DEPARTMENT OF ZOOLOGY

MAHARSHI DAYANAND UNIVERSITY, ROHTAK

Name of the Faculty Member: **Dr. Ranjana Jaiwal**

Designation: **Associate Professor**

Email: ranjana.jaiwal.zoo@mdurohtak.ac.in

1. **Educational qualifications**

Degree	Year of passing	University/Institute
Ph.D.	1990	Banaras Hindu University, Varanasi
M.Phil.	1986	CCS University, Meerut
M.Sc.	1985	CCS University, Meerut
B.Sc.	1983	Agra University, Agra

Field of specialization: Molecular Endocrinology & Molecular Biology

2. **Career Profile**

Designation	Institution	Duration
Associate Professor	Deptt. of Zoology, M.D. University, Rohtak	Jan. 2021 to Oct. 2023
Assistant Professor	Deptt. of Zoology, M.D. University, Rohtak	2009 to Jan. 15, 2021
Lecturer (Guest Faculty)	Advanced Centre for Biotechnology, M. D. University, Rohtak	2008 to 2009
DST-Women scientist DST, New Delhi	Advanced Centre for Biotechnology, M. D. University, Rohtak	2004 to 2007
Lecturer (Adhoc)	AIJHM College, Rohtak	1997 -1999
Post Doctorate (CSIR-RA)	Department of Biosciences, M.D. University, Rohtak	1992 to 1996

3. **Research Projects undertaken**

S. No.	Title of project	Duration	Funding Agency
1.	Neuroendocrine regulation of seasonal reproduction in female Indian palm squirrel (*Funambulus pennanti*)	5-years	CSIR, New Delhi
2.	Evaluation of transgenic mungbean plants for resistance to bruchids	3-years	DST, New Delhi
3.	Low-cost production of Insulin for diabetic patients	3-years	UGC, New Delhi

4.	Identification of novel vital genes of a world pest, whitefly for their control via RNAi approach	1-year	RK Foundation, MDU, Rohtak
5.	Synthesis of dsRNAs of whitefly vital genes for their control via RNAi approach	1-year	RK Foundation, MDU, Rohtak

4. **Research Guidance:**

Ph. D. supervision:

Awarded

1. Devender Dhayal (2015): "Microbial gut flora in Indian *Anophelines* and their interaction with the susceptibility to *Plasmodium* infection."

2. Parveen Yadav (2019): "Preparation and characterization of nanoparticles of creatininase, creatinase and sarcosine oxidase and their application**."**

3. Priyanka Saini (2019): "Low-cost production of insulin for diabetic patients."

4. Jyoti Yadav (2024): "Expression of tuberculosis antigens in plants for the production of TB Vaccine."

5. Archna Suhag (2024): "RNAi approach for the management of a global pest, the whitefly (*Bemisia tabaci*)."

Registered

1. Supriya Phogot: "Oral-immunogenicity of a plant-made-subunit tuberculosis vaccine."

2. Ankit Yadav: (in co-supervision) "Nanomaterials for sustainable delivery of dsRNAs for the management of a global insect pest, whitefly (*Bemisia tabaci*)"

3. Shikha Nara: (in co-supervision) "Management of Maruca vitrata through nanomaterials mediated dsRNAs delivery"

M.Sc. Dissertations supervision:

More than **70 dissertations** have been completed on different topics related to the research areas like

1. Insecticidal activities of some medicinal plants
2. *In-silico* siRNA/dsRNA designing and synthesis
3. Anti-microbial properties of some medicinal plants
4. Synthesis and characterization of nanoparticles for their use in anti-microbial and insecticidal studies.

5. **Research Publications:** Research Papers published = more than **50**

S. No.	Author(s)	Title	Name of Journal	Volume /ISBN No.	Page	Year
1.	Prajapati M, Chaudhary D, Jaiwal PK, Jaiwal R, Ahlawat YK.	Optimizing Agrobacterium-mediated transformation efficiency in an Indian cultivar of Trifolium alexandrinum L.	Grass Research	Vol. 4 e-ISSN: 2769-1675	e019 DOI: 10.48130/grares-0024-0018	2024
2.	Prajapati, M., Malik, P., Sinha, A., Yadav, H., Jaiwal, YK, Ahlawat, YK, Chaudhary, D., Jaiwal, Ranjana, Sharma, N., Jaiwal, PK, Chattu VK	Biotechnological Interventions for the Production of Subunit Vaccines Against Group A Rotavirus	Cell Biochemistry and Function **IF – 2.8**	Vol. 42 ISSN: 0263-6484 (print)	e70031 DOI: 10.1002/cbf.70031	2024
3.	Yadav, A., Suhag, A., Jaiwal, R., Chaudhary, D., and Jaiwal, PK	Current progress and challenges of horizontal gene transfers in whiteflies (*Bemisia tabaci*) for their sustainable management.	Journal of Asia-Pacific Entomology **IF-1.5**	Vol. 27 Online ISSN: 1876-7990 DOI: 10.1016/j.aspen.2024.102216	102216	2024
4.	Bhoria, S, Saini, P, Chaudhary, D, Jaiwal **Ranjana**, Jaiwal, PK	Engineering Camelina sativa Seeds as a Green Bioreactor for the Production of Affordable Human Pro-insulin that Demonstrates Anti-diabetic Efficacy in Rats	Molecular Biotechnology **IF-2.8**	Vol. 67 DOI: 10.1007/s12033-024-01068-y	574-587	2024
5.	Yadav, J, Phogat, S, Chaudhary, D, **Jaiwal Ranjana,** Jaiwal, PK	Synthesis of plant-based, self-adjuvanted, dual antigen specific to Mycobacterium tuberculosis as a novel tuberculosis subunit vaccine that elicits immunogenicity in rabbit	Biotech Lett **IF= 2.716**	Vol. 45 ISSN: 1573-6776 https://doi.org/10.1007/s10529-023-03371-1	703–717	2023
6.	Malik Pooja, Prajapati Mukta, Chaudhary Darshna Prasad Minakshi, **Jaiwal Ranjana**, Jaiwal PK	Production of Bovine Rotavirus VP6 Subunit Vaccine in a Transgenic Fodder Crop, Egyptian Clover (Berseem, Trifolium alexandrinum) that Elicits Immune Responses in Rabbit	Molecular Biotechnology **IF = 2.86**	Print ISSN 1073-6085 DOI: 10.1007/s12033-022-00648-0	65: 1432–1443	2023
7.	Suhag A, Kumari A, Jaiwal A, Chaudhary D, Jaiwal PK and **Jaiwal Ranjana**	*In silico* designing of effective and specific dsRNAs and siRNAs for post-transcriptional silencing of whitefly *Bemisia tabaci* genes with minimized off-target effects	Annals of Biology **IF=0.316**	ISSN: 0970-0153	39: 58–65	2023
8.	Bhoria Sapna, Yadav Jyoti, Yadav Honey, Chaudhary Darshna, Jaiwal	Current advances and future prospects in production of recombinant insulin and other proteins to treat	Biotech Lett **IF= 2.716**	ISSN: 1573-6776 https://doi.org/10.1007/s	44: 643–669	2022

	Ranjana, Jaiwal PK	diabetes mellitus		10529-022-03247-w		
9.	Joon A, Ahlawat J, Aggarwal V, **Jaiwal Ranjana,** Pundir CS	An improved amperometric determination of xanthine with xanthine oxidase nanoparticles for testing of fish meat freshness	Sensing and Bio-Sensing Research **IF=5.3**	https://doi.org/10.1016/j.sbsr.2021.100437	33:100437	2021
10.	Kumar A, **Jaiwal R**, Sreevathsa R, Chaudhary D, Jaiwal PK	Transgenic cowpea plants expressing *Bacillus thuringiensis* Cry2Aa insecticidal protein imparts resistance to *Maruca vitrata* legume pod borer.	Plant Cell Reports **IF = 6.2**	https://doi.org/10.1007/s00299-020-02657-2	583-594	2021
11.	Kumar A, Sainger M, **Jaiwal R**, Chaudhary D, Jaiwal PK	Tissue culture- and selection-independent *Agrobacterium tumefaciens*-mediated transformation of a recalcitrant grain legume, cowpea (*Vigna unguiculata* L. Walp)	Molecular Biotech. **IF = 2.86**	https://doi.org/10.1007/s12033-021-00333-8	63: 710–718	2021
12.	Suhag A, Yadav H, Chaudhary D, Subramanian S, **Jaiwal Ranjana**, Jaiwal PK	Biotechnological interventions for the sustainable management of a global pest, whitefly (*Bemisia tabaci*).	Insect Science **IF = 4.0**	ISSN:1744-7917 https://doi.org/10.1111/1744-7917.12853	28: 1228–1252	2021
13.	Kumar A, Sainger, M, **Jaiwal Ranjana**, Jaiwal PK and Chaudhary D	An Efficient and Reproducible *in vitro* Multiple Shoots and Plant Regeneration System for a Recalcitrant Large-seeded Legume, Cowpea [*Vigna unguiculata* (L.) Walp]	Annals of Agri Bio Research **IF = 0.283**	ISSN: 09719660	37: 13–17	2021
14.	Verma S, Yadav J, Chaudhary D, Jaiwal PK, **Jaiwal Ranjana**	Insecticidal Activities of Some Botanicals on the Three Species of *Callosobruchus*"	Indian Journal of Agricultural Research, 54: 10.18805 /IJARe.A-5376 (NAAS): 5.2	ISSN: 0976-058X	54: 738–744	2020
15.	Kumar P, Kamboj M**, Jaiwal Ranjana**, and Pundir CS	Fabrication of an improved amperometric creatinine biosensor based on enzymes nanoparticles bound to Au electrode.	Biomarkers **IF= 2.66**	ISSN: 1354-750X	24: 739-749	2019
16.	Sindhu, M., Kumar, A., Yadav, H., Chaudhary, D., **Jaiwal, R.,** & Jaiwal, P. K.	Current advances and future directions in genetic enhancement of a climate resilient food legume crop, cowpea (Vigna unguiculata L. Walp)	Plant Cell, Tissue and Organ Culture (PCTOC) **IF = 4.96**	ISSN: 0167-6857	1-25	2019
17.	Yadav J, Verma S, Chaudhary D, Jaiwal PK and **Jaiwal Ranjana**	Tuberculosis: Current status, diagnosis, treatment and development of novel vaccines.	Current pharmaceutical Biotechnology **IF= 2.83**	ISSN: 1389-2010	20: 446-458	2019

18.	Pundir, CS, Kumar P and **Jaiwal Ranjana**	Biosensing methods for determination of creatinine: A review.	Biosensors and Bioelectronics **IF=12.54**	ISSN: 0956-5663,	126: 707-724	2019
19.	Saini P, Bhoria S and **Jaiwal R**	In vitro plant regeneration from hypocotyls explants of cucumber cv Poinsett 76.	Annals of Biology **IF = 0.316**	ISSN: 0971-9660	35: 285-289	2019
20.	Bhardwaj V, Kumar P, Verma S and **Jaiwal R**.	Effect of ultraviolet radiation and some botanicals on development of *Callosobruchus*	Annals of Entomology -	ISSN: 0970-3721	37: 29-37	2019
21.	Kumar P, Narwal Vinay **Jaiwal Ranjana** and Pundir CS	Construction and application of sarcosine biosensor based on SOxNPs/AuE for determination of prostate cancer.	Biosensors and Bioelectronics **IF=12.54**	ISSN: 0956-5663	122: 140-146	2018
22.	Sindhu M, Kumar A, Sainger M, **Jaiwal Ranjana** and Chaudhary D	In vitro plant regeneration of Cowpea (Vigna unguiculata (L.) Walp) via direct shoot organogenesis from primary leaf explants.	Annals of Biology **IF = 0.316**	ISSN: 0970-0153	34: 249-254	2018
23.	Verma S, Malik M, Kumar P, Choudhary D, Jaiwal PK and **Jaiwal Ranjana**	Susceptibility of four Indian grain legumes to three species of stored pest, bruchid (Callosobruchus) and effect of temperature on bruchids	International Journal of Entomology Research RJIF = 5.24	ISSN: 2455-4758	3: 5-10	2018
24.	Sainger M, Jaiwal A, Sainger P A, Chaudhary D, **Jaiwal R** and Jaiwal PK,	Advances in genetic improvement of Camelina sativa for biofuel and industrial bioproducts	Renewable and Sustainable Energy Reviews **IF: 16.799**	ISSN: 1364-0321	68: 623-637	2017
25.	Birla, D., Malik, K., Sainger, M., Chaudhary, D., **Jaiwal, R** and Jaiwal, P. K.	Progress and challanges in improving nutritional quality of rice.	Critical Rev. Food and Nutri. **IF: 11.2**	ISSN: DOI: 10.1080/10408398.2015.1084992	57: 2455-2481	2017
26.	Sainger M, Chaudhary D., Dahiya S, **Jaiwal R**, and Jaiwal PK	Development of an efficient in vitro plant regeneration system amenable to *Agrobacterium* -mediated transformation of a recalcitrant grain legume blackgram (*Vigna mungo* L. Hepper)	Physiology and Molecular Biology of Plants **IF: 3.02**	21/0971-5894	505-517	2015
27.	Kumar P, Jaiwal A. and **Jaiwal Ranjana**	Micro RNAs: Their role in post-transcriptional regulation and expression of gene. Proc. Natl. Seminar on "Innovative Researches in Life Science	Proc. Natl. Sem. on "Innovative Researches in Life Science"	978-81-920945-5-7	110-114	2015
28.	Jaiwal A, Kumar P and **Jaiwal Ranjana**	Application of RNA Interference (RNAi) in Insect Pest Control	Proc. Natl. Sem. On "Innovative Researches in Life Science"	978-81-920945-5-7	15-20	2015

29.	Chaudhary D, Sainger M, Kumar A, Yadav H, Sindhu M and **Jaiwal Ranjana**	Transient gus assay to optimize *Agrobacterium* mediated genetic transformation of cowpea (*Vigna unguiculata* L.walp)	Proc. Natl. Sem. on" Innovative Researches in Life Science"	978-81-920945-5-7	26-30	2015
30.	Dhayal D, Parasher H, Sharma A, Kumar P Adak T. and **Jaiwal R.**	Diversity of Culturable Midgut Bacteria of Indian Malarial vector *Anopheles Stephensi*	J. Internatl. Acad. Res. Multidiscip. **IF: 1.625**	2/2320-5083	305-311	2014
31.	Dhayal, D., Sharma, A., Adak, T. and **Jaiwal, R.**	Effect of *Carnobacterium Sp.* on *Plasmodium* Sporogony in *Anopheles Stephensi* Mosquito	Internatl. J. Life Sci. Res.	3/ 2348-313X	50-54	2014
32.	Jaiwal, A. Chaudhary, D. and **Jaiwal, Ranjana**	Genetically modified crops for developing countries.	Proc. Natl. Sem. On "Next Generation Sciences: Vision 2020 and Beyond (NGSV)	978-81-920945-4-0	312-323	2014
33.	Jaiwal, A. and **Jaiwal, Ranjana**	Genetic reprogramming of animals: Animal Cloning.	Proc. Natl. Sem. On "Next Generation Sciences: Vision 2020 and Beyond (NGSV)	978-81-920945-4-0	324-334	2014
34.	**Jaiwal R.** and Chaturvedi CM.	Four Hour Temporal Relation of 5-HTP and L-DOPA Induces Inhibitory Responses in Recrudescing Gonad of Indian Palm Squirrel (*Funambulus pennanti*)	ISRN Endocrinology	2013	1-5	2013
35.	Priyanka, Bhardwaj S. and **Jaiwal Ranjana**	An overview of an auto immune disease systemic lupus erythematosus.	Proc. Natl. Sem. on "Promising Trends in Sci. Galaxy (PTSG-2013)"	978-81-920945-2-6	195-205	2013
36.	Priyanka and **Jaiwal Ranjana**	Production and Expression of Recombinant Erythropoietin in Plants	Proc. Natl. Sem. on "Promising Trends in Sci. Galaxy (PTSG 2013)"	978-81-920945-2-6	8-19	2013
37.	Janhawi and **Jaiwal Ranjana**	ATP-dependent Chromatin remodeling	Proc. Natl. Sem. on "Promising Trends in Sci. Galaxy (PTSG 2013)"	978-81-920945-2-6	58-66	2013
38.	**Jaiwal Ranjana**, Dhayal D and Adak T	Symbiotic gut bacteria of insects: disease control & future perspectives.	Proc. Natl. Sem. on Combating Diseases: Cause to cure	978-81-920945-2-6		2012
39.	**Jaiwal Ranjana**, Dhayal D	Low-cost production of insulin for diabetic patient.	Proc. Natl. Sem. on Combating Diseases: Cause to cure	978-81-920945-2-6	45-49	2012

40.	**Jaiwal Ranjana** and Bharadwaj S	Emerging applications of internet in endocrinology.	Proc. Natl. Sem. on Internet: Applications in Research	978-81-920945-1-9	48-49	2011
41.	Dhayal D, Sharma A, Parasher H, **Jaiwal Ranjana** and Adak T	Polypeptide profiling of *Plasmodium* infected and uninfected host plasma	Proc. Natl. Sem. on Internet: Applications in Research	978-81-920945-1-9	1-5	2011
42.	**Jaiwal Ranjana**	Inter-relationship between the seasonal adrenal and gonadal cycles of male Indian Palm Squirrel, *Funanbulus pennanti*	Proc. Natl. Seminar Computing Life: Raw to Refined	978-81-920945-0-2)	254-262	2010
43.	**Jaiwal Ranjana**	Effect of altered adrenal function on seasonal reproduction of Indian Palm Squirrel (*Funanbulus pennanti*).	Proc. Natl. Conf. on Environ. and health issues: In a changing climatic scenario,	----		2010
44.	Sonia, **Jaiwal Ranjana** and Jaiwal P K	Genetic Engineering for storage pest resistance	Physiol. Mol . Biol. Plants **IF: 3.02**	13/ 0971-5894	101-113	2007
45.	Chowdhury S, Madanpotra S, **Jaiwal Ranjana**, Saini R, Kumar PA and Jaiwal PK	*A. tumefaciens* mediated high frequency genetic transformation of cowpea (*V. unguiculata*) and transmission of transgenes to progeny.	Plant science **IF = 5.36**	172/ 0168-9452	692-700	2007
46.	**Jaiwal Ranjana** and Chaturvedi C M	Seasonal and diurnal variations in the hormonal profile of thyroid in relation to gonadal cycle of Indian Palm Squirrel, *Funanbulus Pennanti*	J. Environ. Biol. **IF = 0.224**	**17**/ 0254-8704	93-100	1996
47.	**Jaiwal Ranjana** and Chaturvedi C M	Elimination of testicular regression by 12 h temporal relationship of serotonergic and dopaminergic activity in Indian Palm Squirrel, *Funanbulus pennanti*.	J. Neural Transmissio n (Springer-Verlag) **IF = 3.85**	0300-9564 (Print)	45-52	1991
48.	**Jaiwal Ranjana** and Chaturvedi C M	Temporal synergism of neurotransmitter affecting drugs and seasonal reproductive responses of Indian Palm Squirrel, *Funanbulus pennanti*.	J. Neural Transmission (Springer-Verlag) **IF = 3.85**	0300-9564 (Print)	31-40	1990
49.	**Jaiwal Ranjana**, Chaturvedi CM and Dubey LB	Cloacal gland and testicular response of Japanese quail to male hormones and photoperiod interaction	Trends Life Sci	3	1-6	1988
50.	**Jaiwal Ranjana** and Chaturvedi C M	Serotonergic and dopaminergic drugs in the regulation of seasonal reproduction of Indian Palm	Proc. Natl. Symp. on current status of Gen. Comp. Endo	-	76-77	1988

		Squirrel, *Funanbulus pennanti*.				

Book Published: 1

1.	Nutritional Quality Improvement in Plants	Pawan K Jaiwal, Anil K. Chiller, Darshana Chaudhary, **Ranjana Jaiwal**	Springer Nature publisher, Switzerland	2019

Book-Chapters

S. No.	Title	Author's	Publisher	Year of publication
1.	Vitamin B6-, C- and E-enrichment in crops	Pawan K Jaiwal, Anil K. Chiller, Darshana Chaudhary, **Ranjana Jaiwal**	In: *Nutritional Quality Improvement in Plants*. Springer Nature Publisher, Switzerland	2019
2.	*Agrobacterium Protocols:* Sesame (*Sesamum indicum* L.)	Kapoor, S., Parmar, S. S., Yadav, M., Chaudhary, D., Sainger, M., **Jaiwal R.**, and Jaiwal, P. K	In: Methods in Molecular Biology, Wang, K. (ed.), *Volume 2*, 1224, USA	2015
3.	GM Crops for Developing World in the Era of Climate Change: For Increase of Farmer's Income, Poverty Alleviation, Nutrition and Health.	Sainger M, Sainger P A, Chaudhary D., **Jaiwal R**., Singh RP, Dhankher OP, and Jaiwal PK	In: Genetic manipulation in plants for mitigation of climate change, Springer DOI: 10.1007/978-81-322-2662-8_11	2015

Administrative/University Responsibilities:

- Curriculum Development UG (General and Hons.)
- PG/Ph.D. curriculum development
- Member admission committee, anti-ragging committee, and sexual harassment committees of the Department of Zoology, M.D. University, Rohtak
- Member of Syllabi enrichment committee
- Acted as Organizing Secretary/Joint Organizing Secretary of National/International Seminars organized by the Department of Zoology/faculty of Lifesciences from 2010-2023
- IQAC officer of the Department from 2015-2021
- Member, Academic Council, M.D. University, Rohtak
- Member, Faculty of Life Sciences, M.D. University, Rohtak
- Member, UGBOS, Department of Zoology, M.D. University, Rohtak
- Member, PGBOS, Department of Zoology, M.D. University, Rohtak
- Member, DRC, Department of Zoology, M.D. University, Rohtak
- Reviewer in many national and international journals

- Member of outreach programs of the Department
- Organizing members of various co-curricular activities of the department
- Member of other various administrative and academic committees
- Participation in National/International workshops/seminars/conferences = 70
- Paper presented in National/International workshops/seminars/conferences = 40

Ranjana Jaiwal