	AH	ANTIMICROBIAL POTENTIAL OF BOVINE LACTOFERRIN AGAINST FOODBORNE PATHOGENS *Ishtiaque Ahmad, Ammarah Khatoon, Muhammad Ayaz, Muhammad Asim Ikram, Muhammad Junaid, Usman Mir Khan, Nisar Ahmad *ishtiaque@uvas.edu.pk	UVAS Lahore, Pakistan	Oral
017	MT	THE EFFECTS OF KEFIR IN TENDERIZING CHICKEN AND TURKEY BREAST MEAT *Kübra Ünal, Ali Samet Babaoğlu, Mustafa Karakaya *ulusoy_kubra@hotmail.com	Selçuk University, Konya, Turkey	Poster
018	AH	COMPARATIVE EFFICACY OF SYNCHRONIZATION PROTOCOLS (PROGESTERONE BASED OR FREE) ON CONCEPTION RATE IN CAPRINE SPECIES *Maqbool Ahmad, Umair Asharaf, Shafia Tehseen Gul, Rehana Kousar, Ijaz Ahmad, Khurram Ashfaq *drmaqbool_ahmad@yahoo.com	University of Agriculture, Faisalabad, Pakistan	Oral
019	EP	WATER PRODUCTIVITY UNDER GOVERNMENT AND FARMERS CONTROLLED CANAL IRRIGATION SYSTEMS *Muhammad Jamal Khan, Rabnawaz and Amanullah *mjkhan@aup.edu.pk	The University of Agriculture Peshawar, Pakistan	Oral

Code	Category	Title/authors/corresponding email	Institution	Presentation
020	BRM	SYNTHETIC POLYMORPHIC PEPTIDES: A STEP FORWARD FOR DIAGNOSIS OF TYPE-SPECIFIC TOXOPLASMOSIS IN HUMANS AND ANIMALS H.M. RIZWAN*, D. ARRANZ-SOLÍS, MS SAJID, J.P. SAEIJ *dr.hmrizwan@yahoo.com	The University of Agriculture Faisalabad, Pakistan	Oral
021	AP	FASCIOLOSIS: A MAJOR THREAT TO FOOD SECURITY AND ECONOMIC LOSSES ALL AROUND THE WORLD *Hafiz Muhammad Rizwan, Muhammad Sohail Sajid, Muhammad Saqib, Zafar Iqbal *dr.hmrizwan@yahoo.com	The University of Agriculture Faisalabad, Pakistan	Poster
022	AP	EFFECT OF BREED ON CARCASS TRAITS OF KUNDHI AND NILI RAVI BUFFALALOES *Rameez Raja Kaleri, Hubdar Ali Kaleri, Muhammad Siddique Zardari *rameezkaleri@gmail.com	Sindh Agriculture University, Tandojam, Pakistan	Oral
023	EP	DAIRY SCIENCE PARK– EMPLOYMENT OPPORTUNITIES FOR THE YOUTH *Sania Subhan Qureshi, Irfan ul Haq Qureshi, Sarzamin Khan and M Subhan Qureshi *saniasq@aup.edu.pk	The University of Agriculture, Peshawar, Pakistan	Poster
024	DT	EFFECT OF RIPENING CONDITIONS ON PHYSICO-CHEMICAL PROPERTIES AND SURVIVAL OF PROBIOTIC MICROORGANISMS IN PROBIOTIC CHEDDAR CHEESE *Usman Mir Khan, Fizzah Ashfaq, Arslan Amin Bhatti, Ishtiaque Ahmad, Saima Inayat, Muhammad Ayaz, Nisar Ahmad *usmanmirkhan@yahoo.com	UVAS, Lahore, Pakistan	Oral

Code	Category	Title/authors/corresponding email	Institution	Presentation
025	DT	PHYSICO-CHEMICAL AND NUTRITIONAL PROPERTIES OF CHEDDAR CHEESE MADE FROM CITRUS RETICULATA BLANCO CRUDE FLOWERS EXTRACT (CFE) *Usman Mir Khan, Ishtiaque Ahmad, Saima Inayat, Muhammad Ayaz, Nisar Ahmad, Arslan Amin Bhatti *usmanmirkhan@yahoo.com	UVAS Lahore, Pakistan	
026	DT	ENHANCEMENT OF OXIDATIVE STABILITY OF IRON ENRICHED BUTTER OIL WITH NATURAL ANTIOXIDANTS Ikam Ullah, Ishtiaque Ahmad, *Usman Mir Khan, Nisar Ahmad *usmanmirkhan@yahoo.com	UVAS Lahore, Pakistan	
027	EP	STRENGTHENING COMMUNITY RADIO FOR EFFECTIVE CLIMATE CHANGE ADAPTATION STRATEGIES FOR CLIMATE SMART AGRICULTURAL PRODUCTION IN AFRICA *Wilson Okaka and Jennifer Apil nupap2000@yahoo.com	Makerere University, Uganda	Poster
028	EP	PUBLIC AWARENESS COMMUNICATION CAMPAIGNS FOR DIFFUSION OF FOOD AND NUTRITION SECURITY POLICY INFORMATION SERVICES FOR SUSTAINABLE LIVELIHOODS IN UGANDA *Wilson Okaka and Jennifer Apil *nupap2000@yahoo.com	Kyambogo University, Uganda	Oral
029	EP	AN INVESTIGATION ON CHEMICAL COMPOSITION AND NUTRITIONAL EVALUATIONS OF SOME NATURALLY PRODUCE FISHERIES RESOURCES OF PAKISTAN *Zubia Masood, Nelofer Jamil, Sarzamin Khan *zubiamasood12@gmail.com	Jinnah University for Women, Karachi, Pakistan	Oral

Code	Category	Title/authors/corresponding email	Institution	Presentation
030	AP	EPIDEMIOLOGY AND CONTROL OF GASTROINTESTINAL FAUNA OF EUROPEAN ALBINO RABBITS OF FAISALABAD DISTRICT, PUNJAB, PAKISTAN *Muahammad Sohail Sajid, Waqas Altaf, Muhammad Kasib Khan Muhammad Saqib *drsohailuaf@hotmail.com	UAF Pakistan	Oral
031	BRM	COMPARATIVE EVALUATION OF MICROBIOLOGICAL MILK SAFETY STANDARDS EXISTING IN FAISALABAD Nabila Yaqoob, *Ahsan Naveed, Sajjad Ur Rahman, Syeda Wajiha Hassan, M. Farooque Hassan *ahsannaveed.uaf@gmail.com	UAF Pakistan	Poster
032	BS	HIGH OMEGA-6/OMEGA-3 RATIO IN MARGARINE INDUCES INTESTINAL INFLAMMATION AND OXIDATIVE STRESS RESPONSE IN WISTER RAT Aisha Mahmood*, Muhammad Naeem Faisal, Tanweer Khaliq, Junaid Ali Khan, Faqir Muhammad, Humaira Muzaffar, Farooq Azam and Maha Saleem *2007ag1551@uaf.edu.pk	UAF Pakistan	Oral
033	EP	EFFECT OF GAMMA-IRRADIATION ON THE QUALITY CHARACTERISTICS OF BROWN RICE BASED WEANING FOOD *Awsi Jan, Dr. Monika Sood, P.R.Hussain, Lubna Masoodi, Ambreena, Nadia Bashir *awsijan@gmail.com		
034	BRM	PREVALENCE OF *ESCHERICHIA COLI* O157: H7 IN BEEF MEAT IN WESTERN ALGERIA *Barka Mohammed Salih Benyoub Noreddine bm_salih@hotmail.com	Route de la Rocade, Algeria	Poster
035	BRM	Risk characterization of antibiotic resistance of Salmonella isolated from raw meat in Penang, Malaysia; Hafiz NidaUllah, Mohd Omar Abdul Kadir, Rosma Ahmad, Widad Fadhullah & Saima Sohni; hafiz.nidaullah@daad-alumni.de	Universiti Sains Malaysia	Oral

Code	Category	Title/authors/corresponding email	Institution	Presentation
036	AP	COMPARATIVE EVALUATION OF NIGELLA SATIVA AND LINCOMYCIN AS GROWTH PROMOTERS IN COMMERCIAL BROILER Munnaza Shareef, Muhammad Naeem Faisal, Aisha Mahmood, Humaira Muzaffar, *JazibHussain, Samia Ali, Muhammad Jamal, Farooq Azam jazibhussain04@gmail.com	UAF Pakistan	Oral
037	DT	ESTIMATION OF MILK PROTEASE ACTIVITY FROM UNINFECTED MAMMARY GLANDS OF NILI-RAVI BUFFALOS , SAHIWAL AND CROSS-BREED COWS OF PAKISTAN *Razia Kausar, Amjad Hameed, and Zafar Iqbal Qureshi *razia_uaf@hotmail.com	UAF	Oral
038	EP	APPLICATIONS OF PULSE ELECTRIC FIELD IN DAIRY TECHNOLOGY *Saleem Malik, Lubna Masoodi , Awsi Jan *malik.saleem72@gmail.com	Sher-e-Kashmir University, Pakistan	Poster
039	AP	EFFECT OF MENTHA PIPERITA (PEPPERMINT) EXTRACT AND ITS JUICE ON EGG QUALITY TRAITS DURING DIFFERENT STORAGE TIME IN LAYING HENS Abdur Rahman, E. Eren Gültepe, Cangir Uyarlar, I. Sadi Çetingül, Aamir Iqbal ,Ismail Bayram aamir_vet@yahoo.com	UVAS, Lahore-Pakistan	Oral
040	AP	THERMAL AND NUTRITIONAL STRESS IN EWES AND DOES: EFFECTS ON EMBRYO DEVELOPMENT AND EMBRYONIC LOSSES Dehouegnon Jerry Agossou, Uğur Serbester, Nazan Koluman bermondjerry@gmail.com	Çukurova University	Oral

Code	Category	Title/authors/corresponding email	Institution	Presentation
041	AP	COMPARISON OF LINCOMYCIN AND TETRACYCLINE AS ANTIBIOTIC GROWTH PROMOTER IN COMMERCIAL BROILER Muhammad Jamal, Muhammad Naeem Faisal, Hamza Nazeer, Humaira Muzaffar, Aisha Mahmood, Jazib Hussain, Jawad Aslam, Hira Javed hamzanazir56@yahoo.com	UAF, Faisalabad, Pakistan	Poster
042	EP	PHYTOREMEDIATION: AN INSPIRING AND ECONOMICAL FOR THE TREATMENT OF IRRIGATION WATER Hina Jabeen, Aqsa Gilani, Fatima Waleed, Mushtaq Ahmad, Rakhshinda Sadiq, Akhtar Rasool hinajabeen2@gmail.com	Women University Mardan, KPK Pakistan	Oral
043	AP	COMPARATIVE EVALUATION OF NIGELLA SATIVA AND LINCOMYCIN AS GROWTH PROMOTERS IN COMMERCIAL BROILER Munnaza Shareef, Muhammad Naeem Faisal, Aisha Mahmood, Humaira Muzaffar, Jazib Hussain, Samia Ali, Muhammad Jamal, Farooq Azam jazibhussain04@gmail.com	UAF, Pakistan	Poster
044	EP	EFFECT OF ANTIOXIDANT, PACKAGING MATERIAL AND STORAGE PERIODS ON THE CHEMICAL COMPOSITION OF ALMOND KERNEL Lubna masoodi, Dr A.H Rather, Awsi Jan lubna.masudi@gmail.com	Shere-e-Kashmir University of Agricultural Sciences and Technology Srinagar Jammu and Kashmir	Oral
045	PH	AN ANALYSIS OF CORRELATION BETWEEN POOR FOOD EDUCATION AND DENTAL CARIES IN PESHAWAR Maria Nizam Marianizam65@gmail.com	Gandhara University Peshawar, Pakistan	Oral

Code	Category	Title/authors/corresponding email	Institution	Presentation
046	AP	MONOGLYCERIDES AN ALTERNATIVE TO ANTIBIOTIC GROWTH PROMOTERS IN COMMERCIAL BROILER Samia Ali, Muhammad Naeem Faisal, Aisha Mahmood, Humaira Muzaffar, Muhammad Jawad Aslam jawadaslamch@ymail.com	UAF, Pakistan	Oral
047	AP	EFFECT OF FENUGREEK SEED SUPPLEMENTATION ON EGG QUALITY AND PRODUCTION PERFORMANCE OF SPENT LAYERS N. Chand., F.Wahab, M.S. Qureshi and R.U. Khan draleeze@yahoo.com	AUP	Oral
048	EP	DETERMINATION OF RED AND WHITE MEAT CONSUMPTIONS OF ADULT INDIVIDUALS LIVING IN AKŞEHIR Nazik Meziyet DİLEK, Ezgi TOPTAŞ BIYIKLI, Ali Emrah BIYIKLI meziyettemel@hotmail.com	Selcuk University, Turkey	Poster
049	EP	IDENTIFICATION OF THE PREFERENCES OF HEALTHY ADULTS ABOUT RED AND WHITE MEAT CONSUMPTION Nazik Meziyet DİLEK, Ali Emrah BIYIKLI, Ezgi TOPTAŞ BIYIKLI meziyettemel@hotmail.com	Selcuk University, Turkey	Poster
050	PH	CONJUGATED LINOLEIC ACID IN ANIMAL SOURCE FOODS AND ITS EFFECT ON HEALTH Nazik Meziyet DİLEK, Mustafa KARAKAYA meziyettemel@hotmail.com	Selcuk University, Turkey	Poster
051	PH	IDENTIFICATION OF PROCESSED MEAT PRODUCTS CONSUMPTION OF HEALTHY ADULT INDIVIDUALS LIVING IN AKŞEHIR Nazik Meziyet DİLEK, Ezgi TOPTAŞ BIYIKLI, Ali Emrah BIYIKLI meziyettemel@hotmail.com	Selcuk University, Turkey	Poster

Code	Category	Title/authors/corresponding email	Institution	Presentation
052	PH	POTENTIAL OF RED MEAT PRODUCTION IN TURKEY Nazik Meziyet DİLEK, Mustafa KARAKAYA meziyettemel@hotmail.com	Selcuk University, Turkey	Poster
053	EP	NANOTECHNOLOGY IN AGRICULTURE AND FOOD INDUSTRY: AN OVERVIEW OF APPLICATIONS AND CHALLENGES Rakhshinda Sadiq and Hina Jabeen rakhshinda_sadiq@yahoo.com	Women University Mardan, Mardan	Oral
054	EP	THREATENED WILD MORELS AND MOUNTAIN LIVELIHOODS IN NORTH WEST PAKISTAN Saadia Hanif saadia.hanif@live.com	Consultant-Farm Dynamics Pakistan (pvt) Ltd.	Oral
055	EP	POLITICAL/IDEOLOGICAL STUDY AND ACADEMIC STUDY: SCIENCE,HISTORY AND TEACHING. Sarmad Hussain Tunio Sarmad.hussain@nu.edu.pk	NU-FAST Karachi	Poster
056	AH	THERAPEUTIC EFFECT OF HERBAL PLANTS EXTRACT IN BROILER CHICKEN CHALLENGED WITH COCCIDIA Subhan Ullah and Umar Sadique druskhhatak@yahoo.com	AUP	Oral
057	AH	GENOTOXIC AND TOXICOPATHOLOGICAL EFFECT OF AFLATOXIN B1 IN GRASS CARP (Ctenopharyngodon idella) Hayatullah Khan and Umer Saddique druskhhattak@yahoo.com	AUP	Oral
058	AH	ANAEMIA – STILL A MAJOR HEALTH PROBLEM Binish Sarwar Khan Binishasad786@gmail.com	UAF	Poster

Code	Category	Title/authors/corresponding email	Institution	Presentation
059	BRM	OCCURRENCE OF MYCOBACTERIUM BOVIS IN BOVINE MILK AND CONSUMERS KNOWLEDGE, ATTITUDE AND PRACTICES TOWARD TUBERCULOSIS IN PESHAWAR, PAKISTAN Irfan Khattak irfankhattak@awkum.edu.pk	Abdul Wali Khan University, Mardan, Pakistan	Oral
060	AH	TOXINOTYPING OF CLOSTRIDIUM PERFRINGENS INFECTED LAMBS AND KIDS IN DIFFERENT TOPOGRAPHIC AREAS OF KHYBER PAKHTUNKHWA, PAKISTAN Mumtaz Ali Khan Dr_mumtazkhan@yahoo.com	UVAS Lahore	Oral
061	AH	HEMATO-BIOCHEMICAL ALTERATIONS IN CLOSTRIDIUM PERFRINGENS INFECTED GOATS Mumtaz Ali Khan dr_mumtazkhan@yahoo.com	UVAS, Lahore, Pakistan	
062	AH	QUANTIFICATION, ISOLATION AND PATHOGENOMICS F PATHOGENIC SHIGA TOXIN ESCHERICHIA COLI O157:H7 ALONG THE PRODUCTION AND SUPPLY CHAIN AROUND HUBEI OF CHINA Sher Bahadar Khan sbvetdr@yahoo.com	AUP	Oral
063	BRM	ANTIMICROBIAL RESISTANCE OF BACTERIA ASSOCIATED WITH RAW MILK CONTAMINATED WITH ANTIBIOTICS RESIDUES Limya .M. Warsma areejwarsmaq3@gmail.com	University of Khartum, Sudan	Oral
064	EP	PROCESSING AND UTILIZATION OF TRADITIONAL DAIRY PRODUCTS IN RAWALAKOT AZAD JAMMU AND KASHMIR, PAKISTAN Imtiaz Hussain imtiazupr@yahoo.com	University of Poonch, Azad Kashmir	Poster

Code	Category	Title/authors/corresponding email	Institution	Presentation
065	EP	VALUE ADDITION AND PROCESSED PRODUCTS OF UNDERUTILIZED FRUITS FOR FOOD SECURITY IN AZAD JAMMU AND KASHMIR, PAKISTAN Imtiaz Hussain imtiazupr@yahoo.com	University of Poonch, Azad Kashmir	Poster
066	AH	HYGIENE AND DAIRY MANAGEMENT PRACTICE DURING MILKING AT RAWALAKOT AZAD JAMMU AND KASHMIR, PAKISTAN Imtiaz Hussain imtiazupr@yahoo.com	University of Poonch, Azad Kashmir	Oral
067	AH	NUTRACEUTICAL APPLICATIONS OF ZINC, MANGANESE AND COPPER IN THE METABOLISM OF THE RUMEN AND IMMUNE FUNCTION Habib-Ur-Rehman hur_2085qta@yahoo.com	University of Balochistan (UoB), Quetta, Pakistan	Oral
068	EP	REUSE OF WASTEWATER IN AGRICULTURE RECOVERED FROM WASTEWATER TREATMENT SYSTEMS; Khush Bakht Andleeb kbandleeb@gmail.com	National Univ Sci and Technology, Islamabad, Pakistan	Oral
069	BRM	CLINICAL & RESEARCH LABORATORIES IN PESHAWAR CITY OF KP PROVINCE: ANALYSIS OF BIOSECURITY MEASURES PREDICT INSECURITY hoorshumail.bioinformatics@kmu.ed.pk	Khyber Medical University, Peshawar, Pakistan	Oral
070	AP	ECOLOGICAL BASED FEED INVENTIONS FOR LAMBS/KIDS FATTENING MANEUVER TO EARN GREATER PROFIT REVENUES DURING EID-UL-AZHA MARKETING IN PAKISTAN Abdul Razzaq; abdulrazzaqazrc@gmail.com	Agriculture Research in the Dry Areas (ICARDA), Jordan	Oral
071	AP	IDENTIFICATION OF NON-GENETIC FACTORS AFFECTING WEIGHTS AT BIRTH, PRE-POST WEANING, AND GREASY FLEECE PERFORMANCE OF KAJLI SHEEP IN PAKISTAN Abdul Razzaq; abdulrazzaqazrc@gmail.com	Agriculture Research in the Dry Areas (ICARDA), Jordan	Poster

Code	Category	Title/authors/corresponding email	Institution	Presentation
072	AH	EPIDEMIOLOGICAL RISK FACTORS, PROPHYLACTIC AND TREATMENT ARRAYS AGAINST PESTE DES PETITS RUMINANTS (PPR) IN DG KHAN, PAKISTAN Mahboob Ali,M Avais, Jawaria Ali Khan, A Razzaq, FarmanUllah, Zia ur Rehman* drzia80@aup.edu.pk	Key Laboratory of Agricultural Animal Genetics, Breeding and Reproduction, Education, Huazhong Agricultural University, Wuhan 430070, Peoples Republic of China	
073	EP	DETERMINANTS OF LABOR FORCE PARTICIPATION OF LITERATE FEMALES – SCOPE FOR CONTRIBUTION IN FOOD VALUE CHAIN Samina Naz Qureshi, Rehmat Ali, Sadia Subhan Qureshi, Shah Murad Khan, Mamoon Ahmed and Irfanul Haq Qureshi* i.quraysh@gmail.com	Institute of Management Sciences, Peshawar-25000, Pakistan/Dairy Science Park, Peshawar	
074	AP	HOMOFERMENTATIVE BACTERIAL INOCULATION, NUTRITIVE QUALITY AND ASPERGILLUS TOXINS EVALUATION OF ALFALFA SILAGE MEDICOGO SATIVA L. Nafeesa Qudsia Hanif, Sojida Latif, Anum Iftikhar, Khush Bakht, Iffat Tohiro, Nighat Sultana, Kishwar Sultana and Mujahid Hassan Nafeesahanif9@gmail.com	AgriPak Labs, Pakistan - NTI (Licensee Romer Labs, lnc., USA)	
075	PH	OCCURRENCE OF MYCOBACTERIUM BOVIS IN BOVINE MILK AND CONSUMERS' KNOWLEDGE, ATTITUDE AND PRACTICES TOWARD TUBERCULOSIS IN PESHAWAR, PAKISTAN. Irfan Khattak, M Hassan Mushtaq, Sultan Ayaz, Sajid Ali, Sadeeq Ur Rahman, Javed Muhammad, Haq Amanullah, M Luqman Sohail, Furqan Awan, Tahir Usman irfankhattak@awkum.edu.pk	College of Veterinary Sciences & Animal Husbandry, Abdul Wali Khan University Mardan, Pakistan	

Code	Category	Title/authors/corresponding email	Institution	Presentation
076	AP	EFFECT OF YEAST CULTURE (SACCHROMYCES CEREVISIAE) ON LACTOGENESIS IN ACHAI CATTLE Muhammad Hanif Khan, Syed M Suhail*, M Subhan Qureshi, Hayaz uddin, Ijaz Ahmed, Iftikhar Ahmed and Khalid Khan syedmuhammadsuhail@yahoo.com	Department of Livestock Management and Animal Breeding and Genetics, University of Agriculture Peshawar-Pakistan	
077	AP	STUDY ON GROWTH PARAMETERS AND TRANSMISSION OF GENETIC WORTH IN LOCAL RABBITS Khalid Khan, Syed Muhammad Suhail*, Rifatullah Khan, Sarzamin Khan, Muhammad Subhan Qureshi, and Iftikhar Ahmad syedmuhammadsuhail@yahoo.com	Faculty of Animal Husbandry and Veterinary Sciences, University of Agriculture, Peshawar	
078	AP	IMPACT OF GRADED LEVELS OF INOCULANT ON MICROBIOLOGICAL AND NUTRITIONAL QUALITY OF CORN SILAGE Smayia Sharif1, Shakira Ghazanfar, Shahid Zaman,Iffat Tahira, Nafeesa Qudsia Hanif and M Imran* m_imran766@hotmail.com	Department of Microbiology, Quaid-i-Azam University, Islamabad-45320, Pakistan	
079	BRM	INVESTIGATING DISINFECTION BY-PRODUCTS FORMATION POTENTIAL OF CHLORINE AND CHLORAMINE IN DRINKING WATER Amrah Qureshi, Imran Hashmi*, Romana Khan imranhashmi@iese.nust.edu.pk	National University of Sciences and Technology, Islamabad, Pakistan	

Code	Category	Title/authors/corresponding email	Institution	Presentation
080	AP	EFFECT OF REPLACEMENT OF MAIZE FODDER WITH MAIZE SILAGE IN TOTAL MIXED RATION ON NUTRIENT INTAKE, DIGESTIBILITY AND PRODUCTION PERFORMANCE OF EARLY LACTATING NILI-RAVI BUFFALOES Rafi-uddin, Muhammad Abdullah, Khalid Javed, , Ghulam Hussain Jaffar, Muhammad Farooq Tareen, Muhammad Akbar Nasar rafi_kaka27@yahoo.com	Livestock and Dairy Development Department Balochistan	
081	MT	SOME TECHNOLOGICAL PROPERTIES OF MEAT PROTEIN Halime Alp, Mustafa Karakaya Halime Alp halimealp@hotmail.com	Selcuk University KarapınarAydoğanlar Vocational School, Food Processing Department, Konya / Turkey	
082	BRM	FROM DAIRY SCIENCE PARK TO 'ONE HEALTH' SECURITY: ACHIEVEMENTS; CHALLENGES FOR GOVERNMENT & ACADEMIA IN KHYBER PUKHTUNKHWA, PAKISTAN. Tayyab ur Rehman tayyab.ibms@kmu.edu.pk	Khyber Medical University Peshawar	
083	DT	INDOOR POSITIONING AND NAVIGATION USING BEACONS TECHNOLOGY Samia Subhan Qureshi*, Mehak Asad, Sidra Sayed, Mohammad Haseeb Zafar * samiasq@gmail.com	University of Engineering and Technology, Peshawar	
084	PH	ANTIMICROBIAL PATTERN COMBINED ACTION EFFECT BASED TOOTHPASTE AND PLANT EXTRACT ON ORAL ISOLATES Muna Jalal Ali*, Essam A. Makky munajalal2@gmail.com	Universiti Malaysia Pahang, Malaysia	

Code	Category	Title/authors/corresponding email	Institution	Presentation
085	AP	DETERMINATION OF BREEDING OBJECTIVES AND ECONOMIC WEIGHTS IN ZANDI SHEEP REARED AT SEMI-INTENSIVE REARING SYSTEM OF QOM PROVINCE IN IRAN MAHDI KHOJASTEHKEY1, MAJID KALANTAR Seyed Mahdi Hosseini, Farmanullah, Zia ur Rehman, Sima Savar Sofla, Li Guo Yang mehdi_hoseini10@yahoo.com	Animal Science Department, Qom Agricultural and Natural Research and Education Center, AREEO, Qom, Iran/ Key Laboratory of Agricultural Animal Genetics, Breeding and Reproduction, Education Ministry of China, College of Animal Science and Thechnology, Huazhong Agricultural University, Wuhan, Hubei 430070, China	
086	AP	BIOFERTILIZERS FOR SUSTAINABLE AGRICULTURE AND FOOD SECURITY IN PAKISTAN Zahir Shah and Tasneem Shah zahirshah@aup.edu.pk	Department of Soil & Environmental Sciences The University of Agriculture, Peshawar	
087	DT	ESTIMATION OF MILK PROTEASE ACTIVITY FROM UNINFECTED MAMMARY GLANDS OF NILI-RAVI BUFFALOS , SAHIWAL AND CROSS-BREED COWS OF PAKISTAN. Razia Kausar, Amjad Hameed1, and Zafar Iqbal Qureshi2 razia_uaf@hotmail.com	Department of Anatomy, FVS, University of Agriculture, Faisalabad	
088	AP	IMPACTS OF USING IMPROVED SEED OF BERSEEM CLOVER (*TRIFOLIUM ALEXANDRINUM* L.) ON FORAGE QUALITY, YIELDS AND NET INCOME OF SMALLHOLDER DAIRY FARMERS Muhammad Shoaib Tufail mtufail@csu.edu.au	Graham Centre for Agricultural Innovations, Charles Sturt University, Wagga Wagga 2678, NSW, Australia	

Code	Category	Title/authors/corresponding email	Institution	Presentation
089	AH	DIAGNOSIS OF LATENT BACTERIAL INFECTIONS THROUGH ACUTE PHASE PROTEINS (APPs) IN BOVINES Shafia Tehseen Gul, Munazzah Fatima, Muhammad Kashif Saleemi, Ahrar Khan, Maqbool Ahmad and Muhammad Kasib Khan Shafia Tehseen Gul drshafia66@yahoo.com	University of Agriculture, Faisalabad, Pakistan	
090	AP	ANIMAL BASED ORGANIC CARBON SOURCES ENHANCE CROP PRODUCTIVITY AND SOIL SUSTAINABILITY: A GOOD STRATEGY TO COMBAT FOOD SECURITY ISSUE IN DEVELOPING COUNTRIES Amanullah Jan Email: amanullah@aup.edu.pk	Faculty of Crop Production Science, The University of Agriculture, Peshawar- 25130	
091	MT	EFFECTS OF OLIVE LEAVES ON SHELF LIFE OF BEEF PATTIES Gamze Acar, Mustafa Karakaya, Ali Samet Babaoğlu, Kübra Ünal gamze.kolay1@gmail.com	Agriculture Faculty, Food Engineering Department, Selcuk University, Konya, Turkey	
092	AH	TWO NOVEL SNPS IN STAT3 GENE ARE ASSOCIATED WITH MASTITIS SUSCEPTIBILITY IN DAIRY CATTLE Tahir Usman*, Sultan Ayaz, Irfan Khattak, Naimat Ullah Khan, Saira Gul and Atta ur Rehman tahircau@gmail.com	College of Veterinary Sciences and Animal Husbandry, Abdul Wali Khan University Mardan 23200, Pakistan	
093	PH	OCCURANCE AND CAUSES OF INSOMNIA IN YOUTH OF BAHAWALPUR DIVISION OF PAKISTAN M Khurram Waqas,Anum Saqib drovaisomer@uvas.edu.pk	University of Veterinary and Animal Sciences, Lahore, Pakistan	
094	AH	GENOTOXIC AND TOXICOPATHOLOGICAL EFFECT OF AFLATOXIN B_1 IN GRASS CARP (*Ctenopharyngodon idella*) Hayatullah Khan, Umer Saddique druskhattak@yahoo.com	Department of Animal Health, The University of Agriculture Peshawar-Pakistan	

Code	Category	Title/authors/corresponding email	Institution	Presentation
095	AH	IN-VITRO CYTOTOXIC AND ANTIVIRAL ACTIVITIES OF EXTRACTS OF EQUISETUM DEBILE AGAINST FOOT AND MOUTH DISEASE VIRUS Naeem Rasool, Muhammad Ovais Omer, Muhammad Ashraf, Imran Altaf ovomer@gmail.com	Department of Pharmacology and Toxicology, University of Veterinary and Animal Sciences, Lahore, Pakistan.	
096	BRM	CRIMEAN CONGO HEMORRHAGIC FEVER (CCHF) IN THE SCENARIO OF DSP-BIO-RISK MANAGEMENT IN PAKISTAN Parkha Riaz Nasrullah, M.A. Kakar*, Azizullah, M.S. Qureshi and Mithat Direk adagul@yahoo.com	Department of Human Nutrition, University of Agriculture, Khyber Pakhtunkhwa, Pakistan	
097	AP	TOTAL TRACT NUTRIENT RETENTION AND APPARENT METABOLIZABLE ENERGY OF DIFFERENT CEREALS AND THEIR VARIETIES BY QUAILS Muhammad Sohail, Asad Sultan, Sarzamin Khan, Naila Imtiaz, Sher Bahadar Khan* asadzia2003@yahoo.com	Department of Poultry Science, * Animal Health, The University of Agriculture, Peshawar, Pakistan Dr. Asad Sultan	

001-BRM

SEROPREVALENCE AND POTENTIAL RISK FACTORS ASSOCIATED WITH BOVINE BRUCELLOSIS UNDER DIVERSE PRODUCTION SYSTEMS IN PAKSITAN

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ABSTRACT

Brucellosis is one of the major problems affecting milk producing animals which deteriorates the health of livestock all over the world including Pakistan. It is a disease of zoonotic significance causing disease in humans. In animals economic loss is caused by infertility, orchitis, abortions and synovitis. In this study, 175milk (90 from cattle & 85 from buffaloes) and 402serum (208 from cattle & 194 from buffalo) samples collected from cattle and buffaloes in three selected districts (Narowal, Gujranwala and Gujrat) of the Punjab, Pakistan were investigated for antibrucella antibodies during the months of February to June, 2015. Milk samples were tested by Milk Ring Test (MRT), while serum samples were initially screened with Rose Bengal Plate agglutination test (RBPT) and confirmed with Indirect Enzyme Linked Immunosorbant Assay (i-ELISA) by i-ELISA(IDEXX Brucellose Serum X2 Ab Test, Switzerland). In total 21.7% milk samples were positive (cattle 22.2% and buffaloes 21.1%). Brucella antibodies were detected in 16.4% of tested sera with RBPT (cattle 18.8% and buffaloes 13.9%) and 11.4% by i-ELISA (cattle 13.5% and buffaloes 9.3%), respectively. The potential risk factors associated with brucellosis were studied. The iELISA seroprevalence in aborted, pregnant and lactating animals were 31.6%, 13.5% and 21.1%, respectively and in animals with repeated breeding, retained placenta and birth of weak calves were 11.3%, 12.3%and 15.3%, respectively. Our results provide baseline information on the epidemiology of bovine brucellosis and its potential risk factors in Punjab, Pakistan, which will ultimately help to improve control programs in the country. The higher seroprevalence of brucellosis indicates its relevance for public health.

Keywords: Bovine tuberculosis, seroprevalance, Milk, ELISA

002-BRM

CRIMEAN CONGO HEMORRHAGIC FEVER (CCHF) IN THE SCENARIO OF DSP-BIORISK MANAGEMENT IN PAKISTAN

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ABSTRACT

The present condition of Crimean-Congo hemorrhagic fever is deteriorating in Pakistan. The tick-borne Nairovirus causing Crimean Congo Hemorrhagic Fever (CCHF) has taken a greater death toll on human as well as cattle, compared to last year. To bring to light, the disease, first time activated during the 1944 in Crimea killing 200 army officers of the Soviet Union, has now a vast geographical dispersal becoming endemic in 30 countries across the globe which includes Africa, Middle East, Asia and the Balkans. Ticks from the Bunyaviridae family especially the genus Hyalomma known to be primarily involved in its spread and an active carrier of the virus, cause it among animals and humans by a single bite, while the infected animals through skin contact, slaughter houses, veterinarians and other agricultural workers, expose the incidence of the disease to other animals and humans. Similarly, human-to-human transmissions can occur by blood contact, exchange of bodily fluids and secretions of the infected person, less precautionary hospital environment with CCHF patients, and mishandling and re-use of needles or other medical appliances. Though, the symptoms are not immediately visible by human-to-human blood contact (5 to 6 days), the tick-bite within a day or few (1 to 7 days) causes fever, joint pain, headache, vomiting, dizziness, diarrhea, red spots on the upper mouth palate and sore throat. Treatment includes supportive care of symptoms and eliminating secondary infections. Even though, the drug Ribavirin is the lone FDA approved cure so far, yet, there is no vaccine made, to shield the spread of CCHFV, besides, the tick spell on animal followed by disease incidence, to the transmission to other ticks, usually goes undetected. The rudimentary cause behind the highest prevalence of CCHF in Balochistan is their not only their local cattle, but also, poor quarantine laws and health investigation on the borders with Iran and Afghanistan which are the top possible route of virus dispersal across border lines. 58% of CCHF positive patients of Balochistan have prospectively reported to have been to remote areas of Afghanistan, in parallel, 13 animals out of 21 randomly selected animals from Afghanistan and Iran's neighboring areas after ELISA tests revealed to be CCHF positive. Precautionary measures including medicinal care of cattle only last about a week or two which is worth than having no cure at all, on the other hand, human infections can be prevented by following the DSP Biorisk Management safety measures to avoid exposure to the disease and raising responsiveness on district and provincial level and acknowledge the population about this global concern before it becomes an epidemic.

Key words: CCHF, DSP, Bio-risk Management, Zoonotic Diseases, Pakistan.

003-BRM

QUALITY ASSESMENT OF PASTEURIZED MILK THROUGH THE INCIDENCE OF SPORE FORMER BACTERIA IN PASTEURIZED MILK

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ABSTRACT

Milk is a complete nutritious diet with very short shelf life. In order to extend the shelf life of milk Pasteurization is mainly used. Pasteurization is used to kill pathogenic organisms from milk and make it safer for human consumption. In this process, spore former bacteria (especially genus *Bacillus*, *Paenibacillus* and *Clostridium*) survive and they shorten the shelf life of milk. In order to access the microbial quality of pasteurized milk available in local market of Lahore, milk brands were analyzed for the enumeration of psychrotrophic, mesophilic and thermophilic spore formers (*Bacillus* and *Clostridium)* and total plate count. Total spore count was obtained by combining these and further identification was done by spore staining, morphological, biochemical identification tests. Fifty four samples of six available brands (A,B,C,D,E and F) were collected for the enumeration of spore former and total plate count. Spore former bacteria were cultivated using plate agar method on selective and mixed agar. The date was subjected to analysis through One Way Analysis of Variance (ANOVA) using DMR. Milk brand D showed less numbers of Total Plate Count (CFU/ml) as compared to other brands, while the thermophilic, mosophilic and psychortrophic bacilli numbers were less in Brand E, A and D respectively. On the other hand the enumeration of thermophilic and mesophilic clostridia were less in Brand D in both cases. We can imagine the shelf life, extent of contamination and level of cross contamination of pasteurized milk, which is being sold in the local market of Lahore, with number of total spore former and Total plate count.

Key Words: Pasteurized milk, total plate count, spore former microbes

004-EP

CHALLENGES AND FUTURE SCOPE OF OSTRICH (STRUTHIO CAMELIUS) FARMING IN PAKISTAN

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ABSTRACT

The ostrich (*Struthio camelius*) is a flightless bird and it has different names in various parts of the world, i.e, (Arabic na-ama, French autruche, German Straufi, Italian struzzo, Norwegian struts, Spanish avestruz). The ostrich has potential to provide human beings with low cholesterol and high quality food, utensils, clothing, and adornment; now a days there is a scope of ostrich farming for the procurement of meat, feathers, eggs and skin. There is a huge potential of extensive ostrich farming in Pakistan because abundant facilities regarding building design, bedding materials, fencing, environmental influences including sunlight are available throughout Urban and Rural areas of Pakistan. The breeding system needs special attention from academia and industry to study and interpret factors that influence hatchability. The major diseases and their management include Ostrich parasites, i.e, Ostrich wireworm (or stomach worm), Nematodes, tapeworm, protozoa, eye fluke and external parasites, Bacterial diseases; Botulism, Necrotic (or ulcerative) enteritis, Omphalitis and yolk sacculitis, Campylobacteriosis and Anthrax, Viral diseases; Avian influenza, Newcastle disease, Avian pox, Mycotic diseases: Candidiasis, Aspergillosis, Nutritional disorders: vitamin A, vitamin D, vitamin E, vitamin B, manganese, Economics/profits of ostrich farming comes through sale of ostrich eggs, sale of live ostriches and sale of ostrich products. Future of the ostrich industry in Pakistan is bright as there is a large scale market size, established leather processing and manufacturing, low feed cost per ostrich, best feed-to-weight ratio, low labour cost. Most Pakistanis like meat including farming based chicken, new and innovative investment opportunity for investors, potential for high production levels of breeder birds, potential for good food conversion efficiency in slaughter birds, Longevity of breeder birds leads to long-term commitment of producers to the future of the farmed ostrich.

Keywords: Ostrich Farming, Pros and Cons, diseases,

005-BRM

ESTIMATION OF COMPOSITION, ADULTERATION AND MICROBIAL LOAD IN RAW MILK SAMPLES COLLECTED FROM DAIRY FARMS AND URBAN AREAS OF LAHORE DISTRICT, PAKISTAN

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ABSTRACT

Milk is a translucent white liquid rich in nutritional profile from mammary glands of animals which make it perfect source diet required for growth and maintenance in infants, children and adults. But for sake of higher profit it is severely polluted through poor processing and hazardous chemicals which ensure it a birthplace of many diseases. Three hundred and sixty raw milk samples were collected from urban areas (ten areas of Lahore city) and dairy farms (ten dairy farms located in Lahore) with an interval of two months. Samples were analyzed for the estimation of adulterants, chemical composition and total microbial load. The results indicated that added water was positive for 100% samples of urban areas and no sample was found positive for the added water for Dairy Farms. Adulterants like Formalin, Sugar and Urea were not detected in any sample while Starch, added water, Hydrogen peroxide, CO3-/HCO3 and NaCl were detected in 4.667, 32.555, 2.00, 22.667, and 55.333% samples of raw milk from urban areas respectively. None of the adulterants were detected in dairy farm milk samples. The tests carried out for evaluating the chemical composition and physico-chemical properties of the raw milk samples from urban areas showed the following mean values of 2.758±0.288, 2.629±0.180, 1.270±0.077, 7.133±0.302, 6.456±0.264, 0.472±0.022 for lactose, fat, protein, TS, pH, ash respectively. Milk samples from the dairy farms recoded mean values of 4.816±0.321, 5.023±0.385, 3.363±0.180, 13.188±0.656, 6.669±0.265, 0.749±0.051 for lactose, fat, protein, TS, pH, ash respectively. Mean values of total plate count was 5.206±0.283 cfu/ml for urban areas raw milk samples and 4.674±0.273 cfu/ml for the dairy farm milk samples. The results depicted that raw milk samples analyzed from urban areas did not conform to even the minimum legal standards and possess adulterant chemicals which are noxious to health.

Keywords: Milk, adulteration, Lahore

006-AH

ANTHELMINTIC AND ANTIPROTOZOAL ACTIVITIES OF CALOTROPIS PROCERA UNDER FIELD CONDITIONS

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ABSTRACT

Plants are important sources of drugs and have been used for the treatment of various ailments in human and animals. Antipyretic, analgesic, anti-inflammatory, antispasmodic, antidiarrheal and anticoccidial effects of *Calotropis procera* leaves have been reported. Presences of cardiac glycosides, alkaloids, flavonoids and triterpenes have been detected in its different parts. Anthelmintic activity of *C. procera* leaves was evaluated against nematodes of range land sheep under field conditions. Parasitic burden was evaluated by counting eggs per gram (EPG) of faces by McMaster technique before and after medication. Moxidectin (0.2mg/kg I/M) was used as positive control. Chloroform extract of *C. procera* leaves was administered at various doses (3, 6 and 12mg/kg) orally. Dose depended effect in the reduction of EPG was observed 91.4 % at the dose of 12mg/kg at day 14 post medication while with Moxidectin it was 93.3 %. No significant differences were observed in the renal (creatinine, urea) and liver function (ALT, AST, ALP) tests which were in the normal range in groups of *C.procera* and moxidectin treated animals. Theileriosis is an important blood protozoal disease of ruminants and leads to heavy mortality. Infected animals were diagnosed and confirmed by PCR and treated with the chloroform extract of Calotropis procera leaves (3mg/kg IM) or of Peganum harmala leaves (3mg/kg IM). Buparvaquine preparation (Butalex 2.5 mg/kg IM) was used as positive control drug. Anti-theilerial efficacy of treatments was estimated by evaluating the clinical manifestation of disease and parasitological findings. Beside this treatment effect on hematological and biochemical reactions of liver and kidney functions were determined. It was found that animals treated with C. procera chloroform extract and butalex had rectal temperature in normal range by the day 7 of post-treatment. A non-significant difference (P>0.05) in schizonts and piroplasms in various treatments were observed at 14 and 21 day of post treatment.

Keywords: *C.procera*, chloroform extract, anthelmintic activity, antiprotozoal activity

007-BRM

TOXICOLOGICAL EFFECTS OF AFLATOXIN B1 ON GROWTH PERFORMANCE, HUMORAL IMMUNE RESPONSE AND BLOOD PROFILE OF JAPANESE QUAIL

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ABSTRACT

Toxic effects of Aflatoxin B1 on growth performance and humoral immune response against Newcastle disease Virus (NDV) vaccine were determined in Japanese quails. Quail chicks (n=300) were divided into five groups and each group was further sub-divided into two subgroups. One subgroup of each group was vaccinated with NDV vaccine to study the antibody response. Experimental diets were prepared by adding different levels of AFB1 i.e. 0.25mg/kg feed, 0.5mg/kg feed, 1 mg/kg feed and 2 mg/kg feed, and were offered to groups B, C, D and E respectively for 42 days, while group A was kept as control. Feed intake, body weight gain and feed conversion ratio were calculated on weekly basis. The Antibody titers of vaccinated quails were measured by haemagglutination inhibition test. Hematological parameters Erythrocyte sedimentation rate, Hb content, hematocrit and total leukocyte count were measured in AFB1 fed birds and were compared with the quails given basal diet. Results showed significant reduction ($P \leq 0.05$) in feed intake, weight gain and feed conversion ratio, when compared to control group. Moreover, anti-NDV antibody titre was significantly reduced ($P \leq 0.05$) in AFB1 fed groups. Hb content, hematocrit, and TLC had time and dose dependent decrease in AFB1 fed quails while ESR was increased significantly in AFB1 fed birds. This highlighted adverse effects of AFB1 on growth performance, humoral immune response and blood profile of quails.

Keywords: Toxicology, aflatoxin, immunity

008-AH

DISPOSITION KINETICS OF CIPROFLOXACIN AFTER INTRAMUSCULAR ADMINISTRATION IN LOHI SHEEP

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ABSTRACT

Disposition kinetics of ciprofloxacin studied in domestic Lohi sheep. The purpose was to optimize dosage regimen of the drug in local animals. 5 mg/Kg ciprofloxacin intramuscular (IM) preparation was injected to the thigh muscle of eight animals of similar age and weight. In every animal, a blank blood sample was taken before injecting the drug. After start of experiment, blood samples were collected from each animal at various time periods for estimating the concentration of ciprofloxacin in the blood using an advanced HPLC technique. An open two compartmental pharmakinetic model was applied to calculate different disposition parameters. In this study the absorption half life (t1/2 abs) was found to be 0.63 ± 0.16 hours while maximum concentration in plasma at any time, Cmax, was observed as 1.97 ± 0.15 µg/ml. Time taken by drug to reach maximum concentration in the plasma 'Tmax' was observed at 0.88 ± 0.09 hours. Distribution and elimination half life values were observed to be 0.46 ± 0.05 and 2.93 ± 0.45 hours, respectively. A higher volume of distribution (Vd) as 2.89 ± 0.30 L/kg was seen in this study. Total body clearance (CL) was observed as 0.75 ± 0.04 L/hr/kg and while area under the plasma concentration versus time curve (AUC) showed value of 7.19 ± 0.38 µg.hr/mL. These calculated disposition parameters were further used to optimize IM dosage of ciprofloxacin in local sheep. We concluded that in local sheep, a higher dosage (21.43 mg/kg) should be used intramuscularly and be repeated after 24 hours interval so that antimicrobial resistance may be avoided.

Keywords: Lohi sheep, Ciprofloxacin, Disposition kinetics, Optimal dosage

009-AH

EFFECTS OF DIETARY VITAMIN C ON ARSENIC INDUCED TOXICITY ON SEMEN QUALITY, REPRODUCTIVE HORMONES AND HISTOPATHOLOGY OF TESTES IN TEDDY GOAT BUCKS

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ABSTRACT

Arsenic is considered as one of the major environmental toxicant affecting male reproductive system. The present study was conducted to investigate the toxic effects of arsenic on semen quality and reproductive hormones of Teddy bucks. Vitamin C was also fed to find the ameliorative effects on these parameters. For this purpose, twelve adult Teddy bucks were randomly divided into three treatment groups: A (control), B (Arsenic 5 mg/kg BW/day orally) and C (Arsenic as in group B and vitamin C with oral dose of 200 mg/kg BW/day). These treatments were continued for 12 weeks. Semen quality parameters (volume, motility, count, sperm morphology, sperm membrane integrity, sperm DNA integrity and acrosomal inegrity) of experimental bucks of each group were evaluated on weekly basis. The libido of each buck was also observed before the semen collection. Blood was collected after every two weeks to measure the serum male hormones (testosterone, leutinizing hormone and follicle stimulating hormone). Malondialdehyde and cortisol were also evaluated after every two weeks. At the end of the study, testes of all the animals were collected and evaluated for histopathological studies. The obtained data was subjected to two-way analysis of variance, followed by Tukey test for multiple mean comparisons. The intensity of libido and semen evaluation parameters in arsenic treated buck were significantly ($p<0.05$) reduced. The level of male hormones (testosterone, leutinizing hormone and follicle stimulating hormone) were also significantly ($p<0.05$) decreased in arsenic treated animals. However, the values of malondialdehyde and cortisol were increased significantly in toxic group. The histopathological lesions in testes were present in the form of loss of germinal epithelium and atrophy of leydig cells. It was concluded that the supplementation of vitamin C ameliorated the toxic effects of arsenic on semen quality, hormones, malondialdehyde and cortisol.

Keywords: vitamin C, arsenic, toxicology, hormone

010-EP

CHARACTERISTICS OF MEAT EMULSION SYSTEMS WITH BEEF REPLACED BY SOY PRODUCTS

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ABSTRACT

Soy products can be used in the meat products to improve emulsion and textural properties, enhance nutritional value and reduce cost of production. The aim of this study was to evaluate the effect of addition of soy protein products at four concentrations on the technological properties (water holding capacity and cooking loss). Minced meats were divided into twelve treatment groups. Three soy protein products (tofu, textured soy protein (TSP), soy protein isolate (SPI)) and four concentrations (0%, 25%, 50% and 75%) of these compounds were added to meat samples, and homogenized, respectively. Samples in control treatment (0%) had no soy protein products added. It was also determined that the effect of soy protein products and their concentrations on pH and emulsion properties (emulsion capacity, emulsion stability and color parameters) of O/W emulsions prepared from beef meat. The highest water holding capacity and the lowest cooking loss were reached when 75% of soy products was added. Addition of textured soy protein increased water holding capacity and decreased cooking loss of beef meat samples. However increase in the concentration of soy products decreased emulsion capacity, emulsion stability, L* and a* values of emulsions.

Key words: soy products, beef meat, emulsion properties

011-BRM

AFLATOXIN M1 PREVALENCE IN MILK AND RECENT UPDATES ON DECONTAMINATION STRATEGIES

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ABSTRACT

Aflatoxin M_1 (AFM_1) is a group 2B category carcinogen according to International Agency for Research on Cancer and is of most concern for humans because of its prevalence in milk and milk products. Dairy products are of most concern for health authorities because of the fact that these food commodities are consumed maximally by the infants and elderly, the two age groups having minimum levels of immunity. Global data indicates the prevalence of AFM_1 above permissible limits especially in the developing countries suggesting the need for concerted efforts to curtail its level in dairy products. The best approach to control this toxin is to prevent dairy feed from aflatoxin producing fungus, however the curative approaches are also under research to reduce the level of AFM_1 below cut off values for human health. More recently, microorganism especially lactic acid bacteria are employed for binding of AFM_1 in order to reduce the bioavailability of AFM_1. The use of clay materials is also reported to reduce AFM_1 levels without disturbing the general characteristics of milk. Present review will provide recent data regarding the prevalence of AFM_1 in milk and milk products, their health impacts, regulations adopted in different countries, methods reported to have potential to reduce the level of AFM_1 in milk and the complications involved in the use of these reduction methods.

Keywords: Aflatoxin, milk, health

012-AH

COLOSTRUM WHEY: A POTENTIAL INGREDIENT FOR DAIRY SECTOR IN NUTRITIONAL ASPECTS

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Abstract

Whey protein is a well-know nutritional supplement in the sports arena, including body building. Colostrum whey is the liquid remaining after the removal of casein and fat. Colostrum whey is very nutritional as it is probiotic naturally. Bovine Colostrum whey in particular contains more than 200 different proteins, with α-lactalbumin, β-lactoglobulin, bovine serum albumin (BSA), and immunoglobulins as the major constituents. Bulk bovine whey has been used in the production of nutraceuticals. Colostrum whey contains compounds with a direct bactericidal effect. In addition, it also contains compounds that trigger immune defense mechanism to further help in elimination of bacteria and viruses. It will be beneficial if colostrum whey is utilized to convert into naturally nutritional by products such as ricotta cheese etc. Colostrum whey average values of fat, protein, TS, ash and chlorides are 0.333 + 0.133, 2.850+0.029, 7.257 + 0.139, 0.070 + 0.012 and 0.320 + 0.006. It contains different bioactive components which will be beneficial in a result of neutraceutical byproducts with natural probiotic nature which will help to improve our internal microflora for better digestibility and in increasing immunity. Now a days, Wastage of whey is a big problem for the environment due to high BOD value. So it would be beneficial, if colostrum whey is converted into value added product as it is a natural gift of God. Conversion of colostrum whey into cheese or energy drinks would give an innovative route to the Dairy Industry future.

Keyword: Colostrum whey, Colostrum whey benefits, Colostrum whey products

013-BRM

DIFFERENTIAL GROWTH OF SALMONELLA PULLORUM AND SALMONELLA GALLINARUM USING MODIFIED SS AGAR AND RV MEDIUM

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Abstract

Salmonella belongs to family Enterobacteriaceae and most of the serovars are considered to be zoonotic and food borne pathogenesis. Salmonellosis is generally diagnosed through the culture techniques which take more time (4-7days). Many rapid diagnostic methods are also available in the market like latex agglutination test, enzymes linked immunosorbant assay(ELISA) and polymerase chain reaction (PCR) which are used but the problem is that they are lacking specificity. So, the present study was planned to differentiate S. pullorum and S. gallinarum by using modified Salmonella Shigella (SS) agar and Rapport Vassilidas medium. Thirty five samples were collected from the intestinal content of poultry birds and were diluted with normal saline, further enrichment was performed using RV broth. Furthermore, subculturing was done on Macconkey and SS agar. The biochemical tests were performed using Rapid ID ONE kit, this kit contains all the biochemical tests necessary for species level identification. Polymerase chain reaction was employed for strain level identification, in which the rat A gene was targeted. Out of the 35 samples 1(2.85%) positive for S. pullorum 5.71% for S. Gallinarum. Various concentrations of dulcitol (D) were used in RV medium and SS agar. In RV medium the dulcitol concentration was 0.5g (D), 1g (D) and 0.5 g (D) + 0.5g lactose. For SS agar 0.5g (D), 1g (D) and 0.5 g (D) + 0.5 g lactose. Results show that with 1g concentration of dulcitol shows better growth in both RV and SS agar for S. gallinarum. While in 0.5 g (D) + 0.5 g lactose the growth of S. Pullorum was totally inhibited. This research provides an insight to how the routinely used growth medias for Salmonella species may be modified with regards to specific ingredients, and further modifications may be made by microbiologists for improved culturing results.

Key words: Modified medium, SS Agar, Salmonella, differential diagnosis

014- BRM

COMPARATIVE RESILIENCE OF TEDDY AND BEETAL GOAT BREEDS AGAINST ARTIFICIAL INFECTION OF HAEMONCHUS CONTORTUS THROUGH IMMUNOGLOBULINS AND HISTAMINE

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Abstract

Haemonchus (H.) contortus, an abomasal worm of goats (Capra hircus), affects health, production and welfare globally. Usually controlled through anthelmintics; however, development of anthelmintic resistance (AR) and concern of drug residues in food products makes use of anthelmintics questionable. Evaluation and selection of goat breeds towards Haemonchus infection is an alternate approach to control this parasite. Objective of this study was to determine the comparative resistance / resilience of Teddy and Beetal goat breeds of Pakistan of immunoglubin (Ig) isotypes and histamine concentrations in artificially infected goats with third stage larvae (L3) of H. contortus. Experimental goats (n=60) were divided into two groups i.e. Teddy and Beetal each divided into six sub-groups containing 5 goats in each sub-group. Two infection protocols were followed to infect goats i.e. early and late. Goats received dose of 12000 and 18000 L3 of H. contortus. Adult H. contortus antigen was prepared for performing enzyme linked immunosorbent assay (ELISA). Indirect ELISA was performed to evaluate the response of Igs and histamine against H.contortus. There was significant ($P<0.05$) difference observed in the levels of IgG and IgE at different time intervals post infection. Concentration of histamine was persistent in the plasma of experimentally infected goat breeds throughout the trial. However, it was significantly different at 4th and 6th weeks post infection. Up and down regulation of Igs and histamine post infection makes Teddy goats better responder than Beetal goats. Further investigations on mechanisms involved in breed resilience and/or susceptibility are required.
Keywords: Haemonchus contortus, Teddy, Beetal, Goats, Histamine, immunoglobulins, ELISA.

015-AH

HIGH PROTEIN DIET INDUCES B-CELL REGENERATION AND RESTORES NORMAL GLYCAEMIA IN ALLOXAN INDUCED DIABETIC RATS

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Abstract

Diet is a key factor in promoting health, metabolic homeostasis and fulfilling energy requirements. Diabetes mellitus is a metabolic disorder and characterized by hyperglycaemia resulting from defect in insulin production or secretion, insulin action or both. So, β-Cell dysfunction is a critical component in the development of diabetes. The amount, type and balance of the main dietary macronutrients (carbohydrates, proteins and fats) have a great impact on the management of diabetes. However, little is known about the molecular mechanism that how high protein diet is responsible for functional changes in pancreatic β-cells. This study was designed to investigate the effect of high protein diet on physical parameters, glycaemic control, β-cell regeneration, insulin production and release in diabetic rats. High protein diet was administered to alloxan induced diabetic rat model. Blood samples were taken for measuring blood glucose level, lipid profile and other biochemical tests. Tissue samples of pancreas and liver were collected for morphological study. Results indicated that high protein diet counteracted the reactive oxygen species (ROS) produced inside β-cells and normalized the elevated serum glucose, triglycerides and cholesterol levels and helps in normalizing the pancreatic tissue structure, morphology as well as normal replenishing or regeneration of β-cells. The data was analyzed statistically through one way ANOVA and DMR.

Keywords: high protein diet, alloxan induced diabetes, glycaemic control, β cell regeneration.

016-BRM

ANTIMICROBIAL POTENTIAL OF BOVINE LACTOFERRIN AGAINST FOODBORNE PATHOGENS

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Abstract
Food born illnesses are always a serious health issue in the Pakistan and throughout the world. Lactoferrin can be isolated from cheese whey by cation exchange chromatography without loss of its biological properties. Lactoferrin exhibits strong antimicrobial activity against different bacteria, virus, protozoa, fungi and yeast. The present study is concerned with the antibacterial activity and sensitivity of bovine lactoferrin against foodborne pathogens and to evaluate the pH range and thermal stability of bovine lactoferrin. Agar gel diffusion test was used to check antibacterial activity for each pathogen. Bacterial samples were purified and confirmed by bio-chemical tests. Three concentrations of lactoferrin 0.5mg/ml, 1mg/ml and 10mg/ml were treated on Escherichia coli, Salmonella enteritidis and Staphylococcus aureus. Antimicrobial activity of lactoferrin was determined at different range of pH. The heat stability of lactoferrin was determined at different heat treatments. The data was analyzed by complete randomized design (1-factor factorial) and comparison of means was done by Duncan's multiple range test. Outcomes received indicated that all three pathogenic bacteria were inhibited, even at 0.5mg/ml significantly. Escherichia coli is most sensitive and Staphylococcus aureus is least. Lactoferrin remain effective at 6, 7, 8 and 9 pH but no inhibition showed at 3, 4 and 5 pH significantly. There is no significant effect on antibacterial activity at pasteurization temperature i.e. 60-75°C but destroyed above 80°C. The results suggested that supplementation of lactoferrin in different food products enhances the food safety and quality.
Key words: lactoferrin, bovine, foodborne pathogens, antimicrobial activity

017-AH

THE EFFECTS OF KEFIR IN TENDERIZING CHICKEN AND TURKEY BREAST MEAT

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Abstract
Tenderness is the most quality properties of consumer acceptability of meat and meat products. The aim of this study was to evaluate the usage of kefir on some tenderness properties, pH and color characteristics of chicken and turkey breast meats. Meat samples were marinated in kefir for 24, 48 and 72 hours. Instrumental tenderness of cooked breast meat samples was measured using the Warner Braztler Shear blade. Marinating with kefir was decreased lightness of samples. a* values of samples increased with using kefir. L* and a* values of marinated chicken and turkey breast meats were, 60.43, 65.18; 11.33, 8.96. There was no difference ($p< 0.05$) in b* values between marinated and non-marinated samples. The pH of marinated samples was decreased according to the control group. pH values of marinated chicken and turkey breast meat were 5.52 and 5.49, respectively. Firmness of turkey breast meat decreased with usage of kefir, while marinated with kefir did not change the firmness of chichen breast meat.
Key words: kefir, tenderness, chicken meat, turkey meat.

018-AH

COMPARATIVE EFFICACY OF SYNCHRONIZATION PROTOCOLS (PROGESTERONE BASED OR FREE) ON CONCEPTION RATE IN CAPRINE SPECIES

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Abstract

This study was designed to investigate the effect of different exogenous hormonal strategies for improving the fertility in goats. The major objective was to evaluate the comparative efficacy of progesterone-based and progesterone-free estrus synchronization protocols on conception rate in dwarf goats. North Carolina Synchronization (NCSynch) is a new strategy for synchronization of estrous. A total of 27 does were divided into 3 equal groups A, B and C. Group-A was administered with slightly modified NCSynch protocol i.e., PGF2α which was given on day 1 and 15, GnRH on day 8 & 17 of the experiment. Group-B was given medroxy-progesterone in combination with PGF2α and GnRH. Sponges impregnated with medroxy-progesterone acetate were placed intra-vaginally for period of 15 days. Prostaglandin F2α were administered upon sponge removal on day 15 of experiment and GnRH was given on day 17 to these animals. Group-C comprised of control animals receiving normal saline I/M on day 1, 7, 15 and 17. Both treatments were evaluated against control Group-C. The onset of standing estrus and duration of heat period were also recorded. Controlled natural mating was performed in all groups. Progesterone levels were also assessed during the trial by using radio immunoassay (RIA) on day 1, 7, 15 and 17 of experiment. Overall response to estrus was 55, 100 and 33% in Group-A, B and C respectively. Conception rate was 55, 88 and 33% in group A, B and C respectively. Mean level of progesterone was significantly different in pregnant animals of Group-A from than that of Group-B and C during treatment on days 1st, 7th & 15th.

Key words: Caprine, estrous synchronization, methods, progesterone, NCSynch

019- EP

WATER PRODUCTIVITY UNDER GOVERNMENT AND FARMERS CONTROLLED CANAL IRRIGATION SYSTEMS

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Abstract

Pakistan is becoming a water scarce country with declining per capita water availability (<1000 m3), whereas its demand for domestic, industrial and environment is rapidly increasing resulting in to stress on sustainable water supply to irrigated land contributing >90% of the agricultural production. Increase in crop water productivity is one of the most important options to achieve efficient and effective use of water resources in arid to semi-arid environment. The present study was conducted to compare the crop water productivity under public (Kabul River Canal) and civil (Joe Sheikh Canal) systems in Peshawar. Water productivity was determined at system as well as farm level for both the systems. Performance of two systems was assessed using twenty-three indicators in five major groups (productivity, water supply, sustainability, environment and institutional/management). During winter season (Rabi), wheat, sugarcane, vegetables, fodder, and orchards occupied 43, 24, 14, 6, 7% and 34, 31, 25, 6, 3% of the cropped area under public and civil canal systems, respectively. In summer season (Kharif), maize, sugarcane, vegetables, fodder, and orchards occupied 41, 24, 12, 10, 7% and 35, 31, 23, 5, 3%, land under public and civil canal systems, respectively. The cropping intensities of 187% and 194% were recorded in the two systems, respectively. Average crop water productivity (CWP) of wheat, maize, sugarcane and tomato were 0.96, 1.11, 3.31, 3.61 kg m-3 under public and 0.90, 0.77, 2.38, 2.98 kg m-3, respectively. Despite huge amount of expenditure on management as well as operation and maintenance of public system, benefit-cost ratio of civil system was 40% high. The present study concludes that the civil system with minimal management and operation and maintenance cost performed better than public system. However, to further improve the productivity as well as performance, management of both the system needs to be gradually transferred to the farmers.

Keywords: Water conservation, crops, management, farmers

020-BRM

SYNTHETIC POLYMORPHIC PEPTIDES: A STEP FORWARD FOR DIAGNOSIS OF TYPE-SPECIFIC TOXOPLASMOSIS IN HUMANS AND ANIMALS

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Abstract
Toxoplasmosis, an important cosmopolitan zoonotic disease of humans and animals, is caused by an obligate intracellular parasite Toxoplasma (T.) gondii. Ingestion of uncooked or undercooked meat infected with viable tissue cysts and other foods infected with oocyst are major sources of disease transmission. Toxoplasma gondii has a clonal population structure containing three dominant clonal lineages, i.e. the clonal types I, II and III. However, some recombinant forms or exotic types also exist which develop from the combination of these clonal types. In previous studies, typing of T. gondii has been done through DNA based techniques. For this, DNA samples of T. gondii were collected either from oocysts collected from feline faecal samples or from tissues/tissue cysts collected from euthanized cats. However, getting an adequate amount of parasitic DNA from subclinical and clinical cases of toxoplasmosis remains bottleneck of DNA based typing techniques. Use of synthetic polymorphic peptides derived from T. gondii antigens is a simple, cost effective, sensitive and specific typing method. The results of previous studies showed that synthetic polymorphic peptides derived from ROP1, SAG1, GRA3, GRA6, GRA7 antigens discriminate type II from non-type II infections which suggests that serotyping is one of the promising methods for typing strains; although, limitations exist as a consequence of higher peptide polymorphism. Other peptides from different markers must be studied in order to discriminate clonal as well as non-clonal type.
Key words: Toxoplasmosis, Serotyping, Peptides, Toxoplasma gondii,

0211-BRM

FASCIOLOSIS: A MAJOR THREAD OF FOOD SECURITY AND ECONOMIC LOSSES ALL AROUND THE WORLD

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Abstract

Of the parasitic diseases, helminth infections are the most common and the most economically significant diseases affecting grazing ruminants worldwide. Among these, fasciolosis, caused by Fasciola (F.) hepatica and F. gigantica, is one of the most significant and debilitating liver damaging diseases of ruminants. It has been estimated that about 6 7 hundred million ruminants are at risk of fasciolosis around the world. This disease can cause blood loss, reduced appetite, nitrogen retention, and impaired energy metabolism due to liver damage, reduction in weight gain and reduced milk production. Damage of organs and other biochemical changes are due to the migratory and hematophagic activities of Fasciola. The annual economic loss due to fascioliasis in the veterinary field was estimated US$2–3 billion, as a result of liver condemnation, animal weight loss, reduction of milk yield and fertility declines. In Ethiopian Highlands the estimated economic losses due to fasciolosis were US$2.75 million per year. The estimated losses due to this disease was reported US$28 million in United Kingdom, in Bangladesh approximately US$3 million in and in Pakistan US$0.35 per year in terms of animal weight loss, declined fertility rate, and reduced milk yield. It is very difficult to control the disease and eradication is impossible as the parasite can survive in the host, snail, and environment for long periods. In addition to good farm management, it is imperative to exercise strategic anthelmintic therapy in order to maintain parasitic diseases at an acceptable level.

Keywords: Fasciolosis, Economic significance, Food security, Ruminants

022-AH

EFFECT OF BREED ON CARCASS TRAITS OF KUNDHI AND NILI RAVI BUFFALO

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Abstract

Present study was conducted to study the carcass traits of Kundhi and Nili Ravi buffalo. The total 100 animals of Kundhi and Nili Ravi breed were randomly selected and divided into A, B, C and D group. In group A and C there were Kundhi and Nili Ravi male whereas, B and D females of both breeds respectively and the age of animals was around 36 months. The selected animals were slaughtered at slaughter house of Seven Star meat processing company Dhabeji, Thatta. The carcass traits studied including live body weight, carcass weight, dressing percentage and boneless weight. The results revealed that carcass traits live body weight, carcass weight, dressing percentage and boneless weight of Nili Ravi male was significantly higher (P>0.05) as compared to the Kundhi buffalo male, while same carcass traits were also observed highly significant (P>0.01) in Nili Ravi female than Kundhi buffalo female. It was concluded that carcass traits of Nili Ravi buffalo are better expressed and produces more beef than Kundhi buffalo. Likewise Kundhi buffalo male is better in beef production than the Nili Ravi female and Kundhi buffalo female produces low carcass yield.

Keywords: Carcass traits, Breed, Kundhi, Nili Ravi buffalo.

023-EP

DAIRY SCIENCE PARK–EMPLOYMENT OPPORTUNITIES FOR THE YOUTH

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Abstract

The Dairy Science Park (DSP) has emerged at the University of Agriculture, Peshawar, Pakistan, as a platform engaging the youth in productive economic activities. Medium-sized units (SMEs) are being networked with services providers, markets, and emerging entrepreneurs. The United Nations has accepted DSP as #SDGAction9671. Through the reshaped postgraduate research at the University, several entrepreneurship models were developed, supported with biorisk management. Several studies were conducted on feed conversion ratio, supplementation of antioxidants, growth pattern, breeding efficiency and effects of aflatoxins on economic parameters and other aspects. A study on effect of organic acids on the performance of Japanese quails found that net return was significantly higher by the supplementation. Artificial insemination in Japanese quails overcame fertility related problem as compared to natural mating. Proctodeal gland foam extender was found to be very effective for fertility, hatchability, sperm motility and count and as well as economical in terms of cost per chick. Analysis of the data generated on quails showed that a rolling fund of Rs.400,000 generated Rs.42,000 per month. Studies on rabbit farming system concluded that scope of rabbit as meat animal exists in the province and improvement in rabbit management could efficiently improve its production and utilization. Based upon the data generated so far, a feasibility of the production system has been prepared and we recommend it as an entrepreneur for the youth of the province. The data analysis revealed that an investment of Rs.200,000 has resulted in generation of a monthly income of Rs.41,325 per month through keeping 500 rabbit. The model was extended to the field through farmers training, especially sponsored by SRSP. The entrepreneurship models developed so far may be used for generating self employment for the youth and hygienic Halal food production for local consumption and export.

Keywords: Entrepreneurship, SMEs, SDGs, youth, livestock, poultry, value addition, quality control, biorisk management, export

024-AH

EFFECT OF RIPENING CONDITIONS ON PHYSICO-CHEMICAL PROPERTIES AND SURVIVAL OF PROBIOTIC MICROORGANISMS IN PROBIOTIC CHEDDAR CHEESE

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Abstract

Consumption of high concentration of probiotic bacteria at 10^7 viable cells per gram or per milli-litre of product is required to confer health benefits. Most publications concerning incorporation of probiotic bacteria into cheeses have focused only on their survival during manufacture and storage and only a few studies have considered the effect of probiotic adjuncts and the ripening temperatures on cheeses. Effect of ripening temperatures (4 and 8°C) on survival of probiotics microorganisms after ripening for 24 weeks. *Bifidobacterium animalis* subsp. *Lactis*, *Lactobacillus casei*, *Lactobacillus acidophilus* were used as an adjunct in the production of Cheddar cheeses which were ripened for 24 weeks at 4 and 8°C. The counts of starter lactococci in cheeses produced with *B. animalis*, *Lb. casei* or *Lb. acidophilus* ripened at 8 °C were significantly lower than those ripened at 4 °C at 24 weeks. Probiotic microorganisms remained viable (7.50 $\log_{10}$ CFU/g) at the end of 24 weeks and their viability was not affected by the ripening temperatures. The acetic acid concentration in cheeses made with *Bifidobacterium* sp. or *Lb. casei* sp. was significantly higher than that of the control cheese. Increasing the ripening temperature from 4 °C to 8 °C did not affect the viability of the probiotic microorganisms, the salt, fat and protein contents of the cheeses during ripening of 24 weeks. This study shows that careful selection of probiotic microorganisms is required to have Cheddar cheese with high nutritional value for health benefits.

Keywords: Probiotics, Cheddar cheese, Ripening, Temperature, Nutritional Value.

025-AH

PHYSICO-CHEMICAL AND NUTRITIONAL PROPERTIES OF CHEDDAR CHEESE MADE FROM CITRUS RETICULATA BLANCO CRUDE FLOWERS EXTRACT (CFE)

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Abstract
Citrus reticulata Blanco crude flowers extract (CFE) at different level (1, 2, 3 and 4%) were used as natural milk coagulant instead of rennet to develop the Cheddar cheese. The Cheddar cheeses were compared with one controlled cheese made with rennet of 0.002%. Physico-chemical results of Cheddar cheese showed that cheese made with 1% and 2% of CFE had a longer and slightly softer texture. While, cheeses containing 3 and 4% CFE had semi-hard textural properties of curd similar to rennet added cheese. The CFE made cheese had moisture 37 %, fat 45 % on dry basis resembling to rennet made Cheddar cheese. Protein analysis shows that CFE made cheese had significant higher protein content than control one. The Cheddar cheese with 3% and 1% CFE were preferred by consumers instead of 2% and 4% for their better taste, texture/appearance and overall acceptability. Conclusively, it fulfills the nutritional requirement with acceptable organoleptic characteristics and at the same time provides health benefits.

Keywords: Cheddar cheese, Citrus reticulata Blanco, Buffalo milk, Milk coagulant.

026-AH

ENHANCEMENT OF OXIDATIVE STABILITY OF IRON ENRICHED BUTTER OIL WITH NATURAL ANTIOXIDANTS

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Abstract

Oxidative stability of iron fortified butter oil was measured by using different concentrations of anti-oxidants (sesame oil and turmeric powder) in butter oil. The butter oil was prepared by augmented of natural anti-oxidants. i.e. T_0 (100% butter oil+ 30 mg iron sulfate), T_1 (butter oil + sesame oil 5% and turmeric powder 0.10%), T_2 (butter oil + sesame oil 10% and turmeric powder 0.15%), T_3 (butter oil + sesame oil 15% and turmeric powder 0.20%). Samples were stored for 90 days at 40 ^{0}C. Butter oil samples were analyzed for free fatty acids, peroxide value, thiobarbituric acid value, shaal oven test and sensorial attributes (color, smell, appearance and overall acceptability) at 30 days of intervals. Treatment T_3 had lowest peroxide and free fatty acid values, while highest values were observed in T_0 and T_1. Smell, appearance and overall acceptability of iron fortified butter oil shows increased as amount of augmentation of natural anti-oxidants increased in all treatments. The lowest sensory score was observed in treatment T_3 due to dark yellowish type color of turmeric powder. Over all treatments T_2 and T_3 received higher scores from all the physicochemical tests and sensorial evaluation.

Keywords: Butter oil, Sesame oil, Turmeric powder, Natural Anti-oxidant.

027-EP

STRENGTHENING COMMUNITY RADIO FOR EFFECTIVE CLIMATE CHANGE ADAPTATION STRATEGIES FOR CLIMATE SMART AGRICULTURAL PRODUCTION IN AFRICA

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Abstract
Strengthening community radio (CR) is crucial for climate change adaptation and mitigation policy awareness of the risk and opportunities for improved potato production in Africa. CR can disseminate climate change adaptation and mitigation information on the new opportunities for agriculture. The principal objectives are to: explain the role of community radio in promoting potato in the food and nutrition policy; state food and nutrition systems policy issues; discuss gender equality and women empowerment for sustainable agriculture and food policies; and explain effectiveness of CR in achieving sustainable development goals two and thirteen (SDGs 2, 13). This policy review employed Ugandan community radio (CR), climate change, food and nutrition policies and best practice for agriculture and food systems information diffusion to achieve SDGs 2, 13. In the searches, we looked for data on enhancing the role of community radio for climate change adaptation and mitigation policy awareness of the risk and opportunities for improved potato production in Africa. The data were then examined for evidence. The retrieved data were summarized for this paper. Community radio is vital for early adoption and diffusion of agricultural technology information for achievement of the SDGs with a focus on SDG 2, and SDG 13. CR radio provides the best coordination for community media stakeholders for agriculture, food, and nutrition research, education, technology, innovations, and policy communication. Community radio services are vital but local radio stations are weak; lack capacity or content, good investments, equipment, well trained staff, and suffer political abuses. Community radio capacity can be well developed to promote climate change smart agricultural opportunities for sustainable livelihoods with a focus on technology innovations diffusion. Africa needs enhanced research funding, policy, capacity building, networking, innovations, South – South and North – South partnerships urgently.
Key words: Africa, climate change, climate smart agriculture, radio, technology, diffusion, SDGs

028-EP

PUBLIC AWARENESS COMMUNICATION CAMPAIGNS FOR DIFFUSION OF FOOD AND NUTRITION SECURITY POLICY INFORMATION SERVICES FOR SUSTAINABLE LIVELIHOODS IN UGANDA

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Abstract

Public awareness communication campaigns can end basic hunger, achieve food security and improved nutrition for sustainable agriculture in Uganda. The key objectives are to: describe public communication campaign strategies for sustainable development goal two (SDG 2); discuss the areas of focus in achieving food and nutrition security; highlight the major challenges and prospects of good governance in policy innovations information diffusion and discuss the social responsibility of the press in promoting good governance for food and nutrition policy. In this review, published evidence on the current status of agriculture, food security, and nutrition policy and research innovations diffusion in Uganda was obtained. Information was accessed using internet search engines and libraries. The data that were obtained during the process were used to broaden the search for primary information sources. The findings were contextualized according to the national agricultural, food, and nutrition policy. The retrieved data were summed up for this paper. Public communication campaigns are vital for promoting food and agriculture policy and programme information dissemination for better nutrition in Africa. Effective communication campaigns promote rapid adoption and diffusion of agriculture, health, food, and nutrition technology policy innovations in society. The campaign should be participatory, sustainable, theory driven, gender sensitive, and regularly evaluated for better performance. There are some good north-south, south-south, and inter-university research partnerships which should be consolidated and sustained. Most policy research messages do not reach the target public. The media is the most efficient and effective means of speeding up agriculture, food, and nutrition policy information diffusion. There is urgent need for enhanced north-south collaborative policy research, training, capacity building, technology transfer, innovations funding, ethical standards, good governance, community media development, networking, and gender equality in Uganda.

Key words: Uganda, SDGS, media, food security, agriculture, policy, north-south collaborations

029-EP

AN INVESTIGATION ON CHEMICAL COMPOSITION AND NUTRITIONAL EVALUATIONS OF SOME NATURALLY PRODUCE FISHERIES RESOURCES OF PAKISTAN

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Abstract

Hunger and malnutrition are now the most demoralizing issues and are inextricably interconnected with poverty in under developing countries. Today, about one in eight people were found to be suffering from chronic hunger. But nowadays, it has been widely approved around the world that fisheries resources have great capacity to address these challenges and could contribute categorically towards the suppression of hunger, food insecurity and malnutrition. Therefore, the role fish food in providing both adequate food resources and nutrition security for all has now been recognized at universal level. A study was conducted to determine the chemical composition found in the scales, shells and muscle tissues obtained from some commercially important fishes and shellfishes of Pakistan coast inorder to observe their nutritional importance for human. Samples were examined for detecting the contents of crude protein, crude lipids, amino acids and certain minerals. Amongst all other animal resources, all these fisheries resources were found to be enriched in protein, certain types of useful amino acids and minerals. Thence, it had been concluded that all these fisheries resources can also be used as useful food resources and bio-products in the productions of useful materials in pharmaceuticals and cosmetic industries.

Keywords: Fishes, shellfishes, bio-products, economic values.

030-EP

EPIDEMIOLOGY AND CONTROL OF GASTROINTESTINAL FAUNA OF EUROPEAN ALBINO RABBITS OF FAISALABAD DISTRICT, PUNJAB, PAKISTAN

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ABSTRACT

Gastrointestinal (GI) Parasitism is one of the main constraints limiting the production of livestock population including rabbits. Different antihelmintics have been used by veterinary practitioners and farmers; however, unable to get rid of GIT parasitism due to multiple factors. This study was aimed to determine the frequency distribution and control of GI parasites of rabbit population of Faisalabad district. To this end, a questionnaire was developed to record the epidemiological parameters which associated with the disease distribution in rabbits. Fresh faecal sample were collected for lab analysis for screening the helminth positive subjects. Positive rabbits for worms were subjected to oral formulations of levamisole (LEV), albendazol (AB), ivermectin (IVM) and Pyrental pamoate (PP). Total 384 rabbits were screened from five study sites of the selected district. Overall prevalence of Gastrointestinal Parasitism in rabbit Populations of study district was found 84.37 %. Eggs of Trichostrongulus retortaeformis, Graphidium strongsum and Cittotenia ptenoids were seen in feacal egg count assay 88.74%, 8.74% and 2.54% respectively. In in vivo drug trials the efficacy of IVM was good as compared to all other drugs. Efficacy of LEV was satisfactory but as compared to other drugs not remarkable. Effect of PP and AB were almost same. So, IVM is recommended for GI parasitism. The study provided the better choice of drug for preventive and/or therapeutic management of GI parasitism in rabbit population of Faisalabad, Punjab, Pakistan.

Keywords: GI Parasitism, Albino Rabbit, Epidemiology, in vivo, ivermectin

031-BRM

COMPARATIVE EVALUATION OF MICROBIOLOGICAL MILK SAFETY STANDARDS EXISTING IN FAISALABAD

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Abstract

Milk is highly perishable and easily spoiled by microbial contamination. Pathogenic bacterial contaminants in milk may causes different diseases like dysentery, tuberculosis, salmonellosis and fever. Microbiological quality milk safety standards were evaluated. Milk samples (Raw, Pasteurized, UHT) were collected from farms and commercial market around Faisalabad district and analyzed by different methods like, methylene blue reduction test (MBRT), swab test on animal food (STAF) to check for the antibiotic residues in raw milk, somatic cell count (SCC), total coliform count (TCC), thermoduric count, detection of *M. tuberculosis* and pathogenic *E. coli.* In raw milk samples only 2% were positive for STAF while 5% for pathogenic *E. coli*. The mean SCC, TCC and thermoduric count for raw milk was 1.5×10^5, 298 and 900 respectively. TCC for pasteurized was 150 and it was zero for UHT. The thermoduric count for pasteurized and UHT was 1100 and 1480 respectively. All the three categories were negative for detection of *M. tuberculosis.* Overall results indicated that about 10% of raw and pasteurized milk samples were positive for different type of contaminations and do not meet the milk safety standards.

Key words: UHT, pasteurized, STAF, TCC, contaminations, thermoduric

032-AH

HIGH OMEGA-6/OMEGA-3 RATIO IN MARGARINE INDUCES INTESTINAL INFLAMMATION AND OXIDATIVE STRESS RESPONSE IN WISTER RAT

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Abstract
Diets have a great impact on health and health-related issues. High-fat diets have been linked to epidemic development of metabolic disorder. Manifestation of metabolic disorder is causally associated with chronic diseases such as insulin resistance, inflammatory bowel disease (Ulcerative colitis and Crohn's disease), intestinal junction disruption and ultimately cancer. Underlying mechanisms are association with oxidative stress. This study was designed to investigate the development of metabolic disorder after a high-fat diet especially with high omega-6/omega-3 ratio in margarine on various physiological aspects, gut pathophysiology, epithelial signature and oxidative stress in a rat model. Results indicated a complex interplay of high ratio of omega-6/omega-3 in high-fat diet-induced oxidative stress on gut epithelium alterations, lipid metabolism, and plasma insulin level. Overall results suggest that high-fat diet as pervasive factors that exacerbate its lethal effect on gut physiology and metabolism. The data were statistically analyzed by one-way ANOVA and DMR.
Keywords: Metabolic disorders, gut pathophysiology, metabolic stress, lipid metabolism.

033-EP

EFFECT OF GAMMA-IRRADIATION ON THE QUALITY CHARACTERISTICS OF BROWN RICE BASED WEANING FOOD

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Abstract
Scientifically, it has been proved that breast milk is the perfect food for the infant during the first six months after birth. It contains all the nutrients and immunological factors an infant requires to maintain optimal health and growth. Furthermore, breast milk also protects infants against the two leading causes of infant mortality- upper respiratory infections and diarrhoea. On the other hand, nowadays, due to the reduced consumption of breast milk, important nutrients such as proteins, zinc, iron and B-vitamins are likely to be deficient in the contemporary diet of the affected infants, at the age of six months and above when the child's birth weight is expected to have doubled. Hence, breast milk is no longer sufficient to meet the nutritional needs of the growing infant. Since there are many weaning foods available in the market that are processed by conventional thermal methods. This leads to loss in the nutritional as well as the sensory profile of the product. So this work is mainly concerned with the 'Effect of g-irradiation quality characteristics of brown rice based weaning food'. In food technology, recent research has elucidated new potential applications for radiation. High doses of ionizing radiation have been shown to inhibit growth of microbes and to reduce the level of anti nutrients which were reported to reduce the availability of protein and minerals. Gamma Irradiation also results in modification of physico chemical properties like increase in the solubility and decrease in swelling index which has positive influence in the quality of weaning food.
Key words: weaning food, brown rice, gamma- irradiation

034-BRM

PREVALENCE OF ESCHERICHIA COLI O157: H7 IN BEEF MEAT IN WESTERN ALGERIA

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Abstract
Actually, there are no official regulations stipulating the procedures for sampling and research of STEC in food in Algeria. In this study, we were interested in search of *E. coli* O157: H7 Shiga-toxin producing (STEC) in 750 samples of beef meat imported from different countries. After enrichment and use of selective agents that are intended to curb the growth of the annex flora, we have isolated 5 strains from meat. These strains presented the main characteristics of *E. coli* O157: H7, non sorbitol fermenting and negative β-Dglucuronidase. Genetic characterization revealed the presence of genes and toxicity *stx1 stx2* responsible for pathogenicity of these bacteria by the production of toxins as well as the specific hemolysin (*ehxA)* and intimin (*eae* genes) for *E. coli* O157: H7. The study of the resistance of the strains to antibiotics disclosed they are sensitive to antibiotics tested.

Keywords: *E. coli* O157: H7, beef meat, *stx1*, *stx2*, antibiotics

035-BRM

RISK CHARACTERIZATION OF ANTIBIOTIC RESISTANCE OF SALMONELLA ISOLATED FROM RAW MEAT IN PENANG, MALAYSIA

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Abstract

This research work has been endeavoured to estimate the qualitative risk characterization of antibiotic resistance and genetic determinants of resistance of Salmonella isolated from raw meat samples. A total of 400 samples including beef, chicken, mutton and fish meat from different wet markets (240) and hypermarkets (160) in Penang, Malaysia, were collected. Detection of Salmonella was carried out by following ISO (6579: 2002), susceptibility against 15 antibiotics of clinical importance and 13 different resistance genes in Salmonella were investigated in this study. Further, risks of antibiotic resistance to consumers were investigated using risk analysis approaches. As a result, Salmonella expressed maximum resistance to two antibiotics; tetracycline and sulfamthoxazole from beef, chicken, mutton and fish in wet markets and to sulfamethoxazole from beef, chicken and fish meat in hypermarkets. Highest prevalence of resistant genes in Salmonella was found for streptomycin (strpA, strpB= 80%) and tetracyclin (tetA=80%) in wet markets and streptomycin (strpA, strpB= 80%), amoxicillin (bla-TEM: 80%) and sulfamethoxazole (Sull2: 100%) in hypermarkets. Moreover, risk characterization model signified four cases of Very High Additional Risk (VHAR) of resistance; three cases of streptomycin from beef, chicken, fish and one case of ampicillin from fish. In conclusion, increasing antibiotic resistance, due to the potential prevalence of antibiotic resistant genes in Salmonella and ultimately the originated risk of resistance against WHO enlisted life saving antibiotics highlights the emergence of antimicrobial resistance in food chain.

Keywords: Raw meat, Salmonella, Antibiotic resistance

036-AH

COMPARATIVE EVALUATION OF NIGELLA SATIVA AND LINCOMYCIN AS GROWTH PROMOTERS IN COMMERCIAL BROILER

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Abstract

Nigella sativa (N. sativa) is an important herb with multiple pharmacological activities. Therapeutic properties of N. sativa are based on the availability of thymoquinone (TQ). Current study investigates the antibacterial effect of N. sativa in comparison to lincomycin as growth promoter in broiler. Effect of N. sativa powder on feed conversion ratio (FCR) was also observed in broiler chicks. On weekly basis body weight of birds was observed. Immune titre against Newcastle and Infectious Bursal disease was also determined. Statistically analysis of variance and significance ($P<0.05$) of the results was determined through Duncan's Multiple Range test. Result demonstrated that supplementing the broiler feed with 1% N. sativa improved body weight gain and feed conversion ratio of broilers at finisher phase ($P<0.05$). In conclusion, results have shown that addition of 1% N. sativa powder appear to have a positive impact on growth performance of broiler chicks and it could be considered as a substitute of antibiotic growth promoter (lincomycin) for broiler chicks.

Key words: Nigella sativa, lincomycin, Immune titer, FCR, growth promoter, histopathological

037-AH

ESTIMATION OF MILK PROTEASE ACTIVITY FROM UNINFECTED MAMMARY GLANDS OF NILI-RAVI BUFFALOS , SAHIWAL AND CROSS-BREED COWS OF PAKISTAN.

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Abstract

Pakistan is at 4th place among largest milk producing countries of the world and it produces 49.5 million tons of milk annually. Dairy industry of Pakistan consists of buffaloes and cows. The share in annual milk production of country by cow is 17.37 million tons and by buffalo is 30.46 million tons. The level of protease activity in milk was tested and compared in milk samples from Nili-Ravi buffaloes, Sahiwal and cross-bred cows. The milk protease activity differed significantly ($p<0.05$) among tested dairy species/cattle. The mean value for protease activity in milk was highest for cross-bred cows followed by Sahiwal cows and lowest for Nili-Ravi buffaloes. With a minimum value of 32units/mL and a maximum value of 95 units/mL, the mean value of milk protease activity for Nili-Ravi buffaloes was 57.3±2.16 units/mL. For Sahiwal cows, the minimum value of milk protease activity was 33units/mL while maximum value was 99 units/mL with a mean value of 69.6±3.02units/mL. For cross-bred cows, minimum value of milk protease activity was 39 units/mL and maximum value was 127units/mL with a mean value of 81.3±3.35units/mL. As for as protease activity was concerned, the milk of Nili-Ravi buffaloes was comparatively better as compared to other two dairy animal types investigated. Moreover, values being reported can be used as reference values of protease activity in milk for Nili-Ravi buffaloes, Sahiwal and cross-bred cows.

Keywords: Pakistan, milk, Nili-Ravi

038-EP

APPLICATIONS OF PULSE ELECTRIC FIELD IN DAIRY TECHNOLOGY

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Abstract

Thermal processes used for the preservation alter the nutritional and sensory attributes of food materials. The food industry is aiming for new preservation techniques to replace the thermal processes with non- thermal processes, where there is no generation of heat thus have minimal effects on nutritional and sensory attributes of food. The thermal process pasteurization which is used to extend the shelf life of milk and inactivates the pathogenic bacteria, affect the nutritional and organoleptic properties of milk. The main effect on milk is the development of cooked flavor. In order to overcome such causes pulse electric field is used. Pulse electric field is considered as one of the most promising non-thermal processing technology. The pulse electric field (PEF) is alternative method to thermal pasteurization for milk that have minimal effects on sensory and nutritional attributes of milk thus providing fresh like products. Most PEF systems used for treatment of dairy or dairy products have been limited to bench top or small pilot scale systems. The PEF technology used in milk inactivates the microorganisms and enzymes and it has been reported that PEF have minimum adverse effects on sensory attributes of milk. It has been found that PEF treatment (35 kV/cm; 2.3 µs of pulse width at 65^0C for < 10s) immediately given to milk after pasteurization extended the shelf life of milk to 78 days at 4^0C. PEF technology is considered as a promising technology in dairy industry. Its major application is on inactivation of vegetative microorganisms. It has least effects on color, taste and nutritive value of dairy and dairy products. It is effective in extending the shelf life of milk.

Key words: Diary, Dairy products, PEF, Pasteurization.

039-AH

EFFECT OF MENTHA PIPERITA (PEPPERMINT) EXTRACT AND ITS JUICE ON EGG QUALITY TRAITS DURING DIFFERENT STORAGE TIME IN LAYING HENS

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Abstract

Much focus has been given on the use of herbs and herbal products to improve performance and to some extent the quality in freshly laid eggs but limited data are available regarding the impact of herbs on storage quality of eggs. The present study was designed to evaluate the effect of *Mentha Piperita* oil and mentha juice in feed and drinking water respectively, on egg quality traits in laying hens at different storage intervals. A total of 252 Babcock laying hens were divided into 7 groups and each group was further divided into 4 subgroups having 9 hens in each. Group A served as a control. Group A was fed basal diet without any supplementation. Group B, C and D were offered diets supplemented with mentha extract 50, 100 and 200 mg/kg of feed while groups E, F and G diets were having same doses of mentha juice in drinking water. At the end of the study (56 days), a total of 252 eggs (36 eggs from each group) were collected randomly. 84 eggs were analyzed at zero day of storage while other eggs were stored at 4°C temperature. Among these eggs, 84 were analyzed after 15 days and remaining 84 after 30 days of storage. The results revealed that egg quality traits like egg shell breaking strength (ESBS), yolk color (YC), haugh unit (HU) and egg weight showed non-significant difference (P>0.05) among all the groups at different storage intervals.

Key Words: Egg Quality, Mentha piperita, Haugh unit, Yolk color, Egg shell breaking strength

040-AH

THE RECENT DEVELOPMENTS IN PREVENTING EMBRYONIC LOSSES IN SMALL RUMINANTS DURING HEAT STRESS.

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Abstract
Exposure to elevated ambient temperature during period prior to conception and the early stages of pregnancy has strong adverse effects on reproductive outcomes such as reducing the quantity and quality of ovine and goat embryos. An inappropriate feeding (overfeeding or underfeeding) of reproductive does and ewes affects blood progesterone concentrations and metabolic hormones such as Insulin-like Growth Factor I (IGF-I) altering oocyte and embryo quality. On the other hand, the deficiency of some vitamins and minerals especially vitamin E and selenium can cause accumulation of lipid peroxidation products which can lead to preeclampsia or pregnancy-induced hypertension. However, the housing practices and well feeding by supplying balanced dietary energy and polyunsaturated fatty acids (PUFAs) pre-and during mating may improve embryo survival. Studies suggest that hormonal treatment with gonadotropin-releasing hormone (GnRH) fluorogestone acetate (FGA), arginine may reduce embryo mortality. This article aims to describe factors affecting embryo losses and explore some of the recent developments in prevention early embryo losses in small ruminants.
Keywords: heat stress, pregnancy, sheep, goat

041-AH

COMPARISON OF LINCOMYCIN AND TETRACYCLINE AS ANTIBIOTIC GROWTH PROMOTER IN COMMERCIAL BROILER

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Abstract

Antibacterial agents are the most valuable means available against bacterial infections such as, lincomycin and tetracycline are common brand. It is a cost-effective drug because low cost, good activity against anaerobic bacteria, favourable pharmacokinetic and pharmacodynamics. Still the criterion standard for therapy of anaerobic infections was especially in gut infection. Use of sub therapeutic level of antibiotic in animal feed as growth promoters are primarily source of antibiotic resistance and stress factor for gut epithelium. Current study was designed to elaborate the advances in understanding comparison in between lincomycin and tetracycline as AGPsin commercial broiler. Physical parameters, immune titer (Newcastle and Infectious Bursal disease), histopathological examination of gut and hematological parameters was studied. At the same time, feed intake (g) and feed conversion ratio was measured accordingly for hematological and histopathological analysis. Results of this study show that addition of tetracycline increases immune titer against ND and IBD diseases as compared to control and lincomycin treated groups. Results showed that lincomycin has significantly perform better as compared to tetracycline while as, tetracycline showed resistance against bacterial population. Statistically data was analyzing through analysis of variance and significance of the result was determined through Duncan's Multiple Range test.

Key Words: IBD, ND, Feed conversion ratio (FCR), AGPs, Tetracycline

042- EP

PHYTOREMEDIATION: AN INSPIRING AND ECONOMICAL FOR THE TREATMENT OF IRRIGATION WATER

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Abstract
Wastewater irrigation is a common practice in developing countries. This practice poses a high risk to food security and human health due to contaminants of emerging concern (CECs) contained in the wastewater. These CECs originate from industrial effluents and domestic discharges which contain persistent organic pollutants (POPs), residues of pesticides, insecticides, dyes and pharmaceutical drugs etc. These toxicants are taken up by the crops making way to enter the food chain, bio-accumulate at all trophic levels and present a terrific risk to food security. In this scenario, remediation of wastewater is becoming a big challenge worldwide. Conventional methods are very costly and environment unfriendly due to noxious by-products. Therefore, phytoremediation, an innovative field of environmental bio-technology, is becoming an ultimate alternate of the conventional methods. Phytoremediation exploits the natural detoxification potential of plants alongwith their associated microbes to remediate polluted water. This study presents a remarkable potential of two aquatic plants, Nasturtium officinale (watercress) and Lemna minor (duckweed) to remediate domestic wastewater of Shehzad town, Islamabad, Pakistan. The study of physico-chemical parameters of wastewater showed very high levels of chemical and biological oxygen demand (COD, BOD), total dissolved solids (TDS), total hardness, pH and turbidity. Interestingly, following the treatment with the designated plant system, a significant decline was observed in all the studied parameters which were comparable to irrigation water standards. Hence, the two plants presented the marvellous capability to extract and degrade the pollutants from wastewater which was obvious from the colour and odour of water. Henceforth, the proposed technology would serve as a great asset in the already existing repertoire of efforts to produce pollutants free food. Moreover, good irrigation practices will provide an excellent step towards food security by eradicating the poisons from food crops.
Keywords: Wastwater, irrigation, human health, contamination

AH-043

COMPARATIVE EVALUATION OF NIGELLA SATIVA AND LINCOMYCIN AS GROWTH PROMOTERS IN COMMERCIAL BROILER

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Abstract
Nigella sativa (N. sativa) is an important herb with multiple pharmacological activities. Therapeutic properties of N. sativa are based on the availability of thymoquinone (TQ). Current study investigates the antibacterial effect of N. sativa in comparison to lincomycin as growth promoter in broiler. Effect of N. sativa powder on feed conversion ratio (FCR) was also observed in broiler chicks. On weekly basis body weight of birds was observed. Immune titre against Newcastle and Infectious Bursal disease was also determined. Statistically analysis of variance and significance ($P<0.05$) of the results was determined through Duncan's Multiple Range test. Result demonstrated that supplementing the broiler feed with 1% N. sativa improved body weight gain and feed conversion ratio of broilers at finisher phase ($P<0.05$). In conclusion, results have shown that addition of 1% N. sativa powder appear to have a positive impact on growth performance of broiler chicks and it could be considered as a substitute of antibiotic growth promoter (lincomycin) for broiler chicks.
Key words: Nigella sativa, lincomycin, Immune titer, FCR, growth promoter, histopathological

044-AH

EFFECT OF ANTIOXIDANT, PACKAGING MATERIAL AND STORAGE PERIODS ON THE CHEMICAL COMPOSITION OF ALMOND KERNEL

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Abstract

The almonds of uniform size were manually decorticated and extracted kernals were mechanically dried at 40^0C to final moisture content of 4.20% after antioxidant treatment (BHA+BHT @ 0.015%) were given to each. The treated samples were packed in LDPE and laminates (vaccum) to moniter the changes in quality attributes under ambient and accelerated (35^0C) storage conditions for a period of 270 days. Antioxidant treated samples packed in vaccum laminates and stored under ambient conditions proved significantly superior by exhibiting highest crude fat content (54.33%) crude protein content (15.16%) crude fiber content (9.81) minimum peroxide value (109.99 meq/100g) and free fatty acid value (0.95mg/g). compared to the untreated kernals packed in LDPE under accelerated conditions throughout the storage periods. Results of present study have led to the conclusion that antioxidant treatment vaccum packaging and ambient conditions proved best in maintaining the quality of almond during storage.
Key words: Almonds antioxidants and packaging material

045-AH

AN ANALYSIS OF CORRELATION BETWEEN POOR FOOD EDUCATION AND DENTAL CARIES IN PESHAWAR

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Abstract

Poor food education leads to intake of refined carbohydrates such as candies, cookies, cakes, soft drinks, soda, honey, processed foods such as the fries, pasta, biscuits, pre-sweetened cereals and low quality food that in turn causes a high risk factor in development of caries. Data on quantification of poor food education and carries is deficient in medical and dental literature in context to Pakistan. Hence an analytical cross sectional study to determine the prevalence of caries among adolescents of age16-18 years was done in Peshawar. Total sample size was 100 adolescents. Data was collected through a self-administered questionnaire. The study was carried out to determine the causes of prevalence dental caries among adolescents in Peshawar, to assess the knowledge of oral health among adolescents in Peshawar and to quantify the data on food education and dental caries among adolescents in Peshawar. The collected data suggests that poor Food Education is positively correlated with Dental Caries.

Keywords: Food Education, Dental Caries, Carbohydrate Rich Food, Peshawar

AH-046

MONOGLYCERIDES AN ALTERNATIVE TO ANTIBIOTIC GROWTH PROMOTERS IN COMMERCIAL BROILER

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Abstract
A wide use of antibiotic growth promoters (AGPs) is beneficial and helpful for increasing efficiency which in turn makes animals healthy and more productive. The AGPs have also their role in reducing harmful bacteria from gut and reducing the competition for host nutrients as well as reduced the subclinical disease caused by these bacteria to obtain better performance. Current study investigates the antibacterial effect of Monoglyceride (Monolaurin) in comparison to lincomycine as growth promoter in broiler chicks. Effect of Monoglycerides on feed conversion ratio, physical parameters, immune titer (Newcastle and Infectious Bursal disease), histopathological examination of gut, screening antibacterial activity were performed. Result showed that supplementing the broiler feed with Monoglyceride (monoluarin) improved body weight gain and feed conversion ratio (FCR) of broilers at finisher phase. Results showed that addition of Monoglyceride (Fatty acid) appear to have a positive impact on growth performance of broiler chicks and it could be considered as a substitute of antibiotic growth promoter (lincomycin). Statistical data was analyzed by applying ANOVA and DMR. In conclusion, Monoglycerides showed better results as compared to lincomycin on the basis of better FCR, Immune titer, and gut health in commercial broiler.
Key words: Monoglycerides, lincomycin, Immune titer, FCR, growth promoter, histopathological examination

047-AH

EFFECT OF FENUGREEK SEED SUPPLEMENTATION ON EGG QUALITY AND PRODUCTION PERFORMANCE OF SPENT LAYERS

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Abstract
The present research study was conducted to investigate the effect of various levels of fenugreek seeds supplementation on feed intake, egg production, egg quality and liver health of Rhode Island Red spent layers at the research unit of the University of Agriculture Peshawar, Pakistan. A total of 60 spent Rhode Island Red layers were assigned to four groups (FS-0, FS-0.5, FS-0.75, and FS-1) with three replicate having 5 birds each and were kept in cages for 28 days in open sided house. Group FS-0 was kept as control while groups FS-0.5, FS-0.75, FS-1were provided with fenugreek seed powder in the ration at the rate of 0.5, 0.75 and 1% respectively. Egg production and feed intake was recorded on daily basis and from daily data weekly and over all egg production and feed intake was determined. Egg shell weight, egg weight, egg shell thickness, Haugh unit, albumin height and yolk weight were determined on weekly basis. Dietary supplementation of fenugreek seed significantly ($P<0.05$) decreased feed intake at all recorded stages. At first week significantly higher feed intake was recorded for the control group (105.06±0.279) and was followed by group FS-0.5 (103.79±0.067), FS-0.75 (103.57±0.058) while lowest intake of feed was noted for group FS-1(101.59±0.278). The same trend was observed during week-2, -3 and -4. Overall higher feed intake was noted for the control group (105.16 ±0.198) while lower intake of feed was noted for group FS-1 (101.93±0.306). Significantly higher ($P<0.05$) egg production was recorded for group FS- 0.5 followed by group FS-0.75 while lower egg production was recorded for the control and group FS-1. Egg quality traits including egg shell weight, egg weight, egg shell thickness, Haugh unit, albumin height and yolk weight were ($P>0.05$) not affected by supplementation of fenugreek seeds. Supplementation of fenugreek seeds improved liver function test indicated by decreased liver enzymes including Alanine aminotransferase (ALT) and Aspartate aminotransferase (AST). Significantly higher ($P<0.05$) ALT and AST levels were recorded for the control while lower ($P<0.05$) ALT and AST values were recorded in supplemented groups. It is concluded from the present study that supplementation of fenugreek at the rate of 0.5% increased egg production without affecting egg quality traits and liver health.
Keywords: Layers, egg quality, cholesterol,

048-AH

DETERMINATION OF RED AND WHITE MEAT CONSUMPTIONS OF ADULT INDIVIDUALS LIVING IN AKŞEHIR

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Abstract

This study has been carried out to the red and white meat consumptions of the people in the district Akşehir. This study was carried out on 300 adults (age 18 and over),who reside in Akşehir and are randomly selected, in 2017 January and February. In the study, a questionnaire, formed as a result of literature review, was used as a data collecting instrument. According to the data obtained, 77.3% of those participating in the study are females and 22.7% are males. It was identified that 54.7% of the participants were in the range of ages 18-30, 30.8 %, ages 31-50, and 14.5%, age 50 and over. It was found that 49.3% of the participants consumed red meat the most in their diets; 44.00%, poultry meat; and 6.7%, fish and other products. When the consumption amount of monthly red meat of the individuals participating in the study were assessed, it was identified that 42.8% of them consumed red meat less than 500 g; 23.4%, 500 to 1000 g; 19.4%,1001 to 1500 g; and 14.4%, more than 1500 g. When those participating in the study were assessed in terms of monthly fish meat, it was found that 64.7% of them consumed fish meat less than 500 g and 5%, more than 1500 g. At the end of the study, although the most preferred sort of meat was red meat, it was identified that the large majority (42.8%) of those participating in the survey consumed red meat less than 500 g. Fish was identified as the sort of the least preferred meat in diet, it was concluded that 64.7 % of the participants consumed fish meat less than 500 g. The reasons for consuming less meat in our society should be researched and precautions should be developed toward solution.

Keywords: Red meat, adult, fish, poultry

049-AH

IDENTIFICATION OF THE PREFERENCES OF HEALTHY ADULTS ABOUT RED AND WHITE MEAT CONSUMPTION

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Abstract

This study was carried out to identify the preferences of the healthy adults about red and white meat consumption. This study was carried out on 300 adults, who reside in Akşehir and are randomly selected, in 2017 January and February. In the study, a questionnaire, formed as a result of literature review, was used as a data collecting instrument. It was found that 73.4% of those participating preferred bovine meat; 18.3%, mutton, and 18.3%, goat's meat. The preferences of the participants to purchase red meat were found as meat cubes with 52.9%; mincemeat with 34.6%; fillet steak with 4.2%; chopped steak with 3.1%;and beefsteak with 2.8%. While chicken meat is almost completely (99%) as poultry meat, the rate of those preferring turkey and bird meat was identified to be 0.7% and 0.3%, respectively. The preferences to purchase poultry meats were identified as whole body with 52.7%; chicken breast with 25%; and drumstick with 18%. In the preferences to purchase fish meat, anchovy was identified as the most preferred sort of fish with 58.7^% and this was followed by salmon with 25.7%. It was identified that the criteria the individuals participating in the study pay attention the most, while purchasing the red and white meat, as date of expiry (70.7%), color and appearance (19.7%), brand and firm (4%), packing (1.7%), price (1.7%), nutritional value (1.7%), and other factors (0.7%). It was found that the most preferred meat was bovine meat as red meat; chicken meat as poultry meat; and anchovy as fish meat. The criterion the participants pay attention the most, while purchasing the red and white meat, was identified to be date of expiry. With the similar studies to be carried out in the different regions, the preferences of our society can be evaluated more comprehensively.

Keywords: Meat, healthy, adults, chicken

050-AH

CONJUGATED LINOLEIC ACID IN ANIMAL SOURCE FOODS AND ITS EFFECT ON HEALTH

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Abstract
Conjugated linoleic acid (CLA) is a positional and geometrical isomer of linoleic acid and the most common isomers 9c,11t-18:2 and 10t,12c-18:2. CLA isomers present the most commonly in the meat, milk, and other products, which are obtained from ruminant animals, while in egg they are relatively less. Synthesizing isomers from linoleic is carried out in two different ways and these are microbial bio-hydrogenation of linoleic acid to stearic acid in rumen or desaturation of trans vaccenic acid to CLA isomers through Δ^9-desaturaz enzyme in mammalian glands and adipose tissues. That CLA isomers, which has anti-carcinogenic, anti-atherogenic, and anti-diabetic are provided from animal resources such as meat, milk and meat led the necessary studies to be carried out to increase CLA concentrations in these products. In this study, it has been attempted to give information about the sources of CLA and factors influencing CLA content in these sources and effects of CLA on health.
Keywords: Fatty acids, meat, milk, poultry

051-AH

IDENTIFICATION OF PROCESSED MEAT PRODUCTS CONSUMPTION OF HEALTHY ADULT INDIVIDUALS LIVING IN AKŞEHIR

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Abstract
This study was carried out to identify the processed meat products consumption of the people living in the district Akşehir. This study was carried out on 300 adults (age 18 and over), who reside in Akşehir and are randomly selected, in 2017 January and February. In the study, a questionnaire, formed as a result of literature review, was used as a data collecting instrument. According to the data obtained, 61.8% of those participating in the study are females and 38.2% are males. While 17.8% of the participants stated that they found processed meat products healthy, 62.8% expressed that they found it unhealthy and 39.4% did not have any ideas. While 35.5% of the individuals participating in the survey had information about the production of processed meat products, 33.6% expressed that they did not have any information about it and the remaining 30.9% did not have any idea. 36.8% of those participating in the study consumed the processed meat product at least once a week; 26.6%, every fifteen days; and 21.7%, once a month. While 6.9% of those participating consume processed meat product every day, 7.9 % don't consumes processed meat products at all. As a result of the study, although 62.8% of those participating in the survey consider that processed meat products are unhealthy, only 35.5% of them expressed that they had information about the production of these products. Although the large majority of those participating in the study (62.8%) consider that the processed products are unhealthy, only 7.9% do not consume these products. As a result of the study, it was seen that the society did not have enough information about this issue. The reasons for this state should be researched and the society should be adequately informed about this issue.
Keywords: Meat, processed, health, information

052-AH

POTENTIAL OF RED MEAT PRODUCTION IN TURKEY

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Abstract
Animal source foods have an important place in human diet, due to the fact that they are rich in terms of digestible protein in high rate. Especially child and young population, that all societies are nourished at the adequate level with animal source foods have a great importance to the physical and mental development. In the studies carried out, for adequate and balanced diet, it was concluded that at least 40 to 50% of daily protein need should be met from animal source foods such as red meat, white meat, milk, and egg. Red meat, one of these foods, is obtained from skeletal muscles of butchery animals and is considerably necessary for a healthy growth and development thanks to high biological value - protein and other dietary members it contains. Being able to meet this need can be enabled society to be able to reach sufficient amount of red meat with minimum cost. Therefore, it is necessary to know the potential of red meat production and the necessity to increase it comes to our face by appropriate breeding policies. In this study, in the light of the last fifteen years, the actual information was attempted to be given regarding the potential of red meat production and animal existence in Turkey.
Keywords: Red meat, society, consumption, quality

053-EP

NANOTECHNOLOGY IN AGRICULTURE AND FOOD INDUSTRY: AN OVERVIEW OF APPLICATIONS AND CHALLENGES

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Abstract

The word nanotechnology is based on the prefix "nano", the Greek word which means "dwarf". Furthermore, nanotechnology generally deals with materials having a size range of 0.1 to 100 nanometers resulting in unique physicochemical properties as compared to their macroscopic counterparts. Nanotechnology has a wide range of potential applications in drug delivery and pharmaceuticals. Recently, many scientists and engineers have recognized number of uses of nanotechnology in agriculture and food industries. Use of Nanotechnology based product in agriculture has bright prospects for enhancing the efficacy of agrochemicals and bioavailability of nutrients used through nanoformulations of fertilizers, improving crop yield through bionanotechnology, better control of pests and diseases, , development of a nanoencapsulated pesticide formulation, remediation of contaminated soil and water, improving the shelf-life and quality of fruits vegetables and flowers, etc. The use of nanotechnology also has undoubted benefits for food sector through the use of smart biosensors, packaging materials, and nanonutraceuticals. The benefits of nanotechnology are widespread, as it is a new technology; there are also concerns about toxicity, the impact on human and environmental health. In this review, we intended to cover some of the developments in nanotechnology and their applicability to agriculture and food systems along with potential adverse effects including its legal and regulatory aspects.

Keywords: Nanotechnology, agriculture, quality, toxicity

054-EP

THREATENED WILD MORELS AND MOUNTAIN LIVELIHOODS IN NORTH WEST PAKISTAN

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Abstract

Rare, short seasoned, wildly grown wild morels are highly valuable edible mushrooms that weigh in gold in worth. Morel exports play a significant role in the socioeconomic condition of mountainous communities of Pakistan. During the months of March to April, picking, drying and selling these forest beauties to exporters is one of major livelihood strategy of these communities specially who are involved in livestock keeping. Wild morels require precise weather conditions to grow and climatic change have resulted in inconsistent precipitation patterns shortening the growing period of morels from two months to one month and in some areas like Swat and Nathiagali, morels have disappeared completely. Deforestation and lack of knowledge related to sustainable practices in morel harvesting has also contributed to the threatening situation for their production and exports. The situation is dire for both local and national economy and ecology. Implementing a carefully designed conserving program involving local communities is highly required. Research programs for creating non timber inventory and preserving forest biodiversity, conducting awareness and training programs in the area for sustainable harvesting techniques for edible forest produce and restrictions over non timber and timber harvests from these forests will help not only saving biodiversity but also sustaining and improving incomes of local households and improving overall economics of the area.

Keywords: wild morels, livelihood strategy, sustainable harvest, edible forest produce, forest management

055-EP

POLITICAL/IDEOLOGICAL STUDY AND ACADEMIC STUDY: SCIENCE,HISTORY AND TEACHING

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Abstract
There's a lot of difference between the reading of the books with specific political/ideological angle and academic angle. The motives behind the both types of studies are entirely different in our society unfortunately. During the political study, the activists, who already have accepted the told version by the leadership, are mainly concerned with to collect the negative/positive points in order to justify the claims of their leadership regarding the person/event. Political activists are going to perceive the things via certain political lenses, fixed on their eyes by the leadership, which ultimately lead the construction of the biased approach. However, academic study demands objective approach. The academic reader hasn't/shouldn't relatively strong sentiments with the person/event, therefore he/she is only concerned with to understand the things properly. His prime concern is to draw comparatively right conclusion, rather than justifying and then propagating the viewpoint of his leadership. And teaching is another ideological main department but there is not any specific methods that how to teach history, geograpphy, science and technology. It is the need of the hour to promote academic traditions, So that social sciences and pedagogical development can be flourished, which ultimately affect the multi dimensional development of our society.
Keywords: Ideology,politics,academic study, history science and pedagogy

056-EP

THERAPEUTIC EFFECT OF HERBAL PLANTS EXTRACT IN BROILER CHICKEN CHALLENGED WITH COCCIDIA

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ABSTRACT

Coccidiosis is a parasitic disease of poultry birds caused by *Eimeria* species associated with high morbidity, mortality and treatment cost causing a huge economic loss to the poultry industry. The present study was designed to investigate the therapeutic effect of *Azadirachta Indica, Curcuma longa and Calotropis procera* in broiler challenged with *Eimeria* species. To this end, a total of 360 birds were reared, divided into 6 groups, group A negative control (non-infected and non medicated), group B positive control (infected non-medicated) group C standard group (infected and medicated with Amprolium® @1.25g), group D infected and medicated with *Azadirachta Indica* @ 2g, 4g and 6g, group E infected and medicated with *Curcuma longa* @ 4g, 8g and 12g and group F infected and medicated with *Calotropis procera* @ 4g, 6g and 8g respectively. Group B, C, D, E & F were challenged with 30,000 sporulated oocysts of *Eimeria* species per bird at 21 days and group A was given equal volume of distilled water. Parameters like feed consumption, weight gain, FCR, oocysts in feaces (OPG), mortality and clinical findings were recorded. Current results revealed that the feed intake, weight gain and FCR of non-infected non-medicated group were significantly higher ($P<0.05$) than that of infected non medicated groups. The broiler of group C treated with Amprolium had better significant ($P<0.05$) feed intake and weight gain in comparison to other treated groups. Gross lesions were observed in all medicated groups at low dose level comprising of hemorrhages, congestion and thickening of intestinal wall. Histopathological findings of intestine revealed the sloughing of intestinal villi, leukocytic infiltration and hypertrophy of goblet cell. However no apparent lesions were observed in medicated groups fed with high dose. The result exhibited that *Curcuma longa* @12g/Kg feed had an excellent performance in term of low mortality and oocysts count as compared to other treatment groups.

Key words: *Broiler, Coccidiosis, Amprolium, Azadirachta Indica, Curcuma longa, Calotropis procera.*

057-EP

GENOTOXIC AND TOXICOPATHOLOGICAL EFFECT OF AFLATOXIN B_1 IN GRASS CARP (*Ctenopharyngodon idella*)

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ABSTRACT

Aflatoxin B_1 (AFB_1) is one of the potent mycotoxin produced mainly by *Aspergillus flavus.* Due to the strong mutagenic, teratogenic and carcinogenic effects, AFB_1 is considered as the most common and harmful mycotoxin for animal, human and aquatic life. The present study was designed to evaluate genotoxic and toxicopathological effect of AFB_1 in fresh water fish also known as Grass carp (*Ctenopharyngodon idella*). A total of n=150 Grass carp (42 ± 5 g) were divided into 5 groups each having 3 replicates. Group A was kept as control and group B, C, D and E were exposed to different concentrations of AFB_1 (25, 50, 75 and 100 ppb/kg of diet respectively) for 49 days. *Aspergillus flavus* spores were grown on potato dextrose agar (PDA) slant and then rice was used as a substrate for the production of AFB_1. The quantity of AFB_1 was 50ppb/g of rice using high performance liquid chromatography (HPLC) technique. The average weight gain and specific growth rate (SGR) of fish was significantly higher in group A (15.35g and 0.63% respectively) as compared to group E (6.55g and 0.28% respectively). The feed conversion ratio (FCR) varied significantly (P<0. 05 between control group and groups containing 75 and 100ppb AFB_1. AFB_1 did not affect the percent survival rate as no mortality was observed in all treated groups. Furthermore increasing concentrations of AFB_1 significantly lowered the red blood cells (RBC) count, hematocrit, haemoglobin concentration, mean corpuscular volume (MCV), white blood cells (WBC) count and percent lymphocytes as compared to the control group. Similarly a significant increase in the blood biochemical profile such as aspartate amino transferase (AST), alanine amino transferase (ALT), glucose, urea and creatinine was observed in AFB_1 treated groups. The serum protein and albumin level was significantly higher in control group (6.05 & 4.2g/dl) followed by group B (5.8 & 3.9g/dl), group C (5.4 & 3.7g/dl), group D (4.2 & 2.7g/dl) and group E (3.8 & 2.06g/dl). The genotoxicity of AFB_1 was only recorded at 75 and 100 ppb/kg, having micronucleus frequency percentage of 0.85 and 2.15 % respectively. The histopathological study revealed that higher concentrations of AFB_1 can cause pathological changes in liver, kidney, intestine and gills tissue. The present study concluded that AFB_1causes reduction in fish production performance, effect the haematological and blood biochemical profile, caused tissue damage and induced DNA damage in fish.

Key Words: Aflatoxin B_1, Grass carp, *Ctenopharyngodon idella,* Hematology, Blood Biochemical profile, Histopathology, Micronuclei.

058-AH

ANAEMIA – STILL A MAJOR HEALTH PROBLEM

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Abstract

In Pakistan, approximately 30% boys, 40-50% of primary school and preschool children, 39% of adolescents, 54% girls, 30% of the adult females, 69% children <2 years of age and 47% of the children were reported to affected of Iron deficiency anaemia. The presence of anaemia is basically defined as the lower level of red blood count than the normal range. According to World Health Organization, anaemia is considered as a severe health problem. Like Pakistan, iron deficiency anaemia is also severe health problem in Turkey because the staple food of Turkish people is wheat and 58% of the energy comes from bread with other cereals, which is the major percentage and the average diet from iron is lower than the recommended daily allowance. Women of childbearing age and young children have greater prevalence of iron deficiency anaemia i.e. 40.2% and nearly 2 billion people effects all over the world and nearly one third of the rapidly growing population of approximately 7 billion people. The causes of anaemia were low bioavailability of iron, poor intake of iron, parasitic infections, multiparity and high consumption of those foods that inhibits the absorption of iron, such as tea. For overcoming this severe health problem different six basic implementations have an important role in Pakistan which are: 1) Determining anaemia prevalence 2) Nutrition Training 3) Iron supplementation 4) Controlling parasitic, bacterial or viral diseases 5) Iron fortification in foods 6) Dietary Modifications. To overcome iron deficiency anaemia The Ministry of Health in cooperation with governmental and non-governmental institutions should focus on preventive programs. Nutrition Education is one of the most important prevention program to create awareness among public towards a sound eating habits and healthy lifestyle.

Keywords: Anaemia, health, problem, diet, iron

059-BM

OCCURRENCE OF *MYCOBACTERIUM BOVIS* IN BOVINE MILK AND CONSUMERS KNOWLEDGE, ATTITUDE AND PRACTICES TOWARD TUBERCULOSIS IN PESHAWAR, PAKISTAN

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Abstract

This study aims to assess the presence of Mycobacterium bovis (M. bovis) in retail milk derived from local domestic and commercial dairy farms and the knowledge, attitude and practice about tuberculosis (TB) in the high risk M. bovis contaminated milk consumers in Peshawar district, Pakistan. Milk samples were obtained from 92 milk shops and analysed for presence of M. bovis using Polymerase Chain Reaction. Mycobacterium bovis was detected in 8 milk samples (8.7%). Eight hundred consumers of M. bovis contaminated milk were interviewed. Analysis of data indicated that although 97.4% of the participants had heard of TB but only 39.6% knew that cough lasts for more than 3 weeks was one symptom of TB. Only 79.2% had awareness that TB can be prevented and the most frequently stated (48.4%) method of TB prevention was good nutrition. Mean knowledge score for the participants was 12.1± 2.47 out of maximum 22. Mean knowledge score varied significantly with ethnicity, level of education and residential status (Urban vs rural). Overall knowledge about symptom, transmission, prevention and treatment of TB was low. Therefore community's health education focused on increasing knowledge of TB must be initiated.

Keywords: Mycobacterium, milk, dairy farms

060-AH

TOXINOTYPING OF *CLOSTRIDIUM PERFRINGENS* INFECTED LAMBS AND KIDS IN DIFFERENT TOPOGRAPHIC AREAS OF KHYBER PAKHTUNKHWA, PAKISTAN

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Abstract

In this study project, pathogenic strains of C. perfringens were isolated from diseased lambs and kids. The isolates initially identified by colony characters, Gram staining, biochemical tests and CFU/g. The isolates were further analyzed by conventional PCR in order to find out the presence of the alpha, beta, epsilon and iota toxin genes. Pathogen was isolated from 73 of 168 lambs and 86 of 170 kids, having the signs of enterotoxaemia and the animals or their mothers had not been vaccinated previously against C. perfringens. Genotyping of 73 strains from diseased lambs indicated (13.10%) prevalence type A, (9.52%) prevalence type B and (20.83%) prevalence of C. perfringens type D. Of 86 strains kids (34.71%) prevalence type A, (5.88%) prevalence type B and (10.00%) prevalence of C. perfringens type D. C. perfringens type C and type E were not detected in both lambs and kids.

Keywords: C. perfringens; lambs, kids, toxin genes, PCR

061-AH

HEMATO-BIOCHEMICAL ALTERATIONS IN *CLOSTRIDIUM PERFRINGENS* INFECTED GOATS

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Abstract

The study project was designed to determine the affects of Clostridium perfringens type D infection on hematological and biochemical parameters in goats. Purposive blood samples were collected from 6 healthy and 12 diseased goats positive for C. perfringens infection. Mean erythrocytes count (RBC) and hemoglobin level decreased significantly ($P<0.05$) in diseased animals while the white blood cells (WBC) increase significantly ($P<0.05$) in diseased animals compared to the healthy animals. However non-significant differences ($P>0.05$) were observed in packet cell volume (PCV) and platelets count in healthy and diseased animals. Biochemical analyses indicated significant increases in liver enzymes, total bilirubin, Serum Creatinine, blood Urea and glucose increased significantly ($P<0.05$) in diseased goats. The results demonstrated that fluctuation in most of the mean hematological values remained within the normal range however the mean liver enzymes, total bilirubin, Serum Creatinine, blood Urea and glucose levels gone beyond the normal levels which demonstrated sever damages to liver and kidneys.

Keywords: Clostridium perfringens, Goats, RBC, WBC, Platelets, PCV, Bilirubin, Blood Urea, Serum Creatinine.

062-AH

QUANTIFICATION, ISOLATION AND PATHOGENOMICS F PATHOGENIC SHIGA TOXIN ESCHERICHIA COLI O157:H7 ALONG THE PRODUCTION AND SUPPLY CHAIN AROUND HUBEI OF CHINA

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Abstract

Shiga toxin Escherichia coli (STEC) O157:H7 is an important zoonotic food borne pathogens causing gastroenteritis that may lead to life threatening Hemorrhagic Colitis (HC) and Hemorrhagic Uremic Syndrome (HUS). Animal food, particularly poultry, cattle and pig are the major vehicles of diseases caused by food-borne pathogens. A total of 285 samples including 125 tonsil swabs (from 4-6 weeks old clinically healthy animals from different herds of five intensive farms) and 160 samples (20 each liver, meat, intestine and kidney) from different slaughter houses and markets around Hubei province were studied for the prevalence and quantification of STEC O157:H7 along the production and supply chain (PSC). The overall prevalence of E. coli O157:H7 was found 47% along PSC, being higher in supply chain (73.7%) as compared to animal farms (12.8%). Along the supply chain, the highest prevalence was found in slaughter houses (86.25%, 69/80) followed by wet (80%, 32/40) and super markets (42.5%, 17/40). The MPN values ranged from 3-1100MPN/g in overall positive samples, being higher in slaughter houses followed by wet and super markets. Except from intestine and meat samples of slaughter house, the MPN was found higher in summer as compared to winter samples. 8 STEC O157:H7 isolated from meat and liver samples were tested in Balb/C mice for pathogenicity. After development of clinical signs and symptoms, 50-83.3% mortality were produced in the infected mice. Histopathological investigations revealed visible necrosis of intestinal epithelial cells, cell debris shed full of the intestine while in the kidney, renal cortical portion of tubular epithelial cell necrosis were observed. STEC O157:H7 is prevalent along PSC around Hubei of China in different proportions being alarmingly higher in supply chain and markets which is a matter of concern for public health.

Key words: Escherichia coli, O157:H7, STEC, MPN PCR, Production, supply chain

063- AH

ANTIMICROBIAL RESISTANCE OF BACTERIA ASSOCIATED WITH RAW MILK CONTAMINATED WITH ANTIBIOTICS RESIDUES

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Abstract

Milk and other dairy products are produced and processed in Sudan by traditional herdsmen and milk maids. This study was carried out on three hundred raw milk samples (200 cows, 50 camels and 50 goats) that collected from farms, sale points and collection points in Khartoum State during winter and summer season. Milk samples were examined for the presence of antibiotics residues. Also, isolation and identification of bacteria that found in antibiotic contaminated milk and their resistance to some antibiotic residues (ampicillin, cloxacillin, cefotaxime and cephalaxin) were done. Eighty (40%) of cow milk samples were positive to antibiotics residues, while all camel and goat milk samples were negative. Ten (12.5%) and 23 (28.75%) of the positive samples were found during winter and summer, respectively. The positive samples were 47 (58.75%), of which 15 (18.75%) were found during winter and 32 (40%) were during summer. The isolated Staphylococcus aureus (2; 0.49%) and S. auricularis (4; 0.98%) were sensitive to ampicillin, cephalaxin, cloxacillin and resistant to cefotaxime (75%). Bacillus cereus (18; 4.4%) showed resistance to ampicillin, cephalaxin and cloxacillin (100%), while it was sensitive to cefotaxime (93.4%). Bacillus coagulans (3; 0.7%) and B. pummilus (4; 0.9) were resistant to ampicillin and cloxacillin (100%), however they were sensitive to cephalaxin (33.3% and 50%, respectively). B. sphaericus (4; 0.9%) was sensitive to ampicillin (75%), cephalaxin (25%) and cefotaxime (50%) and resistant to cloxacillin (100%). B. amyloliquefanciens (3; 0.7%) was resistant to ampicillin and cloxacillin (100%). Klebsiella spp. isolates showed sensitivity to ampicillin (33.3%), cephalaxin (100%), cefotaxime (50%) and resistance to cloxacillin (100%).The present study concluded that the quality of milk obtained from cows was lower compared to that of goats and camels. Also, high bacterial loads and antibiotic residues were found in the milk samples collected during summer season compare to winter season.

Keywords: Milk, Sudan, bacteria, antibiotics, resistance

064-EP

PROCESSING AND UTILIZATION OF TRADITIONAL DAIRY PRODUCTS IN RAWALAKOT AZAD JAMMU AND KASHMIR, PAKISTAN

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Abstract

Azad Jammu and Kashmir has diversified traditional dairy product these traditional dairy products can attract the peoples for their unique flavour. The main aim of this study was to assess processing and utilization of traditional dairy products processed in the ruler areas of the Azad Jammu and Kashmir, Pakistan. A single visit multiple subject formal survey was conducted for collection data. A total of 65 households from rural areas of the district Rawalakot, were individually interviewed using a pre designed questionnaire. The major dairy products processed in the targeted area include butter, ghee, boli, kari and Kalari batt. Among these, two of the traditional dairy products, boli, Kalri batt, kari and are unique to this area. Basically, all these traditional dairy products are prepared by simply from the raw milk by fermentation spontaneously at room temperature (17° to 28°C) and then cooked at high temperature (105° to 150°C). The respondents claim that these products are of high nutritional values, hygienically safe and have therapeutic properties. Many aspects of boli, kari, and Kalri batt such as physico-chemical characteristics, microbiological and sensory properties are unknown. Thus, detailed scientific investigation needs to be conducted in order to verify the claimed nutritional and medicinal properties of these products.

Keywords: Dairy, processing, utilization, survey

065- EP

VALUE ADDITION AND PROCESSED PRODUCTS OF UNDERUTILIZED FRUITS FOR FOOD SECURITY IN AZAD JAMMU AND KASHMIR, PAKISTAN

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Abstract

Azad Kashmir is endowed with agro biodiversity such as underutilized fruits that are highly nutritious, have health benefits and income generation potential that need to be exploit. These underutilized fruits can be processed in to different products which could contribute to food security and ensure availability of these fruits during off-seasons. The technology should be developed and further disseminated to the community for ensuring food insecurity. These underutilized fruits are important sources of food for rural communities especially at times of food shortage, hunger and other disasters. They provide important compounds for health benefits such as antioxidants, vitamins and minerals. These fruits are considering income generating for rural communities. Different types of food products were processed from these fruits and evaluate for the preference consumer. According to consumer preference test, the juices prepared from apricot and plump have lower value due to its low pH (3.17). The quality of jam, taste and colour were acceptable and preferred. The two products made from fig and pear was all preferred. The microbiological quality of the processed products confirmed their safety characteristics. The prepared products were also evaluated for microbial quality and safety. The findings shows that the products prepared in this experiment were viable, of good quality. Underutilized fruits have great potential to contribute in food and nutritional security.

Keywords: Biodiversity, fruit, market, packaging

066-AH

HYGIENE AND DAIRY MANAGEMENT PRACTICE DURING MILKING AT RAWALAKOT AZAD JAMMU AND KASHMIR, PAKISTAN

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Abstract
Milk is a complete diet for human it contains numerous nutrients and it makes a significant contribution fulfill the body's needs for minerals, vitamin. If milking is carry out without taking adequate hygienic measures this will cause milk quality deterioration and risk for the consumer health. The main aim of this study was to evaluate some hygienic practices of milking man on dairy farm of Rawalakot. To achieve this objective a study was designed and questionnaires were developed, pre-tested and administered to the selected individuals in the study. About 20 milking personnel and farm attendants related to the selected farms were interviewed. Consequently, hygienic practices employed in the study farms such as house cleaning, udder cleaning, and hand washing practices and milking utensils. The study findings shows that the farmers did not fallow hygiene practice in their routine dairy management and most of the farm hygienic practices and parameters like hygienic condition of the milking environment, sanitation of the milk containers, udder and teats cleaning, use of separate towel for each cow and the personal hygiene of the milkers were not fully performed by most of the farm owners. The farmers used a single cloth in washing the udder for several animals and did not thoroughly wash their hands during milking. Low grade plastic cans and bottles which could cause quality deterioration were used in milking and delivering milk to the collection points and consumer.
Keywords: Milk, management, hygiene

067-AH

NUTRACEUTICAL APPLICATIONS OF ZINC, MANGANESE AND COPPER IN THE METABOLISM OF THE RUMEN AND IMMUNE FUNCTION

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Abstract

Balance among the essential nutrients, protein, carbohydrates, fats, minerals and vitamins is a key component in striving towards optimum animal production. The role of trace minerals in animal production is an area of strong interest, as the trace elements recognized the most important functional components of numerous metabolic events. Trace minerals are of basic needs by the body in trace amounts, ranging from 0.10 to 50.0 mg/kg of dry matter in the feed of bovine animals. These trace elements are essential for all biochemical processes of the body that supports the growth and the appropriate maintenance. For example, copper is necessary for the function of the superoxide dismutase and in the elimination of toxic by-products of metabolic pathways. The elimination of these toxic by-products allows metabolism to perform effectively, uninhibited by damaging oxygen free radicals. Manganese, an important trace mineral, essential for development, metabolism, in the antioxidant system and has a slight effect on stimulating the activity of the Urease. Zinc, an important trace mineral for the enzymatic function, help in the regulation of the production of nucleic acid, the metabolism of carbohydrates and protein synthesis, thus providing a stable framework for the development. The immune system is part of the defense of the host against the destructive forces from the outside of the body, such as bacteria, fungi, parasites and viruses, or of the Interior, such as the malignant cells or those who produce auto-antibodies. Trace minerals have an important role for normal immune function and disease resistance including zinc, copper and manganese. An insufficiency in at least one of these components can compromise immunocompetence of an animal. The immune framework is made of two branches: the innate or non-specific of the immune framework, and the adaptive or specific framework of immunity. In this review paper, an effort has been established to scrutinize the effects of minerals supplement in the metabolism of rumen and their individual or joined effects on immune function in different species of animals.

Keywords: Minerals, copper, manganese, zinc, metabolism, ruminants

068-EP

REUSE OF WASTEWATER IN AGRICULTURE RECOVERED FROM WASTEWATER TREATMENT SYSTEMS

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In adequate access to sanitation and clean water has become one of the most pervasive problems affecting people throughout the developing world. Conventional wastewater treatment technologies have proved ineffective in solving complex water related issues resulting from rapid industrialization and urbanization throughout the developing world. Membrane bioreactors (MBR) and Phytoremediation system under study showed to be very robust Eco technologies for domestic wastewater treatment and reuse. The present study was conducted at NUST H-12 campus Islamabad to compare the water quality of MBR and Phytoremediation system in terms of Physico-chemical and Biological parameters and microbial species present in the system. Phytoremediation system under study was planted with Typha latifolia, Pistia stratiotes, Centella asiatica. An excellent overall treatment performance was exhibited on the conventional water quality parameters (up to 90.8% for TSS, 67.7% for COD, 95% for turbidity and 90% for total coliform) by Phytoremediation system. Treatment performance of MBR system was up to 99% for TSS, 83% for COD, 91.5% for turbidity and 99% for total coliform and final effluents proved to compile with the EPA regulations. The high removal rates were achieved at higher temperature as well as other meteorological parameters (wind speed, air pressure, relative humidity, global horizontal irradiance) showed a significant positive and negative correlation with the removal efficiencies. Predominant species isolated and identified form wastewater of Phytoremediation system belongs to the phyla Proteobacterium (Enterobacter cloacae, Enterobacter kobei, Enterobacter hormaechei, Enterobacter asburiae, Enterobacter aerogenes. gamma proteobacterium, Franconibacter pulveris, Citrobacter freundii, Shigella dysenteriae, Escherichia albertii and Escherichia coli). While, predominant bacterial species isolated and identified from activated sludge of MBR system were Salmonella enterica, Pantoea dispersa, Shigella dysenteriae, Enterobacter hormaechei and Salmonella waycross and they too belong to the phyla proteobacteria. High efficiency of these treatment systems will cater the water need of agricultural land and divert the path of fresh water to drinking purposes.
Keywords: wastewater, agriculture, treatment systems

069- BMR

CLINICAL & RESEARCH LABORATORIES IN PESHAWAR CITY OF KP PROVINCE: ANALYSIS OF BIOSECURITY MEASURES PREDICT INSECURITY

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Abstract

Biosecurity is an emerging concept not well understood by the local community. It is the protection, control and accountability of biological agents and toxins within laboratories, in order to prevent their loss, theft, misuse, unauthorized access or intentional unauthorized release. All types of wet laboratories are responsible for biosafety and biosecurity that protects their workers, animal population, and the environment from exposure or spread of pathogens they come across with. The purpose of this preliminary study was to collect data in order to assess and evaluate beside biosafety practices the measures being taken for biosecurity in clinical diagnostic and research lab. In this study hundreds of clinical labs, Research labs and Academic purpose labs for routine practical work both in public and private setups were focused. The visits to the sites were pre scheduled and in some cases were informal and unscheduled with the hope to get a clear picture of the practices/measures. A detailed observational survey and unwritten questions were used to elicit information. The focus was on laboratory licensing system, infrastructure, administration, quality assurance, collection, handling, processing, storage and transportation of clinical samples, waste disposal, Lab records, access to biohazardous materials and security checks on pathogens and on researchers and workers. Based on Standard BRM Guidelines, maximum numbers of the labs were below minimum required standard and were categorized as BSL-0. Variety of BSL-2 and BSL-3 category bacterial and viral pathogens were easily assessable and, therefore, were isolated and identified in our lab. We conclude that lab management is lacking at all levels. It is recommended that biosecurity concerns be conveyed to all stakeholders for designing and implementing action plan.

070-AH

ECOLOGICAL BASED FEED INVENTIONS FOR LAMBS/KIDS FATTENING MANEUVER TO EARN GREATER PROFIT REVENUES DURING EID-UL-AZHA MARKETING IN PAKISTAN

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The main aim of this study was to determine the impact of supplemental feeding on lamb/kids fattening based on feed availability in three ecologies during Eid-Ul-Azha marketing of Pakistan. This is the special occasion where farmers can get more than double profit than rest of the year marketing. For this purpose, private farmers (3-5) from each of three research sites namely; Dhulli village at district Chakwal in Punjab, Loralai in Balochistan and Kunri village at Umerkot in Sindh were selected for the fattening trials. Three feed formulations i.e., T1, T2 and T3 were self-prepared as per availability of ingredients for Chakwal site experiment. However two commercial rations T4 and T5 used for Loralai site and other two commercial rations T6 and T7 for Umerkot site as per availability. The estimated Crude Protein (CP), Total Digestible Nutrients (TDN) and Energy (MJ/kg) in these formulations were ranged between 15-17.85%, 70-91% and 2800-3200 respectively. The overall results revealed that lambs/kids attained higher live-weight gain (2.4 to 8.5 kg: 96-188 g/head/day) with supplemental feeding compared with farmers practices (0.7 to 2.8 kg: 23-62 g/head/day). The overall economic analysis showed that lambs/kids fed with supplemental rations leads to higher profit margins which ranged from Rs. 5190/- to Rs. 14730/- per head compared with control groups (Rs. 5100/- to Rs. 12900/-). The results revealed that with supplemental feeding Rs. 90/- to 1830/- can be earned higher compared to farmer's practices. Therefore, it is recommended that area specified feed supplement options may be utilized for higher profit earning specially during the Eid-Ul-Azha marketing in Pakistan.

Keywords: Ecological based feeding, small ruminants, fattening, Eid-Ul-Azha marketing

071-AH

IDENTIFICATION OF NON-GENETIC FACTORS AFFECTING WEIGHTS AT BIRTH, PRE-POST WEANING, AND GREASY FLEECE PERFORMANCE O F KAJLI SHEEP IN PAKISTAN

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Abstract

The present investigations were to analyzed the influence of environmental factors on various growth performance traits of Kajli sheep in Pakistan. The present study utilizes two large contemporary datasets in sheep to explore factors that influence performance traits. The study was conducted to estimate the non-genetic components of variation influencing various traits of economic importance in Kajli sheep. For this purpose reproduction performance recored of 13715 Kajli sheep lambing collected during 1994 to 2010 at Livestock Experimental Stations Khushab and Khizarabad, Punjab. The data on Birth Weight (BW), 120 days at weaning Weight, (WW), Pre-weaning Average Daily Gain (PRADG), Yearling Weight (YW) and Greasy Fleece Weight (GFW) were evaluated. Location of flock, year of birth (YOB), Birth Season (BS), Birth Types (BT), and sex were the fixed effects in the model. Results showed that, the overall average values for birth weight (kg), weaning weight (kg), yearling weight (kg), pre weaning weight (gm), and greasy fleece weight (kg) were 4.13 ± 0.01, 18.70 ± 0.08, 37.52 ± 0.06, 142.34 ± 0.83 and 1.32 ± 0.00, respectively. Year of birth, type of birth, sex and flock influenced ($P<0.001$) birth weight and greasy fleece weight whilst season of birth showed no significant differences ($P>0.05$). In weaning weight and pre weaning average daily gain of Kajli sheep, year of birth, type of birth and flock showed influence ($P<0.05$) except sex ($P>0.05$). In yearling weight, all parameters showed effect ($P<0.05$) except type of birth and flock ($P>0.05$). The difference might be attributed to regular supplementation of ration to flock. Male lambs were heavier than female lambs, and single born lambs were also significantly heavier than twins ($P<0.05$) at birth. Results reflected that Kajli breed can be improved through selection and better management.

Keywords: Kajli Sheep, Environmental factors, performance traits, variation, Pakistan