

	<b>Dr. Nirmal Sangwan</b>
	<b>Professor</b>
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<b>Educational Qualifications</b>	<p>1993 Ph.D., HAU, Hisar  1987 M.V.Sc. , HAU, Hisar  1984 B.V.Sc. &amp; A.H. , HAU, Hisar</p>
<b>Post-doctoral Fellowship</b>	<p>1995: Post-doctoral Research Fellow, Moredun Research Institute, Edinburgh, U.K.</p>
<b>Employment Details</b>	<p>Professor and Head (Vety. Physiology &amp; Biochemistry), LUVAS, Hisar , April 09, 2013 to April 07, 2017  Professor (Vety. Biochemistry), CCS HAU, Hisar  Aug. 29, 2007 – Continue  Associate Professor (Vety.Biochemistry), CCS HAU, Hisar;  July 3, 2002 – August 28, 2007  Scientist (Vety.Biochemistry), CCS HAU, Hisar;  Jan.4, 2000 – July 2, 2002  Scientist (Animal Biochemistry), HAU Regional Research Station Karnal; Aug. 29, 1999 –Jan.3, 2000  Assistant Scientist (Animal Biochemistry, Sr.scale), HAU Regional Research Station Karnal; Aug.29, 1995- Aug. 28, 1999  Assistant Scientist (Animal Biochemistry), HAU Regional Research Station, Karnal; Aug.29, 1990 to Aug.28, 1995  Assistant Professor (Veterinary Physiology), Deptt.of Veterinary Physiology PAU, Ludhiana, Sept.1987 to Feb. 1988</p>
<b>Research Interests</b>	<p>Inter-relationships between clinical nutrition and parasitic diseases</p> <p>Identification and characterization of novel peptides of clinical importance from salivary glands of <i>Hyalomma</i> ticks'</p> <p>Structural and functional proteomics</p>

<p><b>Membership of scientific societies</b></p>	<p>Life member of the Indian Association of Lady Veterinarians since 1988.  Life member of the Society of Animal Physiologists of India since 1992.  Life Member of CCS HAU Alumni Association  Member of Haryana Veterinary Council since 1984.  Life member of Indian Peptide Society since 2008.  Life member of Society for Veterinary Sciences and Biotechnology since 2013.  Life member of Society of Veterinary Biochemistry and Biotechnology since 2015.</p>
<p><b>Selected Publications</b></p>	<p>Surbhi, <b>Sangwan, N.</b> and Sangwan, A. K. (2018). Molecular characterization of anti-platelet aggregating proteins in salivary gland extracts of <i>Hyalomma anatolicum</i> ticks. <i>Indian Journal of Animal Research</i>: Accepted</p> <p>Gaur R.S., Sangwan, AK, <b>Sangwan, N.</b>, Ghosh, M. and Kumar, S. (2017). Comparative study of esterases in deltamethrin and diazinon resistant <i>Rhipicephalus microplus</i> and <i>Hyalomma anatolicum</i> ticks collected from the Trans-Gangetic plains of India. <i>Experimental and Applied Acarology</i>. 73(1):115-27</p> <p>Surbhi, <b>Sangwan, N.</b>, Sangwan, A.K., Singh, V. and Kumar, A. (2016). Inhibition of bovine platelets aggregation in response to <i>Hyalomma anatolicum</i> salivary gland proteins/peptides. <i>Veterinary World</i>, 9(11): 1264-1268.</p> <p>Gaur, R. S., Sangwan, A. K., <b>Sangwan, N.</b>, &amp; Kumar, S. (2016). Acaricide resistance in <i>Rhipicephalus (Boophilus) microplus</i> and <i>Hyalomma anatolicum</i> collected from Haryana and Rajasthan states of India. <i>Experimental and Applied Acarology</i>, 1-14.</p> <p>Ghosh, M., <b>Sangwan, N.</b>, &amp; Sangwan, A. K. (2014). Variations in free radical scavenging activities and antioxidant responses in salivary glands of <i>Hyalomma anatolicum anatolicum</i> and <i>Hyalomma dromedarii</i> (Acari: Ixodidae) ticks. <i>Veterinary World</i>, 7(10), 876-881.</p> <p><b>Sangwan, N.</b>, Sangwan, A. L., Paliwal, N., &amp; Ghosh, M. (2013, May). Antithrombotic and fibrinolytic peptides in salivary glands of <i>Hyalomma a. anatolicum</i> (Acari: ixodidac) ticks. In <i>Biopolymers</i> (Vol. 100, No. 3, pp. 258-259). 111 RIVER ST, HOBOKEN 07030-5774, NJ USA: WILEY-BLACKWELL.</p> <p><b>Sangwan, N.</b> and Sangwan, A.K. 2007. Changes in blood and tissue copper levels due to <i>Theileria annulata</i> infection in cross-bred calves. <i>Indian Journal of Animal Research</i>. 41(4): 278-281.</p> <p>Sangwan, A.K., Banerjee, D.P. and <b>Sangwan, N.</b> (1998). Immunization of cattle with nymphal <i>Hyalomma anatolicum</i> extracts: Effects on tick biology. <i>Trop. Anim. Hlth. Prod.</i> <b>30</b>: 97-106.</p> <p><b>Sangwan, N.</b>, Chaudhri, S.S., Rao, A.R., Sangwan, A.K. and</p>

Gupta, R.P. (1993). Folacin and cyanocobalamin in relation to natural Trypanosoma evansi infection in buffaloes. *Trop. Anim. Hlth. Prod.* **25**: 79-84.

### **Publications**

- Research papers: **44**
- mRNA sequences of ticks in **International GenBank** ([www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)) database: **3**
- Author/Coauthor of **Veterinary Biochemistry Manuals**:**7**
- Popular Articles: **8**
- Abstracts in International **Conferences/Seminars**: **5**
- Papers/ Abstracts in National **Conferences/Seminars**: **54**
- Lead papers/Invited Lectures: **9**
- Research cited in Books: **1**
- Chapters/ papers in Manuals/ Compendia: **4**

### **Awards/ Fellowships/Recognition received**

- (i) **Post-Doc Fellowship** during 1995 at Moredun Research Institute, Edinburgh, U.K.
- (ii) **HAU Merit Scholarship** during Ph.D.
- (iii) **HAU Merit Scholarship** during MVSc.
- (iv) **Best NSS Volunteer of the University** for outstanding social work by Haryana Agricultural University, Hisar in 1981.
- (v) **State Sports Scholarship** during 1980-1984.
- (vi) **Certificate of Honour** in recognition of contribution made as **Principal Investigator of externally funded project (UGC)** during the years 2010-2014.
- (vii) Acted as **Head of the department of Veterinary Physiology and Biochemistry**, LUVAS, Hisar from 09.04.2013 to 07.04.2017
- (viii) **Worked as Nodal Officer, DVLT** since July, 2013 to April, 2017.
- (ix) Worked as **Secretary, Institutional Animal Ethics Committee** from Feb. 2007 to Feb. 2010.
- (x) Acted as **Incharge B.V.Sc.and A.H. first Year** for two years from July, 2013 to July, 2015.
- (xi) **Member of Editorial Board of Haryana Veterinarian** from 01.01.2014 to 31.12.2015.
- (xii) **Member of the Board of Studies**, LUVAS, Hisar from 09.04.2013 to 07.04.2017.
- (xiii) **Member of the Academic Council**, LUVAS, Hisar from 2015 to April, 2017.

- (xiv) **Member of the Committee to re-look into the Rules and regulations** and other related matters with respect to all the **Diploma courses** being run at LUVAS.
- (xv) **Chairman 2<sup>nd</sup> Pre-affiliation inspection** of Sh. Gurunanak Dev ji Education society for offering of VLD Diploma course for the year 2015-16 and visited on 04.04.2015.
- (xvi) Appointed as **Inspector** to inspect the physical facilities available at college of Veterinary and Animal Science, **Navania**, Vallabh Nagar, Udaipur under Rajasthan University of Veterinary and Animal Sciences, Bikaner from July 29-31, 2015 and also at Veterinary College, **Chomu**, Jaipur 2017 as per the provisions of section 19 of the Indian Veterinary Council Act 1984, and VCI (Inspector and Visitors) Regulations, 1991.
- (xvii) **Nominated to participate** in the discussions held by **Education Committee of the Veterinary Council of India** regarding under graduate courses and proposed change towards annual system of education held at Mhow, M.P.
- (xviii) **Worked as Chairperson** Departmental Advisory Committee from 09.04.13 to 07.04.2017.
- (xix) **Chaired a session on “National Veterinary Physiology Quiz Madan Trophy”** for EDU-EXCEL during the SAPI conference, held at CIRB, Hisar in 2014.
- (xx) **Felicitated** by the organizers of **Society of Veterinary Biochemists and Biotechnologists of India** (SVBBI) for my **outstanding contribution** in the field of Biochemistry, Biotechnology & allied subjects and involvement in society activities during Annual Convention and National Symposium of Society of Veterinary Biochemists and Biotechnologists of India, Bhubaneswar, March 11-12, 2016.
- (xxi) Nominated **Zonal secretary** of the Society of Veterinary Biochemists and Biotechnologists of India (SVVBI) at Bhubaneswar in 2016.
- (xxii) Nominated **Advisor to Editorial Board** for forthcoming Journal of Society of Veterinary Biochemists and Biotechnologists of India (SVVBI) at Bhubaneswar in 2016.
- (xxiii) **Chaired a session** in Annual Convention and National Symposium on, **“Use of Advanced Technology of Biochemistry and Biotechnology in Livestock Health, Production and Reproduction”**, of Society of Veterinary Biochemists and Biotechnologists of India, Bhubaneswar, March 11-12, 2016.
- (xxiv) **Chairman 2<sup>nd</sup> Pre-affiliation inspection** of Sh. Guru Nanak Dev ji Education society for offering of VLD Diploma course for the year 2015-16 and visited on 04.04.2015.
- (xxv) Invited to present **lead papers (8)** in various conferences held at Hisar, Mathura, Bhubaneswar, Bengaluru etc.
- (xxvi) Working as referee/reviewer for scientific journal.
- (xxvii) **Chaired a session** in Annual Convention and National Symposium on, **“Use of Advanced Technology of Biochemistry and Biotechnology in Livestock Health, Production and**

**Reproduction”,** of Society of Veterinary Biochemists and Biotechnologists of India, Bhubaneswar, March 11-12, 2016.

- (xxviii) Acted as **Co-Chairman of the Poster-Judging Committee** during the Second Annual Convention and National Symposium of Society of Veterinary Biochemists and Biotechnologists of India, held on June 2-3, 2017 at Veterinary College, KVAFSU, Hebbal, Bengaluru.
- (xxix) Invited as one of the **Experts** on the **Assessment Committee for promotion of teachers under CAS** in the discipline of Veterinary Biochemistry and conducted Interview on 28.11.2015 at Ch. Sarvan Kumar Himachal Pradesh Agricultural University, Palampur.
- (xxx) Working as an **expert for selections/promotions at ASRB**, New Delhi.
- (xxxii) Attended **selection Committee Meeting** for faculty selection at Sardar Vallabh Bhai University of Agriculture and technology, Meerut on 17.07.2014.
- (xxxiii) **Member of the committee to monitor, purchase and safe disposal of radioactive** materials, instruments and chemicals used in laboratories at LUVAS since 2013
- (xxxiv) **Member of the Inspection Committee for Annual Inspection** of VLDD course being run by SDS College of Animal Sciences, Tohana for the year 2016-17 on 12.04.2016 for renewal of affiliation.
- (xxxv) **Member of the committee for Annual Inspection of IIVER Bahu Akbarpur**, Rohtak for renewal of affiliation for VLDD course as well as for increasing the admission capacity from 60 to 90 for the academic session 2016-17.
- (xxxvi) Acted as **Chairman of the Committee** constituted by the Worthy Vice-Chancellor, submitted recommendations on the **“Road-map for raising the status of Lala Lajpat Rai University of Veterinary and Animal Sciences, Hisar as a State University into the Central University of Livestock, Education and Research”**

#### RESEARCH WORK ENGAGED IN

- Assessing the trace elements and vitamin status of animals in relation to parasitic diseases in domestic animals and studying inter-relationships between clinical nutrition and parasitic diseases.
- Elucidating the biochemistry of inflammatory responses to parasites and their nutritional manipulation.
- Studying the biochemical changes in excretory/ secretory products of *in vitro* cultured *Haemonchus contortus* in response to inorganic salt supplementation.
- Identification and characterization of novel peptides of clinical importance from salivary glands of *Hyalomma* ticks’
- Structural and functional proteomics

## RESEARCH PROJECTS HANDLED

- Worked as **Co-Investigator** in **NARP** project from 1990- 1994 at Regional Research Station, Uchani, Karnal.
- Worked as **Principal Investigator** of scheme entitled '**Study on Lifetime Endocrine Status of Buffalo**'.
- Worked as **Co-Investigator** of the scheme entitled '**Immunization of Cattle Against *Hyalomma* ticks**' sponsored by DBT, New Delhi.
- Worked as **Principal Investigator** of the scheme entitled '**Biochemical changes in Malnutrition and Parasitic diseases**' from May, 2002 to Aug., 2009.
- Acted as **Principal Investigator** of research scheme entitled '**Identification and characterization of novel peptides of clinical importance from salivary glands of *Hyalomma* ticks**' sponsored by UGC, New Delhi from 2011 to 2014.
- **Working as Co-PI of "All India Network Programme on Neonatal Mortality in Farm Animals" funded by ICAR Nov. 2014 to continue**

## CONFERENCES SEMINARS/SYMPOSIUM/ WORKSHOPS/SUMMER SCHOOL etc. ATTENDED

- (i) IV Annual Conference of Society of Animal Physiologists of India at CIRG Makhdoom, 1988.
- (ii) II World Buffalo Congress, New Delhi, India, 1988.
- (iii) Second Congress of Asian and Oceanian Physiological Societies, New Delhi, 1990.
- (iv) VIII Annual Conference of SAPI held at HAU, Hisar, 1992.
- (v) All India Dairy Husbandry Officer Workshop at N.D.R.I., Karnal in Dec. 1993.
- (vi) VIII National Congress of Veterinary Parasitology and National Symposium on Molecular Parasitology, HAU, Hisar, 1996.
- (vii) Workshop on Use of Iodised Salt in Animals at N.D.R.I., Karnal in Dec. 1996.
- (viii) Workshop on Computer Application in Animal Biotechnology, NDRI, Karnal, 1997.
- (ix) International Conference on Sustainable Animal Production and Environment: Future Challenges, at Hisar, Nov. 1999.
- (x) Patent Awareness Workshop held on 25<sup>th</sup> Aug., 2001 at GJU, Hisar.
- (xi) Ist Convention of CCS Haryana Agricultural University Alumni Association at Hisar Feb.2-3, 2002.

- (xii) Orientation training programme of Veterinary Council of India regarding upgradation of knowledge on VCI Act and Regulation made therein, held on 6-7<sup>th</sup> March, 2002 at CCS HAU Hisar
- (xiii) 2<sup>nd</sup> Convention of CCS Haryana Agricultural University Alumni Association at Hisar Feb.2-3, 2003.
- (xiv) 3<sup>rd</sup> Convention of CCS Haryana Agricultural University Alumni Association at Hisar Feb.19-20, 2005.
- (xv) Attended a Seminar organized by Veterinary Council of India on 'Revision of Undergraduate Veterinary Course Curricula (Basic and Production subjects) held at Hisar 25-26 April, 2005.
- (xvi) Attended 2<sup>nd</sup> Indian Peptide Symposium held at National Institute of Immunology, New Delhi from Feb. 26 – 27, 2009.
- (xvii) Attended XX National Congress of Veterinary Parasitology and Symposium on Parasitology Today-Ecology to molecular Biology, Feb. 18-20, 2010, CCS HAU, Hisar.
- (xviii) Attended a workshop on 'Policy of engaging/outsourcing of services/activities' on August 7, 2010, organized by Office of Comptroller, CCS HAU, Hisar in the Auditorium of College of Home Science.
- (xix) Attended a conference and CME of 'Association of Clinical Biochemists of India (Haryana Chapter) on September 9, 2012, organized by Maharaja Agrasen Medical College, Agroha (Hisar).
- (xx). Attended 7<sup>th</sup> spirituality in Researchers (SIR) conference and meditation retreat on "Role of Researchers in Shaping the Society" from 30.08.2013 to 02.09.2013 at Mount Abu, Rajasthan.
- xxi. Attended National seminar on "Role of Veterinarians in Quality Assurance of Livestock Products and International Trade" and 12<sup>th</sup> convocation of National Academy of Veterinary Sciences" from 28<sup>th</sup> Jan. to 29<sup>th</sup> Jan. 2014 at LUVAS, Hisar.
- xxii. Attended Buffalo Mela and Kisan Gosthi on 1<sup>st</sup> Feb, 2014 at CIRB, Hisar.
- xxiii. Attended 2<sup>nd</sup> Annual Meeting of Society of Veterinary Science and Biotechnology and National Seminar on Biotechnological approaches to challenges in animal health and production on 06-07 March, 2014 held at U.P. Pt. Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusansthan, Mathura and presented a lead paper.
- xxiv. Attended brain storming workshop on 'Post-harvest Technology and Value Addition in Haryana ' at HRM CCS HAU, Hisar on 09 June, 2014 organized by Kisan Ayog , Punchkula.
- xxv. Attended the XXIII Annual Conference of Society of Animal Physiologists of India (SAPI) and National Symposium on Physiological Determinants of Climate Resilient and Sustainable Animal Production, held at CIRB, Hisar from 27 to 28 November 2014.
- xxvi. Participated in the discussions held by Education Committee of the Veterinary Council of India regarding under graduate courses and proposed change towards annual system of education



held on 10-11.04.2015 in the premises of COVSc & AH, Nana Deshmukh Pashu Chikitsa Vigyan Vishwavidyalaya, Indore, Mhow, M.P. at Mhow, M.P.

- xxvii. Attended 1<sup>st</sup> Annual Review Meeting of ICAR-All India Network Programme on Neonatal Mortality in Farm Animals (AINP-NM) on September 22, 2015 at NRCE, Hisar, Haryana
- xxviii. Attended Annual Convention of Veterinary Biochemists and Biotechnologists of India (SVBBI) and National Symposium on, “Use of Advanced Technologies of Biochemistry and Biotechnology in Livestock Health, Production and Reproduction”, held at Bhubaneswar, March 11-12, 2016.
- xxix. Attended 2<sup>nd</sup> Annual Convention of Veterinary Biochemists and Biotechnologists of India (SVBBI) and National Symposium on, “Use of Advanced Technologies of Biochemistry and Biotechnology in Livestock Health, Production and Reproduction”, held at Bangaluru, June 2-3, 2017.
- xxx. Attended one day Workshop on, “Developing Gender Sensitivity at Workplace” organized by Directorate of Human Resource management, LUVAS, Hisar on November 07, 2017.
- xxxi. Attended XVII Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology and National Symposium on Combating Antimicrobial Resistance held at LUVAS, Hisar on Dec. 20-22, 2017.

#### **LEAD PAPERS/INVITED LECTURES DELIVERED**

- (i) Delivered a lecture on ‘**Oral rehydration therapy in animals**’ to farmers and veterinarians in a meeting organized by Society for Prevention of Cruelty to Animals at Veterinary Hospital, Karnal, 1993.
- (ii) ‘**Organ function tests and their importance in disease diagnoses**’ in Training on Advances in Clinical Diagnostic Techniques and Post Mortem examinations and despatch of specimens held from March 9-29, 2005 at CCS HAU, Hisar.
- (iii) ‘**Blood biochemistry using autoanalyzer**’ in Training on Advances in Clinical Diagnostic Techniques and Post Mortem examinations and despatch of specimens held from March 9-29, 2005 at CCS HAU, Hisar.
- (iv) ‘**Acid-Base Physiology and Function during Anaesthesia**’ in a refresher course on Pragmatic Practice of Canine Anaesthesia held from 15 – 28 April, 2009 at CCS HAU, Hisar.
- (v) ‘**Exploiting interactions and synergisms between nutrition and parasites to control gastrointestinal helminthes in ruminants.**’ Delivered in XX National Congress of Veterinary Parasitology and Symposium on Parasitology Today-Ecology to molecular Biology, Feb. 18-20, 2010, CCS HAU, Hisar. p.55.
- (vi) ‘**Potential of Proteomics in Animal Health and Production**’ delivered in 2<sup>nd</sup> Annual Meeting of Society of Veterinary Science and Biotechnology and National Seminar on Biotechnological approaches to challenges in animal health and production held at Mathura, 2014.



- (vii) **‘Metabolomic Approaches in Animal Health and Production’** in XXIII Annual Meeting of Society of Animal Physiologists of India and National Symposium on Physiological Determinants of Climate Resilient and Sustainable Animal Production held at CIRB, Hisar on Nov.27-28, 2014.
- (viii) **‘Functional Proteomics: Perspectives and Challenges in Improving Animal Health’** in Annual Convention and National Symposium of Society of Veterinary Biochemists and Biotechnologists of India, held at Bhubaneswar, March 11-12, 2016.
- (ix) **‘Role of Metabolomics in Biomarker Discovery: Challenges and Future Perspectives’** in Annual Convention and National Symposium of Society of Veterinary Biochemists and Biotechnologists of India, held at Bangaluru, June 2-3, 2017.
- (x) **‘Biochemical basis of antimicrobial resistance and its prevention’** in XVII Annual Conference of Indian Society of Veterinary Pharmacology and Toxicology and National Symposium on Combating Antimicrobial Resistance held at LUVAS, Hisar, Dec. 20-22, 2017.

#### **ADDITIONAL TRAININGS ACQUIRED**

- (i) Advanced Training in Buffalo Production and Management from July 9, 1991 to July 29, 1991 at CIRB, Hisar.
- (ii) ‘Faculty Development Programme in Educational Technology’ from May 5 to June 2, 1999 organized by Academy of Agricultural Research and Education Management at CCS HAU, Hisar.
- (iii) Refresher course on ‘Faculty Development Programme in Extension Management’ from July 15, 1999 to Aug.11, 1999 at CCS HAU, Hisar.
- (iv) Attended ‘Computer training’ from Dec.2-29, 1999 at CCS HAU, Hisar.
- (v) Refresher course on ‘Interactive Skills and Scientific Writing’ from July 4-31, 2001 at CCS HAU Hisar.
- (vi) Orientation training for updating knowledge in respect of Indian Veterinary Council Act, 1984 and regulations framed there under from March 6 -7, 2002 at CCS HAU, Hisar.
- (vi) Attended a summer school on ‘Intellectual Property Rights in Relation to Agriculture and Allied Fields’ from August 17-26, 2005 at CCS HAU, Hisar.
- (vii) Refresher course on ‘Research Management’ from 23<sup>rd</sup> May, 2007 to 12<sup>th</sup> June, 2007 at CCS HAU, Hisar.

#### **Detailed List of Publications**

##### **A. Research Papers**

- Surbhi, **Sangwan, N.** and Sangwan, A. K. (2018). Molecular characterization of anti-platelet aggregating proteins in salivary gland extracts of *Hyalomma anatolicum* ticks. *Indian Journal of Animal Research*: Accepted.

- Gaur, R. S., Sangwan, A. K., **Sangwan, N.**, Ghosh, M. & Kumar, S.(2017). Comparative study of esterases in deltamethrin and diazinon resistance *Rhipicephalus microplus* and *Hyalomma anatolicum* collected from the Trans-Gangetic plains of India. *Experimental and Applied Acarology*, 1-14. (NAAS Rating 7.81)
- Ghosh, M., **Sangwan, N.**, Sangwan, A. K., Kumar, R., & Gaur, R. S.(2016) Sexual alteration in antioxidant response and esterase profile in *Hyalomma anatolicum anatolicum* (Acari: Ixodidae) ticks. *Journal of Parasitic Diseases*, 1-6.
- Gaur, R. S., Sangwan, A. K., **Sangwan, N.**, & Kumar, S. (2016). Acaricide resistance in *Rhipicephalus* (*Boophilus*) *microplus* and *Hyalomma anatolicum* collected from Haryana and Rajasthan states of India. *Experimental and Applied Acarology*, 1-14. (NAAS Rating 7.81)
- Surbhi, **Sangwan, N.**, Sangwan, A. K., Singh, V. and Kumar, A.(2016). Inhibition of bovine platelets aggregation in response to *Hyalomma anatolicum* salivary gland proteins/peptides. *Veterinary world*, 9(11): 1264-1268. (NAAS Rating 5.71)
- Ghosh, M., **Sangwan, N.**, Sangwan, A. K., Kumar, R., & Gaur, R. S. (2016). Sexual alteration in antioxidant response and esterase profile in *Hyalomma anatolicum anatolicum* (Acari: Ixodidae) ticks. *Journal of Parasitic Diseases*, 1-6.
- Ghosh M, **Sangwan N**, Sangwan AK (2015). Partial Characterization of a Novel Anti-inflammatory Protein from Salivary Gland Extract of *Hyalomma anatolicum anatolicum* (Acari: Ixodidae) Ticks. *Veterinary World*, **8(6)**:772-776. (NAAS Rating 5.71)
- Ghosh, M., **Sangwan, N.**, Sangwan, A. K., Kumar, R., & Gaur, R. S. (2014). Tissue distribution of different minerals and antioxidant status in various organs of *Hyalomma anatolicum anatolicum* (acari: ixodidae) ticks. *Journal of Cell and Tissue Research*, **14(2)**, 4273. (NAAS Rating 4.38)
- Ghosh, M., **Sangwan, N.**, & Sangwan, A. K. (2014). Variations in free radical scavenging activities and antioxidant responses in salivary glands of *Hyalomma anatolicum anatolicum* and *Hyalomma dromedarii* (Acari: Ixodidae) ticks. *Vet. World*, **7(10)**, 876-881. (NAAS Rating 5.71)
- Ghosh M, **Sangwan N**, Sangwan A.K. (2014). Variations in free radical scavenging activities and antioxidant responses in salivary glands of *Hyalomma a. anatolicum* and *Hyalomma dromedarii* (Acari:Ixodidae) ticks. *Veterinary World*, **7(10)**: 876-881. (NAAS Rating 5.71)
- Ghosh M, **Sangwan N**, Sangwan A.K., Kumar, R. and Gaur, R.S. (2014). Tissue distribution of different minerals and antioxidant status in various organs of *Hyalomma a. anatolicum* (Acari:Ixodidae) ticks. *Journal of Cell and Tissue Research*, **14(2)**: 4273 – 4277. (NAAS Rating 4.38)
- **Sangwan, N.**, Sangwan, A. L., Paliwal, N., & Ghosh, M. (2013, May). Antithrombotic and fibrinolytic peptides in salivary glands of *Hyalomma a. anatolicum* (Acari: ixodidae) ticks. In *Biopolymers* (Vol. 100, No. 3, pp. 258-259). 111 RIVER ST, HOBOKEN 07030-5774, NJ USA: WILEY-BLACKWELL
- Ghosh M., **Sangwan N.**, Paliwal, N. and Sangwan, A.K. (2013). Molecular polymorphism of salivary gland proteins in *Hyalomma a. anatolicum* and *Hyalomma dromedarii* (Acari: Ixodidae) ticks. *Haryana Veterinarian*, **51**: 75-77. (NAAS Rating 5.36)

- **Sangwan, N.** and Sangwan, A.K. (2011). Aggravation of *Phalaris minor* toxicity by concurrent paramphistomosis and palliative role of cobalt supplementation in sheep. *Journal of Veterinary Parasitology*, **25(1)**: 21-25.
- **Sangwan, N.** and Rao, A.R. (2010). Folicin, cobalamin and iron-binding capacities in response to parenteral haematinic supplementations in blood of buffaloes. *Haryana Veterinarian*, **49**: 56 – 58. (NAAS Rating 5.36)
- Singh, R., Garg, S.L., **Sangwan, N.** and Gera, S. (2008). Peripheral concentration of thyroid hormones (T3 and T4) in buffaloes suffering from foreign body syndrome. *Haryana Veterinarian*, **47**: 115-116. (NAAS Rating 5.36)
- Singh, R., Garg, S.L., **Sangwan, N.** and Gera, S. (2008). Haematological profile of buffaloes suffering from foreign body syndrome. *Haryana Veterinarian*, **47**: 91-93. (NAAS Rating 5.36)
- **Sangwan, N.** and Sangwan, A.K. (2007). Changes in blood and tissue copper levels due to *Theileria annulata* infection in cross-bred calves. *Indian Journal of Animal Research*. **41(4)**: 278 – 281. (NAAS Rating 6.09)
- **Sangwan, N.**, Sangwan, A.K. and Chaudhri, S.S. (2007). *Trypanosoma evansi* infection in rabbits: studies on the development of anaemia and copper and iron levels in rabbits. *Journal of Parasitic Diseases*, **31(1)**: 29-32. (NAAS Rating 5.36)
- **Sangwan, N.** (2007). Role of nutraceuticals in animals' health and disease prevention. *INTAS Polivet*, **8(1)**: 73-80. (NAAS Rating 5.36)
- **Sangwan, N.** and Sangwan, A.K. 2007. Zinc distribution or loss in relation to progression of *Theileria annulata* infection in cross-bred calves. *Journal of Veterinary Parasitology*, **21(1)**: 63-65.
- Sangwan, A. K., **Sangwan, N.** and Gupta, S. K. (2007). Anthelmintic resistance in trichostrongylids of small-holder sheep production system in some areas of Haryana. *Haryana Veterinarian*, **45**: 76-78.
- Singh, R., Garg, S.L., **Sangwan, N.** and Jit Singh (2006). Peripheral concentration of cortisol in buffaloes suffering from Foreign Body Syndrome (FBS), *Buffalo Bulletin*, **24(4)**: 88-90.
- **Sangwan, N.** and Sangwan, A.K. (2006). Distribution of iron in plasma, erythrocytes and tissues of calves with the progression of *Theileria annulata* infection. *Journal of Parasitic Diseases*, **30**: 41 – 44. (NAAS Rating 5.36)
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## EXTRA-CURRICULAR ACTIVITIES

- (i) **Captain HAU Hockey Team** in 1984 for **State and Interuniversity tournaments.**
- (ii) **Best Hockey player of the College** thrice, 1982, 1983 and 1984.
- (iii) **Represented Haryana in 39<sup>th</sup> National Women's Hockey Championship** in 1984 at Bangalore.

- (iv) Represented **HAU in All India Inter-varsity Hockey Championships four times.**
- (v) **Best NSS worker of the College** in 1982-83
- (vi) **Best Folk Dancer of the College** in 1983.
- (vii) Represented the College and the University at various cultural festivals and won positions.
- (viii) **Member of Executive Committee of the HAU Yoga Club** for the year 1983.
- (ix) **Executive Member of HAU Blue Cross Society** in 1983.
- (x) Nominated **Class Representative in the Literary and Cultural Society of the College** of Veterinary Sciences for the year 1984.
- (xi) Represented the College and University at various **Yoga Championships and won positions.**
- (xii) Elected as **Secretary-cum-Treasurer and Councillor of the College Student's Union, 1989.**
- (xiii) **Best Women Athlete of Daya Nand College, Hisar** in 1980.