



Name of Department: Department of Pharmacology and Toxicology

Profile (In Brief):

The Department of Pharmacology came in existence in 1965, the second year of inception of the College of Veterinary Science and Animal Husbandry, Anand. Dr. Jayvir V. Anjaria was the founder Professor and Head of the department. He worked hard to establish and develop the department with only one additional teaching staff till he retired in 1984. Dr. M.R. Dave, Associate Professor of Pharmacology was elevated to the post of Professor of Medicine at this college in 1982. He looked after the activities of the department during 1985-86. Dr. A.M. Thaker joined the department as a member of faculty in 1980. Later, Dr. M.P. Verma joined the department as an Associate Professor in 1982. In July 1986, Dr. J.K. Malik took over as Professor and Head of the department of Pharmacology. Dr. M.P. Verma took over the charge of department in October 1995, when Dr. J.K. Malik was selected as Head, Division of Pharmacology and Toxicology, IVRI. Subsequently Dr. A.M. Thaker became Professor and Head of this department in June 2003 when Dr. M.P. Verma retired from service till 14-10-2015. Under his dynamic leadership and guidance, the department has been developed rapidly to achieve excellence in teaching, research and other academic activities. In 15th October 2015, Dr. S.K. Raval, Professor, Veterinary Medicine took over the charge as Professor and Head of the Department of Veterinary Pharmacology & Toxicology.

Faculties:

Sr. No.	Name with photograph	Designation	Phone (O)	Cell No	Inter Com No.	E-Mail
1	Dr. S.K. Raval 	Professor and Head	-	09429034634	947	skraval23@rediffmail.com
2	Dr. K.A. Sadariya 	Assistant Professor	-	09427180817	981	dr_kasadariya@yahoo.co.in , sadariya@aau.in

Major Activities:**I. Teaching****A. UG Courses**

Sr. No.	Name of Course	Course No.	Credits
1.	General and Systemic Pharmacology	VPT- 311	2+1 = 3
2.	Veterinary Neuropharmacology	VPT-321	2+1 = 3
3.	Veterinary Chemotherapy	VPT-411	2+0 = 2
4.	Veterinary Toxicology	VPT-421	2+0 = 2

B. PG Courses**For M.V. Sc. Students:**

Sr. No.	Name of Course	Course No.	Credits
1.	General Pharmacology	VPT-601	2+0 = 2
2.	Autonomic and Autacoid Pharmacology	VPT-602	2+1 = 3
3.	CNS Pharmacology	VPT-603	2+1 = 3
4.	Digestive and Respiratory Pharmacology	VPT-604	2+0 = 2
5.	Cardiovascular and Renal Pharmacology	VPT-605	2+0 = 2
6.	Endocrine and Reproductive Pharmacology	VPT-606	2+0 = 2
7.	Chemotherapy	VPT-607	2+1 = 3
8.	Toxicology of Xenobiotics	VPT-608	2+1 = 3
9.	Toxicology of Plants and Toxins	VPT-609	2+0 = 2
10.	Pharmacological Techniques	VPT-610	1+1 = 2
11.	Techniques in Toxicology	VPT-611	1+1 = 2
12.	Ethnopharmacology	VPT-612	2+0 = 2
13.	Master's Seminar	VPT-691	1+0 = 1
14.	Master's Research	VPT 699	20

For Ph.D. Students:

Sr. No.	Name of Course	Course No.	Credits
1.	Advances in Neuropharmacology	VPT 701	2+0
2.	Autacoid Pharmacology	VPT 702	1+0
3.	Pharmacology of Herbal Drugs	VPT 703	2+1
4.	Drug Metabolism	VPT 704	2+0
5.	Molecular Pharmacology	VPT 705	2+0
6.	Pharmacokinetics	VPT 706	2+1
7.	Pharmacogenomics	VPT 707	2+0
8.	Immunopharmacology	VPT 708	1+0
9.	Molecular Toxicology	VPT 709	2+0
10.	Clinical Pharmacology	VPT 710	1+1
11.	Clinical Toxicology	VPT 711	2+1
12.	Ecotoxicology	VPT 712	2+0

13	Regulatory Toxicology	VPT 713	2+1
14	Special Problem	VPT 790	0+2
15	Doctoral Seminar I	VPT 791	1+0
16	Doctoral Seminar II	VPT 792	1+0
17	Doctoral Research	VPT 799	45

II. Research

A. Research Projects Completed (No., Title, Agency, Period, Budget Outlay, PI/Co-I)

Sr. No.	Title	Duration	Agency	Budget Amount	PI/ Co-PI
1.	Toxicological studies of some fungicides	During 1981	National Rayon Corporation, Mumbai	-----	Professor & Head
2	Network Project on Ethno-veterinary Medicine under AP cess fund	2006 – 2008	ICAR	24.82 lakh	PI : Dr. A.M. Thaker CO- PI: Dr D S Nauriyal Dr J. G. Sarvaiya Dr D. J. Ghodasara Dr S. K. Bhavsar
3	Outreach Programme on Ethno-veterinary Medicine	2009-2012	ICAR	80.00 lakh	PI : Dr. A.M.Thaker CO- PI: Dr D. S. Nauriyal Dr D.B.Patil Dr D.J. Ghodasara Dr S. K. Bhavsar

B. Research Projects On going (No., Title, Agency, Period, Budget Outlay, PI/Co-I)

Sr. No.	Title	Start Date (period)	Agency	Budget Amount	PI/ Co-PI
1.	Pharmacological investigation on some indigenous medicinal plants and weeds (Non-plan)	1980	University funded	-----	Professor & Head
3	Outreach Programme on Ethno-veterinary Medicine	2012 to till date	ICAR	58.40 lakh	PI: Dr S.K. Raval CO- PI: Dr D. S. Nauriyal Dr P.V. Parikh Dr D.J. Ghodasara Dr K.A. Sadariya

C. Number of M.V.Sc. & Ph.D. degrees awarded: 56 M.V.Sc. & 9 Ph.D.

D. Research Publications (No.)

- 1) Research papers published in International journals : 33
- 2) Research papers published in International journals : 46

E. Research Recommendations

(For Scientific / Farmers Community; Year wise; Text)

Year – 2009: For Scientific Community

- 1) Ketoprofen @ of 3.0 mg/kg B.Wt. administered Intramuscularly and repeated at 18 hrs.interval in sheep and calves(Cross bred and Kankrej) gives satisfactory result in the treatment of inflammatory conditions. (Dept. of veterinary Pharmacology & Toxicology, AAU) (Recommendation accepted at 5th combined Joint AGRESCO of SAUs meeting held at S.D.A.U., Sardarkrushinagar during 20-22, April, 2009)
- 2) Oral administration of levofloxacin @ 10 mg/kg B.Wt. repeated at 12 hrs.interval is satisfactory in the treatment of infectious diseases in layer and broiler birds. (Dept. of veterinary Pharmacology & Toxicology, AAU) (Recommendation accepted at 5th combined Joint AGRESCO of SAUs meeting held at S.D.A.U., Sardarkrushinagar during 20-22, April, 2009)
- 3) Oral administration of Cypermethrin (6.25, 8.33 and 12.50 mg/kg B.Wt) and Acephate (23.62, 32.5 and 47.45 mg/kg B.Wt) daily for 28 days causes dose dependent genotoxicity in wistar rats. (Dept. of veterinary Pharmacology & Toxicology, AAU) (Recommendation accepted at 5th combined Joint AGRESCO of SAUs meeting held at S.D.A.U., Sardarkrushinagar during 20-22, April, 2009)

Year – 2010: For Scientific Community

- 4) On the basis of milk Somatic cell count (SCC) and bacteriological culture examination, once a day intra-mammary administration of 1% aqueous solution of alkaloid obtained from chloroform extract of *Prosopis juliflora* leaves is effective in the treatment of bovine sub-clinical mastitis
- 5) Intramuscular Co-administration of Tolfenamic acid (4 mg/kg) or Meloxicam (0.5 mg/kg) along with Moxifloxacin (5mg/kg) alters pharmacokinetics of each other in rats. Repeated intramuscular administration of Moxifloxacin (5 mg/kg) or Tolfenamic acid (4 mg/kg) and Co-administration of Tolfenamic acid (4 mg/kg) with Moxifloxacin (5 mg/kg) once a day for 14 days, was found safe based on the hematological, biochemical and histopathological evaluation in rats.
- 6) Pharmacokinetics of Levofloxacin (3mg/kg, I/V or S/C or Oral) gets altered during febrile condition and co-administration with Ketoprofen (3mg/kg, I/M). Repeated intravenous administration of Levofloxacin (3 mg/kg once a day for 5 days) is safe, however, its repeated co-administration with Ketoprofen (3mg/kg, I/M) increase Serum aspartate aminotransferase and Blood urea nitrogen level in sheep.

Year - 2011: For Scientific Community

- 7) Pharmacokinetics of Cefepime administered intramuscularly in Cow calves (5mg/kg body weight), Sheep and Goat (20mg/kg body weight) get altered in febrile state (Induced by *E.Coli* Lipopolysaccharide, 0.2 µg/kg body weight, intravenous). Repeated Intramuscular administration of Cefepime in calves, sheep and goat every 12h for five days is safe based on hematological and serum biochemical evaluation.
- 8) Oral administration of Piperine (An alkaloid of *Piper nigrum* / *Piper longum*, 15 mg/kg body weight) and Trikatu (Polyherbal ayurvedic preparation containing an equal ratio of *Piper longum*, *Piper nigrum* and *Zingiber officinale*, 2g/kg body weight) increases bioavailability of Gatifloxacin in poultry and sheep by 11 percent.

Year 2016: For Scientific Community

- 9) "The biherbal methanolic extract of *Bryophyllum calycinum* (Panfuti) and *Tribulus terrestris* (Gokharu) (1:1) at the dose rate of 400 mg/kg body weight orally once in a day for four weeks has antiurolithiatic effect on ethylene glycol induced urolithiasis in Wistar rat. Hence, it is recommended for therapeutic use in urolithiasis".

III. Extension

A. Refresher Training Courses / Summer-Winter Schools conducted

Sr. No.	Title	Period	No. of Participants
1.	Training to Government Veterinary Officer under ASCAD training Programme	18-01-05 to 28-01-05	10
2	Training to Government Veterinary Officer under ASCAD training Programme	07-03-05 to 16-03-05	06
3	Training to Government Veterinary Officer under ASCAD training Programme	26-12-05 to 04-02-06	08

B. Seminar/Symposia/Conference/Workshop organized:

- 1) IXth Annual Conference of Indian Society of Veterinary Pharmacology & Toxicology and National symposium on "Xenobiotic Residues and Food Safety" and "Pharmacogenomics and Toxicogenomics: New Horizons in Veterinary Pharmacology & Toxicology" organized at College of Veterinary Sciences, AAU, Anand during 5-7 Nov, 2009.
- 2) One day Technical Seminar on "Role of livestock sector in rural prosperity of Gujarat" Organized by Alumni Association of Veterinary College Anand (AAVCA) at Veterinary College, Anand on 20/12/2009.
- 3) Workshop on "Techniques for detection of Polymorphism in Drug Metabolizing Enzymes and Drug Transporters" at College of Veterinary Sciences, AAU, Anand during 3-4 Nov, 2009 in collaboration with Dept. of Animal Biotechnology of the College.

- 4) 12th All India Inter Agricultural University Youth Festival 2010-11 at Anand Agricultural University, Anand during January 17-21, 2011 as Director of Students' Welfare, AAU, Anand.
- 5) One day Technical Seminar on "Emerging Horizons in Veterinary profession" Organized by Alumni Association of Veterinary College Anand (AAVCA) at Veterinary College, Anand on 27-08-2011.

C. Diagnostic Services / Clinical Camps/Farmers' advisory services/Ambulatory Clinics/Vaccination camps

D. NSS Camps/ Krishi Mahotsav/ Pashupalan Shibirs/Radio-TV Talks Delivered/Exhibitions/Farmers' meet-day/Kisan Call Center/Field Visits:

- 1) Participated as veterinary scientist in Krishi Mahotsav since year 2006 to till date.
- 2) પશુઓમા થતી ઝેરી અસરો અને તેના ઉપાયો by Dr K.A. Sadariya on 16-09-2014 at DD Girnar Gujarati Channel, Thaltej, Ahmedabad.

E. Expert services to State Government/Co-op. dairies/Other agencies /NGOs

F. No. of Publications of Popular articles /Books /Booklets /Pamphlets /Leaflets/ Souvenir/Compendium/ chapters/ Lab Manuals / Training Manuals etc.

Popular Articles	:	35
Books/ Books chapters	:	18
Booklets /Pamphlets /Leaflets	:	04
Souvenir/Compendium	:	02
Lab Manuals / Training Manuals	:	07

G. Visitors

H. Any other items

Achievements:

A. Awards/Honours/Recognitions/Appreciations

1. Head Quarter of "Indian Society of Veterinary Pharmacology and Toxicology" is with this department and Dr. A.M.Thaker is Secretary H.Q. and Dr. S.K.Bhavsar is Secretary Finance of the society.
2. Professor J. P. Trivedi Award for Research work on "Pharmacokinetics of Antibacterial Drugs in Domestic Animals" sponsored by Shri Hari-Om Ashram, Nadiad on 23rd December, 2013 by The Gujarat Association for Agricultural Sciences.
3. Barot Deepak and Thaker, A.M. (2000). Nitric Oxide: Journey towards therapeutic agent. Oral presentation at 1st annual conference of Indian Society of Veterinary Pharmacology and Toxicology (ISVPT) and national Symposium on "Newer Perspectives of Veterinary Pharmacology and Toxicology in the improvement of Animal Health and Production: vision 2020" held at Punjab agricultural University, Ludhiana during December 6-8, 2000. **(Adjudged as Best Oral Presentation)**

4. Patel H.B.; Bhavsar S.K.; Thaker A.M.; N. Suresh Babu and Wadhwani K.N. (2001). Pharmacokinetics of ciprofloxacin in sheep following single dose intravenous and intramuscular administration. Paper presented at 2nd Annual conference of Indian Society of Veterinary Pharmacology and Toxicology held at College of Veterinary Science and A.H., GAU, S. K. Nagar **(Adjudged for Young Scientist Award presentation- Fifth position)**
5. Patel H.B.; Thaker A. M.; Bhavsar S.K.; N. Suresh Babu; Barot D. K. and Reddy C.N. (2001). Creatinine Kinase status following intramuscular injection of ciprofloxacin in sheep. Paper presented at 2nd Annual conference of Indian Society of Veterinary Pharmacology and Toxicology held at College of Veterinary Science and A.H., GAU, SKNagar **(Adjudged for Best Poster presentation- Second position)**
6. K.A. Sadariya, S.D. Patel, J.B. Patel, S.K. Bhavsar and A.M. Thaker (2013). Febrile Condition Alters the Pharmacokinetics of Moxifloxacin Following its Intramuscular Administration in Sheep. Poster presented on National Seminar on “Advances in Animal Health & Application of Biotechnology” and 1st Annual Convention of Society for Veterinary Sciences and Biotechnology (SVSBT) on 9th March 2013 at Department of Animal Reproduction, Gynaecology & Obstetrics, College of Veterinary Science & AH, AAU, Anand - 388 001, Gujarat. **(Best Poster Presentation Award).**
7. **“Best Article Award”** for paper by Dr. Kamlesh Sadariya, Dr. Shailesh Bhavsar and Dr. Ghanshyam Mandali (2010) “Gaynu Ghee: Ek Aarogyavardhak Aushad” published in *Krush- Gau Vidhya Prakashan* (October-2010, Volume:63(6), Page:29-30), Anand agricultural University, Anand on 22-12-2014.

B. Assignments as Subject Expert / Member (Selection Committee/Advisory Board)

- 1) Member editorial board of Journal of Veterinary Pharmacology and Toxicology, a publication of Indian Society of Veterinary Pharmacology and Toxicology for 2006-07.
- 2) Convener, Registration Committee, International Agri-Tech, 2004, held at Anand, GAU, during January 5-6, 2004.
- 3) Recognized and appointed as an external Examiner by Postgraduate Affairs, Faculty of Science & Technology, The University of the South Pacific, Suva, FIJI for M.Sc. thesis submitted by MR. John Rofeta. (20 November, 2008).
- 4) Approved as an External Expert/Peer Reviewer by TANUVAS & NAIP for peer reviewing the e-Course content for the course VPT-411 Chemotherapy (2+1) of B.V.Sc. & AH Degree Programme. (1-12-2008)
- 5) Recognized as Ph.D. Advisor for Pharmacy Faculty of Charottar University of Science & Technology, Changa, Gujarat.

C. Advanced Instrumentation / Lab Facilities

Sr. No.	Instrument
1)	High Performance Liquid Chromatography
2)	High Performance Thin Layer Chromatography
3)	Soxhlet Extraction Assembly
4)	Refrigerated Centrifuge
5)	Deep Freeze (-80°C)
6)	Autoclave
7)	Hot Air Oven

8)	Incubator
9)	pH Meter
10)	Digital Balance
11)	Sonicator
12)	Hot water bath cum Shaker
13)	Lyophilizer
14)	Metabolic cages for rats
15)	Rat/Mice anesthetic chamber

D. Patents filed / Technology Developed

E. Other Recognitions (SRC/NSS/AGRESCO Convener/Hostel Rector etc.)

- 1) Dr S.K. Bhavsar acted as Assistant Rector of PG Hostel during 2009-2011.
- 2) Dr K.A. Sadariya acted as Assistant Rector of Hostel D during 2012-2015.

Future Thrust Areas:

- 1) Ethno-veterinary Medicine
- 2) Pharmacokinetics/ Toxicokinetics
- 3) Pharmacogenomics/ Toxicogenomics
- 4) Toxicology

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