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Academic Qualification :

M.Sc. (Organic Chemistry)
P.h.D (Organic Chemistry)

Title of Ph.D. Thesis : Studies on Potential Synthetic Agrochemicals

Field of Specialisation : Organic Chemistry. Synthesis of bioactive molecules of agricultural importance. Isolation and Characterization of botanicals and their bioefficacy. Monitoring of different pesticides in different components of the environment as pesticides residues that includes soil, water, fruits, vegetables, milk, feed and fodders etc. Use of different analytical technique like NMR, GCMS, IR, GLC, HPLC and their data interpretation. Benign synthesis.

Employment Record:

Designation	Date	Nature of duties
Asstt. Residue Chemist	6/1/93 to 6/1/97	Research and teaching
Asstt Chemist (Sr Scale)	7/1/97 to 11/ 07/ 2001	Research and Teaching
Asstt Professor	12/07/2001 to 5/1/2002	Teaching and Research
Associate Professor	6/1/2002 to till date	Teaching and Research

Students guidance : 13.
Ph.D. 06 (03 students have completed degree and three are presently working)
M.Sc. 07 (06 students have completed one is working with me)

Member of Advisory Committees: Advisory committee member of more than 50 student of different discipline.

Examiner/papersetter/Expert in selection committee: Examiner and Paper setter of different universities. Items writer/Expert in selection committee of Public Service Commissions /ASRB etc

Fellow/ members of different societies:

1. Fellow of Indian chemical society KolKata.
2. Had been annual member of Society of Pesticides Science, IARI,Delhi
3. Co-Opted Member (**BSMA**) of course curricular revision committee of ICAR from chemistry discipline.
4. Life member "Green Chemistry Society"

Seminar/ Workshop/ Training attended: Many.

Awards/ Fellowship:

1. Recipient of SRF of CSIR during Ph.D. work.

2 Recient of "Best teacher award" by the university, sponsored by ICAR during the year 2005-06.

Manuals/Books : Five manuals on different topics have been written for **UG** and **PG** classes.

Research project completed:

1. Worked in AICRP on pesticide residues**.**
2. Development of novel nematicides(**PI**)
3. Nematoxin of microbial origin- Their identification, characterization and development as bionematicides(**Co-PI**).
4. Screening of medicinal plants and synthetic organic compounds for Nemacidal activities and chemical study of selected plants.(**PI**)
5. Biomedial of polycyclic aromatic hydrocarbon (pyrene) (**COPI**).

Research highlights: Monitoring studies were carried out in different commodities has helped to understand the status of contamination with pesticide residues in Haryana. The information can be successfully used in management of toxic residues.

A comprehensive pesticidal schedule consisting of herbicides and insecticide on paddy and insecticide on maize has been investigated from point of view of hazards to human beings and animals.Investigation on lindane, chlorpyriphos and quinalphos on oil seed crops i.e. Mustard and Sunflower from point of view of safety to consumers.

Long term persistence of organochlorine in soil with a view to find out contamination of soil ecosystem.Investigation on ecosystem of sugarcane vis-a- vis contamination due to pesticides used in sugarcane cultivation.Propham (IPC) and Chlorpropham (CIPC) used as antisprouting agents in potato during storage were found to concentrate mainly in peel. The chemicals were found safe for storage of potato tubers.Worked out waiting period (60 days) in paddy from two formulations of lindane to avoid harvest time residues in straw and grains.Waiting period of different pesticides of different commodities have been calculated for the safer use of pesticides.A No.of new organic compounds (mainly heterocycles) have been synthesized, characterized and evaluated for their biological activities. Some of the compounds showed very promising biological activities and are in progress for further studies for their possible use as agrochemicals

Important Research Papers Published:

1. Gupta, Mahavir and Mohla, **Rajvir Singh**, 1986. Aliphatic straight chain Ketones as potential bee repellent. *Chem & Ind* . **9**: 327-328.

2. **Singh, Rajvir**, Gupta, B.B.; Malik,O.P. and Kataria, H.R. 1987. Studies on pesticide based on cumarins I. Antifungal activity of 6-alkyl-3n-butyl-7-hydroxy-4-methyl coumarins. *Pestic. Sci.* **20.** 125-130.

3. Gupta, B.B.; **Singh, Rajvir** , Malik, O.P. and Kataria, H.R. 1987. Studies on pesticides on pesticide based on coumarin. II. Synthesis and antifungal activity of Ten 2-alkyl-7, 8-dihdro-3hyroxy naphtha[1,2-C] chromen-6-one. *Pestic. Sci.***21**: 51-55.

4. **Singh, Rajvir**; Abrol,V.; Gupta, B.B.; Malik, O.P. 1988. Studies on pesticides based on coumarin III. Synthesis and antifungal activity of substituted 4-methyl coumarins and related compounds. *Pestic. Sci.* **23**: 103-107.

5. Singh, R.P.; **Singh, Rajvir**; and Malik, O.P. 1988. Phase transfer catalysed synthesis of 4-(α-acetoxy alkyl)-7,8-dihydroxyl (1) benzopyran-2 (H)-ones. *Indian J. Chem.***27B**:1031-1032.

6. Batra, Tushar; **Singh, Rajvir**; Sangwan, N.K.; Malik, M.S. and Malik, O.P. 1989. Synthesis and antifungal activity of twelve 4-(substituted phenoxy) methyl-6 methyl coumarins. *Pestic. Sci.* **25**:53-58.

7. **Singh, Rajvir**; Singh, R.P.; Malik, O.P. and Makrandi, J.K. 1989. Synthesis and antifungal activity of some alkyl-substituted 4-(substituted phenoxy methyl) –2H-1-benzopyran-2-ones. *Indian J. Chem.* **28B**: 996-998.

8. Singh, Jaivir, **Singh, Rajvir;** Yadav, B.D.; Arora, S.K. and Joshi, U.N. 1990. A Review: Abstract of published work. *Guar Res. Ann.* **6**: 42.

9. **Singh, Rajvir**; Malik, O.P. and Makrandi, J.K. 1991. Synthesis and antimicrobial activity of 4-(substituted phenoxy methyl)-6, 7-dimethyl-2H-1-benzopyran-2-ones. *Chimica acta Turcica*, **19**: 233-38.

10. Joshi, U.N.; Yadav, B.D.; Singh, Jaivir, ; Gupta, Anil; **Singh, Rajvir**, and Arora, S.K. 1991. A Review Abstract of published work. *Guar Res. Ann.* **7**:60.

11. **Singh, Rajvir**; and Malik O.P. 1992. A facile synthesis of alkyl substituted angular benzofurocoumarins. *Indian J. Chem.***31B**:529-531.

12. **Singh, Rajvir**; Sharma Suman and Malik, O.P. 1992. Synthesis of some alkyl/ chloro/methoxy-substituted-4-(substituted phenoxy methyl) –2H-1-benzopyran-2-ones as potential antifungal agents. J.*Indian Chem Sci.* **69**: 338-339.

13. **Singh, Rajvir**; Pal, H.M.; Gupta, Mahavir and Malik, O.P. 1993. Screening of some chemical compounds as repellants to honey bees. I, Effect of carbonyl compounds on *Apis florae F.* visitor to *Brassica campestris* Var. Toria. *Indian Bee J.* **55** (3-4): 47-50.

14. **Singh, Rajvir**; and Malik O.P. 1994. Synthesis and antimicrobial activity of 1-(4-chlorophenyl)-3(4-methoxy /3, 4-dimethoxy phenyl) propan 1, 3-diones and their 2-[(2-nitro/4-chloro or bromophenyl) azo] analgs. *Indian J. Chem.* **34B**: 455-459.

15. Suman; **Singh, Rajvir**; Malik, M.S.; Kathpal, T.S. and Malik, O.P. 1995. Synthesis and antifungal activity of 1, 3-diones and their 2-[4-bromo/ 4-chloro/2-nitro/2-ethoxyl/2, 4-dichlorophenyl)azo] analgs. *Indian J. Chem.* **34B**: 743-746.

16. **Singh, Rajvir;** Batra, Tushar; Malik, M.S. and Malik, O.P. 1995. Synthesis and insecticidal activity of 6-(1,1-dimethyl ethyl)-4-ethyl-8 {[(phenylamino) carbony] oxy} –2H-1- benzopyran-2-ones and related compounds.*Chimica Acta Turcica* **23:** 103-105.

17. Kumari, Beena; **Singh, Rajvir** Madan, V.K.; Kumar, Rakesh and Kathpal, T.S. 1996. DDT and HCH compounds in soils, ponds and drinking water of Haryana, *India. Bull. Environ. Contam. & Toxicol.* **57**: 787-793.

18. Madan, V.K.; Kumar, Beena; **Singh, Rajvir**; Rakesh and Kathpal, T.S. 1996. Monitoring of pesticides from farm gate samples of vegetables. *Pesticide Research Journal,* **18(1):**56-60.

19. **Singh, Rajvir;** Kathpal, T.S. and Kushwaha, K.S. 1996. Harvest-time residues of quinalphos, butachlor and triazophos on paddy. *Pesticide Res. J.* **8(2)**:176-181.

20. **Singh, Rajvir;** Kumari Beena; Madan, V.K. ; Rakesh and Kathpal, T.S. 1997. Monitoring of HCH residues in animal feeds. *Indian J. Animal Sci.* **67(3)**: 250-52.

21. Kathpal, T.S. and **Singh, Rajvir**, 1997. Monitoring of organochlorine insecticides after 11 years of application. *HAU Res. J.* **27**:11-14.

22. **Singh, Rajvir**; Singh Harvir and Kathpal, T.S. 1998. Harvest-time residues of lindane, chlorpyriphos and quinalphos in mustard (*Brassica juncea*) and sunflower *(Helianthus annus L.)* Seed. *Pesticide Res. J.* **10(2)**:22-19-223.

23. Samedha; **Singh, Rajvir** and Malik, O.P. 1998. Synthesis and antimicrobial activity of 1-(4-bromo/chloro phenyl)-2[(2/3/4-chlorobenzen) azo] –3-4/3-nintro/2-methyl phenyl) propan-1, 3-diones and related compounds. *Chimca Acta Turcica*,**26**:15-20.

24. Madan, V.K.; Kumar, B; **Singh, Rajvir**; Tewatia, A.S. and Kathpal, T.S. 1998. Residues of lindane and Fenvalerate in vegetable pea. *Pecticides Res. J.* **10 (2)**: 237-241.

25. Kasana, V.K.; Malik, D.S.; **Singh, Rajvir**; Malik, M.S. and Malik, O.P. 1998. Evaluation of carbonyl/ compounds and essential oils as repellents against *Apis florae. F*. under filed conditions. *Indian Bee Journal*, **60(2)**: 83-85.

26. Madan, V.K.; **Singh, Rajvir**; Kumar, B.; Naresh, J.S. and Kathpla, T.S. 2000. Dissipation of lindane and Fenvelerate residues in chickpea (Cicerarietinum) under Indian climatic conditions. *Eco. Toxicol. And Environmental Safety*. **46**:163-166.

27. **Singh, Rajvir**. 2000. Use of TLC and paper chromatography techniques in residues and latest development to increase their reliability and sensitivity: compendium on "Training course of Pesticide Residue Analysis" ICAR Centre of Advance Studies, Dept. of Entomology, CCS Haryana Agric. Univ. Hisar 125004, Haryana, India. P.80-93.

28. **Singh, Rajvir**; Madan, V.K.; Singh, Balwinder and Kathpal, T.S. 2000. Dissipation of propham and chlorpropham residues in patato tubers, Peel and pulp. *Pesticide Research Journal* **12(1**): 1233-136.

29. Sharma, Suman; **Singh, Rajvir** and Malik, O.P. 2001. Synthesis and Fungi toxicity of 3,5-Bis (4-Methyl / 4-bromo/3-nitrophenyl/ phenyl)-4[4-Bromo/chloro/2-nitro/2-nitropheyl)-1H-pyrazoles.*PesticideResearch Journal Vol.***13 (2)**:188-194.

30. Kumari, Beena, Kumar, Rakesh; Madan, V.K.; **Singh, Rajvir**; Singh, Jagdeep and Kathpal, T.S. 2003. Magnitude of pesticidal contamination in winter vegetables from Hisar, Haryana. *Enviornmental Monitoring and Assessment*, **87**:311-318.

31. Parmila, **Singh, Rajvir** and Mohinder Singh Sangwan 2004. Synthesis of 3,6-dichloro/ 4-methyl/ phenyl-7-(3-substituted/ phenoxy)-2-hydroxypropoxy]-2H-1-benzopyran-2-ones and their antimicrobial activity. *Chimica Acta Turcica* **:32** (1,2,3) :7-11.

32. Sandeep Verma, Malik, M.S. **Singh, Rajvir** and Malik, O.P. (2003). Synthesis and antimicrobial activity of some 2-substituted arylamino-4-(2-Naphtyl/-5-ylacetic acids and 2-[2-{4-(4-substituted aryl) thiazol}]-6-(1 or 2- Naphtyl)-4, 5-Dihydro-3 (2H) Pyridazones *Pesticide Research Journal* Vol. **15(2)**:124-128.

33. Bimla, Meera, **Singh, Rajvir** and kalidhar, S,B. (2004). Chemical Constituents of the stem of Acacia arabica (Lank.) *J. Ind. Chem. Soc*. Vol. **81**. 1-3.

34. Malik, Archana. **Singh, Rajvir** and Kalidhar, S, B (2005) Chemical constituents from the stems of Prosopis cineraria. *J. Medicinal & Aromatic Plant Sciences* **27**: 635-637.

35. Sushil Ahlawat, Mohammad Khabirudin, **Rajvir Singh** and Kuldeep Singh Dhindsa Phytochemical investigation and Antimicrobial Activity of Rootbark of Kigelia pinnata DC. (2006). *Chimica Acta Turcica*. **34** (1), 21-26.

36. Chopra Indu Walia R,K. **Singh Rajvir** (2006) Synthesis and Nematicidal Activity of Some Substituted Isoxazoles against Root Knot Nematode (*Meloidogyne Javanica).* Pesticides Research Journal. Vol.**18** (2): 124-128.

37. Meera, Bimla, **Rajvir Singh** , S B. Kalidhar. (2006). Indica Flavone from *Derris indica* stems*. J. Med.and Arom. Plant Sci.* **28**, 50-51.

38. Rajesh Kumar Chawla, **Rajvir Singh** and SB Kalidhar. (2008). Phytochemical study and antifungal effects of extracts from Eclipta alba (L.) on phytopathogenic fungi. *J. Med. Arom. Plant Sciences*. **30**, 73-76.

39. Nikhil Singh, **Rajvir Singh,** M. S. Malik & Ram Singh (2008) Synthesis and insecticidal activity of 2-[4-{4,5-dihydro-5-(substitrutedphenyl)-1H- pyrazol-3-yl}phenoxy] acetic acid hydrazides and related compounds. *Pesticide Research Journal*. **Vol.20 (2**): 183-88.

40. Vedwati, Meera, Rajvir Singh & S. B. Kalidhar (2011). Chemical components and antimicrobial activity of Citrus sinensis variety jaffa. *Haryana Agricultural University Journal of Research* (Accepted)

41. Rajesh Kumar Chawla & Rajvir Singh (2011). New compounds from the roots of *Ageratum conyzoides* and effect of root extract on the growth of radish seeds. *J. Med. & Arom. Plant Scie.* (Accepted).