

**BIO-DATA****Dr. Devendra Kumar Patel**Present position -**Associate Professor and Head,****Department of Botany**

Guru Ghasidas Vishwavidyalaya, (A Central University),

Bilaspur (Chhattisgarh) – 495009, India.



[S/o - Shri Shobharam Patel,

At – Po -:Salhe, Via -: Chandrapur,

Distt. -: Janjgir – Champa (Chhattisgarh.),

Pin - 495692. **Mobile No.: - 09993660173.,**e- mail -: [dplantscience@yahoo.co.in](mailto:dplantscience@yahoo.co.in)**1. PERSONAL INFORMATION:**

- **Name** : **Dr. DEVENDRA KUMAR PATEL**
- **Father's Name:** Shri Shobharam Patel
- **Date of Birth** :10<sup>th</sup> Oct. 1978
- **Sex** : Male
- **Marital Status** : Married
- **Domicile** : Chhattisgarh
- **Category** : **OBC**
- **Nationality** : Indian

**2. EDUCATIONAL QUALIFICATION:**

S. No.	Examination	Year	Board/ University	Subject	Division	Result %
1.	H.S.C. (10 <sup>th</sup> )	1994	M. P. Board, Bhopal	Science, Mathematics, Hindi, English, Sanskrit, Social- Science.	I	70.46
2.	H.S.S.C. (12 <sup>th</sup> )	1996	M. P. Board, Bhopal	Biology, Chem., Physics, Hindi, English.	I	65.33
3.	B.Sc. (Bio. - CBZ)	1999	G. G. University, Bilaspur (C.G.)	Botany, Zoology, Chemistry, F. Course.	I	65.55
4.	M.Sc. (Pre.) Botany	2000	G. G. University, Bilaspur (C.G.)	Algae + Bryophyta, Fungi + Plant Pathology, Pteridophyta + Gymno., Angiosperm	I	71.00
5.	M.Sc.- Botany (Aggregate)	2001	G. G. University, Bilaspur (C.G.)	Cytology + Genetics, Plant - Physiology + Biochemistry, Environmental Biology & Forest Ecology	I	69.58
6.	NET	2004.	<i>National Eligibility Test (NET) Qualified,</i>			
7.	Ph. D. Botany	-	"Study on Nutrient Removal Potential of Some Aquatic plants from Domestic wastewater." Pt. Ravishankar Shukla University, Raipur - 2007.			

**3. DISTINCTION:**

(In K.G. Arts and Science College Raigarh (C. G.).

- Academic position held: Secretary, Botanical Society - 2000 and  
: President, Botanical Society - 2001.
- **Gold Medal Awarded for securing first position** in merit list of **M. Sc. Botany - 2001.**
- N. S. S. “**B**” Certificate.

**4. HONOUR:**

- Honoured by Marwadi Yuva Manch Raigarh (C.G.) for distinction in PG.  
**(Placed 1<sup>st</sup> in order of Merit in M. Sc. - Botany).**
- Honored by K. G. Arts and Science College, Raigarh for first position in Merit.

**5. FELLOWSHIP:**

- Selected as JRF (**Project Fellow**) in C. COST sponsored project for 2003 - 05.
- Selected for Pt. Ravishankar Shukla University Research Fellowship in 2003.

**6. SELECTION:**

- Selected as an Assistant Professor on Contract basis in the Department of BOTANY by Higher Education Department of C. G. Govt. in different Govt. Colleges continuously for four times, (Session 2005-06, 2006-07, 2007-08, 2008-09) and -
- Selected as an Assistant Professor in BOTANY by Chhattisgarh PSC (Public Service Commission) – Raipur (C. G.) in year 2012.
- Assistant Professor (Adhoc) in Rural Technology Department at Guru Ghasidas Vishwavidyalaya, (A Central University), Bilaspur (Chhattisgarh) in Academic session 2009-10, 2010 -11 and 2011- 12 and from 31-03-2012 Posted in Regular basis Assistant Professor.
- Currently working as **Associate Professor in Department of Botany** at Guru Ghasidas Vishwavidyalaya, (A Central University), Bilaspur (Chhattisgarh), India.
- NET Qualified- 2004.

**7. PRESENT POSITION:**

Associate Professor, Department of Botany,  
Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (Chhattisgarh) – India.

**8. A. FIELD OF INTEREST:** -Plant Ecology,

- Diversity/Conservation of the Plants, Ethnobotany

- Current Research Activity –
  - 1) Conservation of Medicinal and Aromatic Plants (MAPs).
  - 2) Multiplication / *Plant Propagation* /Conservation of RET/Important Medicinal Plants,
  - 3) Seed Collection of various Medicinal plants.
  - 4) Diversity Study of the Plants,

**B – Research Supervised/Ph. D. Awarded – 01, Registered – 03**

## **9. TAUGHT SUBJECTS/PAPERS –**

1. Lower Plants
2. Economic Botany
3. Morphology and Anatomy of Phanerogames
4. Fundamentals of Medicinal Plants
5. Plant Taxonomy
6. Plant Anatomy
7. Reproductive Biology of Angiosperm
8. Diversity and Biology of Gymnosperm and Anatomy of Angiosperm
9. Archegoniates
10. Floral Morphology and Embryology of Angiosperms
11. Archegoniates : Bryophyta, Pteridophyta and Gymnosperm

## **10.TEACHING EXPERIENCE–**

15 Year09Monthsand 12 Days - AS ON 02 January 2023

- *02 years as a Research Project fellow (September 2003- October 2005) in Chhattisgarh Council of Science and Technology Research project.*

**11. BOOKS PUBLISHED: INTERNATIONAL**

<b>S. No.</b>	<b>Book Name</b>	<b>PUBLISHER</b>	<b>PLACE OF PUBLICATION</b>	<b>ISBN NO-</b>
1.	Medicinal and Aromatic Plants : Diversity and Vegetation Propagation	OMICS Group	USA	978-1-63278-039-3-040
2.	A Digital Herbarium Book - I on Medicinal and Aromatic Plants	OMICS Group	USA	978-1-63278-039-3
3.	Glimpse of Floral Diversity	Lap Lambert, Academic Publishing, Germany	Germany	978-3-659-85233-6
4.	A Digital Seed Bank - I	Lap Lambert, Academic Publishing, Germany	Germany	978-3-659-75194-3
5.	Herbal Garden: For Ex-situ conservation of Medicinal and Aromatic Plants	Lap Lambert, Academic Publishing, Germany	Germany	978-3-659-76467-7
6.	Digital Herbarium Book - II on Medicinal and Aromatic Plants	Lap Lambert, Academic Publishing, Germany	Germany	978-3-659-81019-0
7.	Repository of Medicinal and Aromatic Plants	Lap Lambert, Academic Publishing, Germany	Germany	978-3-659-86673-9
8.	Digital Book on Flowering Plants	Lap Lambert, Academic Publishing, Germany	Germany	978-3-659-67561-4
9.	Compendium of Medicinal and Aromatic Plants	Scholars Press, Omni Scriptum GmbH & Co. KG	GERMANY	978-3-659-84395-2

**NATIONAL - 2**

<b>S. No.</b>	<b>Book Name</b>	<b>PUBLISHER</b>	<b>PLACE OF PUBLICATION</b>	<b>ISBN NO-</b>
1.	Medicinal and Aromatic Plants: Diversity and Uses in Chhattisgarh	Akinic Publication,	New Delhi	978-93-5335-645-3
2.	Plant and Plantation in Central India	Akinic Publication,	New Delhi	978-93-5335-633-0

## 12. DISSERTATIONIN PG GUIDED/COMPLETED- 20

S. No.	Student Name	Year	Title
1.	Durgesh Prasad	2015	Biopesticides: Role in vegetable crops protection
2.	Ankita Shriwas	2017	Exotic weeds and their Management in Guru Ghasidas Vishwavidyalaya (A Central University) campus, Bilaspur (C.G)
3.	Neetu Diwan	2017	Eucklyptus : Cultivation and Management
4.	Aakansha Jaiswal	2017	Biodiversity and needs for conservation
5.	Sandhya Sahu	2018	Phenology, propagation and Medicinal values of a Medicinal plant <i>Operculariaturpethum</i>
6.	Harshita Singh	2018	Phenology, propagation and Medicinal values of a Medicinal plant <i>Andrographis paniculata</i>
7.	Ishwar Prasad	2020	Study of Ethnomedicinal plants used by Tribble people of Bar gram area of Barnawapara Wildlife Sanctuary, Blodabazar (C. G.)
8.	Bhawana Rajesh	2020	Phytoremediation of Thermal wastewater using hydrophytes (Water hyacinth and <i>Salvinia</i> )
9.	PushpanjaliRathia	2020	Phytoremediation of heavy metals with aquatic plants <i>Pistia</i> and <i>Hydrilla</i>
10.	Nitesh Chouhan	2020	A review on <i>Plumbago zeylanica</i>
11.	RinkiPadhan	2021	A review on Medicinal plants <i>Ocimum sanctum</i> and <i>Emblica officinalis</i>
12.	Tripti Chatterjee	2021	A review on <i>Rauwolfia serpentina</i> and <i>Dioscoriaalata</i>
13.	Pragati Verma	2021	A review on <i>Aloe vera</i> and Fenugreek
14.	Vedshruti Nayak	2021	A review on <i>Tinospora cordifolia</i> and <i>Terminalia arjuna</i>
15.	Poonam Walive	2021	A review on Medicinal plant <i>Asparagus racemosus</i> and <i>Acorus calamus</i>
16.	Chandan Kumar	2022	Studies of Invasive Plants in India: A Review

	Saha		
17.	Bhumi Bharti Paikra	2022	A Survey on use of Ethnomedicinal plants by Tribes of Kansabel for Treatment of Diseases in Kansabel, Jashpur, Chhattisgarh
18.	Neha Sheikh	2022	Use of Medicinal Plants for COVID – 19 Prevention and Treatment during the Pandemic: A cross sectional Survey
19.	Truptimayee Jhagara	2022	A Review on <i>Tridax procumbens</i> Linn and <i>Euphorbia hirta</i> Linn.
20.	Himanshu Tandia	2022	Medicinal Plants used by tribes of Chhattisgarh, District Pendra - Road

## 12. Ph. D. AWARDED – 01

S. No.	Ph. D. Awardee	Title	Registration No	Roll No.	Award Date/Year
1.	Durgesh Dixena	Ph. D.- Ethnobotany- (Ethnobotanical Studies of Medicinal Plants in The Region of Tribes, Kota, Chhattisgarh)	1551435001	15921001	16-03-2021

## Ph. D. Students Registered- 03

S. No.	Scholar Name	Ph. D. Topic	Registration No.	Date
1.	Ramkumar Rajwade	Studies on Orchid Flora of Surguja district, Chhattisgarh, India	215103510	29-12-2022
2.	Satruhan	Studies on Ethnomedicinal Plants among the Tribes in Bodla Block, Kabirdham district, Chhattisgarh, India	215103511	29-12-2022
3.	Gayatri Devi Biswal	Role of Osmolyte (Glycine Betaine) on <i>Vinga radiate</i> (L.) and <i>Vingamungo</i> (L.) under potential toxic heavy metals (PTHMs)	215103609	29-12-2022

#### 14. ATTENDED ORIENTATION / REFRESHER COURSES –

S. No.	Title of Training	Organizer	Duration
1.	4 <sup>th</sup> Orientation Programme, 2012.	Academic Staff College (ASC), G. G. V. Bilaspur (C. G.)	26 - 11 - 2012 To 22 - 12 - 2012
2.	<b>Refresher Course</b> - Methodology in Social Sciences and Pure and Applied Sciences (Interdisciplinary).	UGC-HRDC, Bilaspur (C. G.)	GGV- 18 November to 09 December 2015
3.	<b>Refresher Course</b> - Synthetic and Natural products: Chemical and Medicinal Aspects	UGC-HRDC, Bilaspur (C. G.)	GGV- 11 June 2018 to 02 July 2018
4.	<b>Refresher Course</b> – Environmental practices for sustainable Development.	UGC-HRDC, Bilaspur (C. G.)	GGV- 24 June 2019 to 06 July 2019

#### 15. INVITED TALK/RESOURCE PERSON

	Title of the Invited Lecture delivered/Paper presented	Details of Conference Seminar/ FDP and Organizing Institution	Category	Date
1.	Science for Nation Building	Govt. Rajmata Vijayaraje Sindhya Girls College, Kawardha (C. G.)	University Level	03 March, 2015
2.	Vermicompost Production Technique	Skill Development Cell and Rural Technology Department, GGV Bilaspur (C.G.)	University Level	7-9 March, 2016
3.	Importance of Medicinal Plants	National Service Scheme, GGV Bilaspur (C.G.)	University Level	10 March, 2016
4.	Medicinal plants Uses and need for Conservation	Govt. J.M. P. College Takhatpur (C. G.)	University Level	13- September, 2020

**16. EDITORIAL NOTES –**

S. No.	Journals	Editorial notes Title	ISSN:
1.	Agrotechnology	Cultivation Technique of the plants	ISSN: 2168-9881
2.	Journal of Biodiversity and Endangered species	Biodiversity and its loss	ISSN: 2332-2543
3.	Journal of Biodiversity and Endangered species	Biodiversity and its importance	ISSN: 2332-2543
4.	Journal of Medicinal and Aromatic Plants	Plants as a Source of Medicine	ISSN: 2167-0412

**17.MEMBERSHIPS****I. INTERNATIONAL MEMBER - 01**S. *Society*

No.

<input type="checkbox"/>	Commission member of IUCN (International Union for Conservation of Nature and Natural Resources) – SSC (Species Survival Commission) - Medicinal Plants Specialist Group (MPSG).
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**II. LIFE MEMBER – NATIONAL - 05**

S. No.	Society
1.	(MAPAI) Medicinal and Aromatic Plants Association of India, Anand – (Gujarat)
2.	(IAAT) Indian Association for Angiosperm Taxonomy, Calicut – (Calicut),
3.	(ISCA) Indian Science Congress Association, - Kolkata – (West Bengal)
4.	(SPTB) Society for Promotion of Tropical Biodiversity – Jabalpur (M. P.)
5.	(IBS) Indian Botanical Society-2014

**III. ANNUAL MEMBER.**

- 1. Subject Expert - BOS- Alumnae of P. G. Level, - For Preparation and Approval of Syllabus of Botany UG and PG level. (K. G. Arts and Science College, Raigarh (C.G.),**
- Subject Expert - BOS- School of Botany, Gadadhar Mehar University, Amruta Vihar, Sambalpur (Odisha)- 02-09-2021



## 18. RESPONSIBILITIES/MEMBERS OF DIFFERENT COMMITTEE IN GGV – BILASPUR (C. G.)

S. No.	Name of Committee/s in GGV Bilaspur (C.G.)
1.	Unnat Bharat Abhiyan (UBA)
2.	Roster committee for Teaching and Non-Teaching Posts
3.	First School Board of Studies (BOS)-Natural Resources
4.	NSS Programme officer Natural Resource unit- G.G.V.-Bilaspur, (C. G.).
5.	Garden Development Committee - G.G.V. - Bilaspur, (C. G.).
6.	Facilitation centre Committee - G.G.V. - Bilaspur, (C. G.).
7.	Anti-ragging committee - G.G.V. - Bilaspur, (C. G.).
8.	Horticulture Development Committee- G.G.V. - Bilaspur, (C. G.).
9.	Wood Management committee- G.G.V. - Bilaspur, (C. G.).
10.	Member of ACADEMIC COUNCIL, GGV, Bilaspur (C. G.)- (Ex.)
11.	Academic council Standing committee (Ex.)-
12.	Member of “One Student One Tree” Programme at G.G.V. - Bilaspur, (C. G.). as per instruction of UGC-New Delhi
13.	Member of Editorial Board for Preparation of Annual Report of G. G. V. – Bilaspur (C. G.) in 2008 -2009 and 2009 – 2010
14.	Scrutiny committee member of different Departments

## 19. TEACHER IN CHARGE

- Scholarship
- Attendance
- Mentor

### ❖ SPORTS IN CHARGE

- 2014 and 2018

### ❖ NAAC RELATED RESPONSIBILITY

- Assisted in Criterion – VII

- ❖ **INTERNATIONAL CONFERENCE** - Transport committee- - Bharat Rejuvenation, GGV Bilaspur (C. G.)

## 20. EXAMINATION - GGV BILASPUR (C. G.)

University Examination-

### A. ASSISTANT CENTRE SUPERINTENDENT IN GGV BILASPUR (C. G.)

- Assistant Centre Superintendent –VRET- GGV- 07-05-2015
- Assistant Centre Superintendent – Semester Exam. GGV- 27-04-2016
- Assistant Centre Superintendent – Semester Exam. GGV- 25-04-2017
- Assistant Centre Superintendent – Semester Exam. GGV- 19- 05 - 2018

### B. EXTERNAL EXAMINER/OBSERVER – OUTSIDE OF GGV BILASPUR (C. G.)

- VET (Vishwavidyalaya Entrance Exam) – Observer – Ambikapur – 2017
- VET (Vishwavidyalaya Entrance Exam) – Observer – Kolkata – 2019
- Practical examination – PG- Raigarh (C. G.)
- Practical examination – PG- Baster University Jagdalpur (C. G.)
- Evaluation of VET /VRET exam-2014

### C. CENTRESUPERINTENDENT IN GGV BILASPUR (C. G.)

- Centre Superintendent (Forestry and Rural Technology Building) – Semester Exam. GGV- 2022

## 21. DUTIES IN CONVOCATION: GGV BILASPUR (C. G.)

S. No.	Year	Duty
1.	2010	Documentation of matters related to Convocation
2.	2011	Invitation and matter Publication Related Duty
3.	2012	Invitation and matter Publication Related Duty
4.	2013	Invitation and matter Publication Related Duty
5.	2017	Decoration in Campus GGV
6.	2018	Decoration in Campus GGV

## 22. DUTIES IN STUDENT COUNCIL ELECTION GGV BILASPUR (C. G.)

S. No.	Year	Duty
1.	2012	Polling Officer - 1
2.	2014	Polling Officer - 2
3.	2015	Counting Officer -2
4.	2018	Polling Officer/Presiding Officer - 1

## 23. RESEARCH PAPERS: PUBLISHED -

S. No.	Paper	Year	ISSN No.	UGC-Approved/Peer reviewed	UGC - Journal list No.
1.	<b>DK Patel</b> , Kanungo, V. K., and Verma, J. N. Domestic wastewater Treatment by using a water chestnut ( <i>Trapa bispinosa</i> ). <i>Journal of Aquatic Biology</i> , 20 (2), 211 – 215	2005	ISSN – 0971-4235	Yes	18379
2.	Kanungo, V. K., Verma, J. N. <b>and DK Patel</b> Cyanobacteria of a Temple tank at Raipur (C.G.). <i>Indian Journal of Environment and Ecoplanning</i> , 10 (3): 743-745	2005	ISSN – 0972-1215	-	-
3.	Kamlesh Shriwas, Kavita Agarwal and <b>DK Patel</b> 2005.A Spectrophotometric determination of Ascorbic Acid.52: 503-506	2005	0009 – 4536	Yes	-
4.	<b>DK Patel</b> . VK Kanungo. Phytoremediation of domestic wastewater by using a free-floating aquatic plant <i>Pistiastratiotes L.</i> <i>Nature, Environment and Pollution Technology</i> 5 (1), 101-106	2006	ISSN- 0972 – 6268	Yes	25576
5.	VK Kanungo, JN Verma, <b>DK Patel</b> . Physico-Chemical Characteristics of Doodhadahri pond of Raipur, Chhattisgarh <i>Ecology Environment and Conservation</i> , 12 (2), 207	2006	ISSN – 097176 5X	Yes	1495
6.	VK Kanungo, JN Verma, <b>DK Patel</b> Seasonal abundance of Cyanobacteria in a pond of Raipur city. <i>Journal of Ecobiology</i> , 20(4):376-379	2007	ISSN – 0970-9037	-	-
7.	<b>DK Patel</b> and VK Kanungo. Phytoremediation Potential of Duckweed ( <i>Lemna minor L.</i> : A Tiny Aquatic Plant) in the Removal of Pollutants From Domestic Wastewater with special reference to Nutrients, <i>Bioscan</i> 5 (3), 355-358	2010	ISSN- 0973 – 7049	Yes	1963

8.	<b>DK Patel</b> and Kanungo, V. K. Ecological efficiency of <i>Ceratophyllum demersum</i> L. in phytoremediation of nutrients from domestic wastewater, <i>The Ecoscan (Int. Journal)</i> 4 (4), 257 – 262.	2010	ISSN-0974-0376	-	Yes	7630
9.	<b>DK Patel</b> . Medicinal plants IN GGV campus, bilaspur, Chhattisgarh in central India, <i>International Journal of Medicinal and Aromatic Plants</i> 2 (2), 293-300	2012	ISSN-2249-4340	-	Yes	7884
10.	<b>DK Patel</b> . and Kanungo, V. K. Eco – Environmental Study on Nutrient Removal Potential of <i>Eichhornia Crassipes</i> from Domestic Wastewater, <i>Paripex – Indian Journal of Research</i> 1 (5), 251 – 253	2012	ISSN-2250-1991	-	-	-
11.	<b>DK Patel</b> and R Mehta. diversity of aquatic plants in some ponds of ratanpur, distt. bilaspur, (chhattisgarh) in central india, <i>Flora and Fauna (Jhansi)</i> 18 (2), 191-200	2012	ISSN-0971-6920	-	Yes	12449
12.	<b>DK Patel</b> . Study on medicinal plants with special reference to family Asteraceae, Fabaceae and Solanaceae in GGV-Campus, Bilaspur (CG) in central India. <i>Current Botany</i> 3 (4)	2012	ISSN-2220-4822	-	Yes	5696
13.	<b>DK Patel</b> . Study on multiplication of some important medicinal plants in GGV Bilaspur, CG, India. <i>Current Botany</i> 3 (4)	2012	ISSN-2220-4822	-	Yes	5696
14.	<b>DK Patel</b> . Medicinal plants used for diabetes and for dental problem in central part of Chhattisgarh, India. <i>Journal of Phytology</i> 4 (3)	2012	ISSN-2075-6240	-	Yes	28471
15.	<b>DK Patel</b> and VK Kanungo. Study on growth, potential utility and NPP of a submerged aquatic plant <i>Hydrilla verticillata</i> Casp. <i>Journal of Experimental Sciences</i> 3 (5)	2012	ISSN-2218-1768.	-	Yes	7546
16.	MK Sinha, <b>DK Patel</b> and VK Kanungo. Medicinal plants used as antidotes in northern part of Bastar district of Chhattisgarh. <i>Journal of Ecobiotechnology</i> 4 (1)	2012	ISSN-2077-0464.	-	Yes	7533
17.	<b>DK Patel</b> . Vegetation structure and composition in Guru Ghasidas Vishwavidyalaya in Central India. <i>International Journal of Biodiversity and Conservation</i> 4 (15), 621-632	2012	ISSN-2141-243X.	-	Yes	5775
18.	<b>DK Patel</b> and VK Kanungo - Comparative eco-physiological potential of a submerged and a free floating aquatic plant to treat domestic wastewater. <i>Journal of Ecobiotechnology</i> 4 (1)	2013	ISSN-2077-0464.	-	Yes	7533
19.	<b>DK Patel</b> and VK Kanungo Treatment of domestic wastewater by potential application of a	2013	ISSN-2076-	-	Yes	7610

	submerged aquatic plant Hydrilla verticillataCasp. Recent Research in Science and Technology 4 (10) : 56-61		5061		
20.	<b>DK Patel.</b> Colocasia esculanta Linn: Cultivation in Dabhara block in Janjgir–Champa district, Chhattisgarh in central India. Journal of Phytology 4 (5)	2013	ISSN – 2075 – 6240	Yes	28471
21.	<b>DK Patel.</b> Morphological study of an endangered medicinal plant <i>Curculigoorchioides</i> , Journal of Pharmacognosy and Phytochemistry Gaerth, Vol. 1 No. 1, 6-10	2012	ISSN:22 78- 4136	Yes	5923
22.	<b>DK Patel.</b> <i>Citrullus colocynthis</i> L.: An Important Medicinal Plant and Their Life Pattern, THE PHARMA INNOVATION, Vol. 1 No. 5, 48 – 52	2012	ISSN: 227776 95	Yes	7693
23.	<b>DK Patel.</b> Some Ornamental plants and their Propagation. Indian Journal of Applied Research. 3 (4), 428 – 430	2013	ISSN – 2249 – 555X.	Yes	8339
24.	<b>DK Patel.</b> <i>Impatiens balsamina</i> L. : An Annual Herbaceous Ornamental as well as a beautiful Flower Producing Plant, European Journal of Biotechnology and Bioscience, 1 (1): 43-50	2013	ISSN: - 2321- 9122	Yes	1712
25.	<b>DK Patel.</b> <i>Trichosanthes cucumerina</i> L.-: Life Pattern and Morphological Variations, Journal of Medicinal Plants Studies, 1 (1) 1-5.	2013	ISSN 2320- 3862	Yes	8162
26.	Patel D. K. Observations On Variation In <i>Typhonium Flagelliforme</i> Blume, 1 (1) : 3-7	2013.	-	-	-
27.	<b>DK Patel.</b> Phyto-diversity Study with Special Reference to Herbaceous Medicinal Plants J Biodivers Endanger Species, ISSN:2332-2543 JBES 2 (2)	2014	ISSN: 23322 543	Yes	28324
28.	<b>DK Patel.</b> Some Traditional Medicinal Plants Useful for Boil, Burn and for Wounds Healing Biodiversity & Endangered Species 2 (4), 1-4,	2014	ISSN: 23322 543	Yes	28324
29.	<b>DK Patel.</b> Diversity of Climber and Creeper Medicinal and Aromatic Plants with Special Reference to Their Regeneration in Herbal Garden for Ex-situ Conservation Int. J. Curr. Res. Biosci. Plant Biol. 2014, 1(4): 67-73 1 (4), 67-73	2014	ISSN: 2349- 8072	Yes	7743
30.	<b>DK Patel.</b> Weed Flora and their Management in Herbal Garden. International Journal of Advanced Research in Biological Sciences. 1(8): (2014): 229-233 1 (8), 229-233	2014	ISSN - 23480- 8069	No	-
31.	<b>DK Patel.</b> Some Medicinal and Aromatic Shrubs introduced in Herbal Garden for their Propagation and Ex-situ Conservation.	2014	ISSN 2320- 3862	Yes	8162

	Journal of Medicinal Plants Studies 2014; 2(6): 9-12	2 (6), 9-12			
32.	<b>DK Patel.</b> Herbaceous medicinal & aromatic plants diversity and introduction in herbal garden for ex-situ conservation.International Journal of Herbal Medicine 2 (3), 17-20	2014	ISSN: 23940514	Yes	8473
33.	<b>DK Patel.</b> Vegetative propagation using Stem cutting and Morphology of <i>Angelonia angustifolia</i> Humb&Bonpl. International Journal of Applied Research 2014; 1(1): 6-8	2014	ISSN - 2394-7500	Yes	8349
34.	<b>DK Patel.</b> Morphology and Vegetative propagation of <i>Boerhaaviadiffusa</i> Linn, International Journal of Mul tidisciplinary Research and Development 2014; 1(1): 1-3	2014	ISSN - 2349-5979	Yes	5572
35.	<b>DK Patel.</b> Introduction of Some Tree Species of Medicinal and Aromatic Pants (MAPs) in Herbal Garden for Their Ex-situ Conservation, Universal Journal of Plant Science 3 (1), 9 -12	2015	ISSN: 2332-3450	Yes	3020
36.	<b>DK Patel.</b> Diversity of Underground Medicinal and Aromatic Plants and their Regeneration for Further Ex situ Conservation in Herbal Garden. Biodiversity & Endangered Species 3 (1), 1-3	2015	ISSN: 23322543	Yes	28324
37.	<b>DK Patel.</b> <i>Curcuma longa</i> Linn. Cultivation: The process for its Medicinal use and Conservation. Pharma innovation 4 (1), 99 - 101	2015	ISSN: 22777695	Yes	7693
38.	<b>DK Patel.</b> Some Herbal Plants Introduction In Herbal Garden For their Multiplication And For Ex-Situ Conservation,Life Sciences Leaflets 60, 18 - 25	2015	-	-	-
39.	<b>DK Patel.</b> Aromatic plants diversity showing their propagation by seeds for ex-situ conservation in herbal garden,Journal of Pharmacognosy and Phytochemistry 3 (5), 152 - 156	2015	ISSN:2278-4136	Yes	5923
40.	<b>DK Patel.</b> Study on multiplication of <i>Plumbago zeylanica</i> L. using stem cutting in herbal garden Journal of Medicinal Plants Studies 3 (6), 89-92	2015	ISSN 2320-3862	Yes	8162
41.	<b>DK Patel.</b> Growth pattern study on <i>Centella asiatica</i> (L.) Urban in herbal garden, International Journal of Herbal Medicine 3 (5), 9 -12	2015	ISSN: 23940514	Yes	8473
42.	<b>DK Patel.</b> Stem cutting propagation for ex-situ conservation of <i>Stevia rebaudiana</i> (Bertoni) Bertoni in herbal gardenEuropean Journal of Biotechnology and Bioscience 3 (9), 35-42	2015	ISSN: - 2321-9122	Yes	1712
43.	<b>DK Patel.</b> Regeneration of <i>Bacopa monnieri</i> (L.) Pennell in Herbal garden Journal of Medicinal Plants Studies 3 (6), 12-15	2015	ISSN 2320-3862	Yes	8162
44.	<b>DK Patel.</b> <i>Adhatodavasica</i> Linn: Performance of stem cutting in rapid vegetative propagation in	2016	ISSN: 2455-	Yes	7840

	herbal garden International Journal of Biology Research 1 (1), 40-46		6548		
45.	<b>DK Patel.</b> Rapid vegetative propagation of Piper betle Linn. using stem cutting in Herbal Garden, International Journal of Botany Studies 1 (1), 34-36	2016	ISSN: 2455-541X	Yes	7847
46.	<b>DK Patel.</b> <i>Tinospora cordifolia</i> (Willd.) Miers ex Hook. F and Thoms: An important medicinal, climber plant and its multiplication in Herbal Garden for ex-situ conservation, International Journal of Botany Studies 1 (2), 24-31	2016	ISSN: 2455-541X	Yes	7847
47.	<b>DK Patel.</b> Shoot propagation of <i>Paederia foetida</i> Linn in herbal garden for Ex-situ conservation, European Journal of Biotechnology and Bioscience 4 (1), 1-7	2016	ISSN: 2321	Yes	1712
48.	<b>DK Patel.</b> Vegetative Propagation of <i>Coleus forskohlii</i> (Wild) Briq using their Stem Cutting for Ex-situ Conservation in Herbal Garden, Medicinal and Aromatic Plants 5 (4), 1 – 3	2016	ISSN: 2167-0412	Yes	7599
49.	<b>DK Patel.</b> <i>Piper longum</i> Linn. : Application of Stem cutting for rapid vegetative propagation in herbal garden. International Journal of Pharmaceutical Science and Research 1 (2), 15-20	2016	-	-	-
50.	<b>DK Patel.</b> <i>Vegetative propagation study on Lippia javanica</i> Burm F Spreng in Herbal Garden, International Journal of Multidisciplinary Research and Development 3 (1), 64-68	2016	ISSN - 2349-5979	Yes	5572
51.	<b>DK Patel.</b> <i>Vitex negundo</i> Linn: Stem cutting propagation in Herbal Garden, International Journal of Applied Research 2 (1), 01-05	2016	ISSN - 2249 - 555X.	Yes	8339
52.	<b>DK Patel.</b> <i>Crinum asiaticum</i> Linn: A Medicinal Herb as Well as Ornamental Plant in Central India. Int J Environ Sci Nat Res. 6 (1), 1-7	2017	ISSN - 2572-1119	-	-
53.	<b>DK Patel.</b> <i>Paederia Foetida</i> Linn.: A Potential Climbing Medicinal Herb in Central India. Int J Environ Sci Nat Res 6 (5), 1-7	2017.	ISSN - 2572-1119	-	-
54.	<b>DK Patel.</b> Morphology and medicinal values of a wildy grown medicinal and aromatic herb <i>Hyptissuaveolens</i> (L.) Poit. International Journal of Botany Studies 2 (6), 241-246	2017.	ISSN - 2455-541X	-	-
55.	<b>DK Patel.</b> Study on 100 medicinal and aromatic plants (MAPs) with special references to their vegetative propagation and for ex-situ conservation in herbal garden. International Journal of Academic Research and Development 2 (5), 112-117	2017.	ISSN - 2455-4197	-	-
56.	<b>DK Patel.</b> Stem cutting propagation of <i>Helicteres isora</i> Linn. in herbal garden. 96	2017.	ISSN - 2455-	-	-

	International Journal of Advanced Research and Development 2 (5), 96-99		4030		
57.	<b>DK Patel.</b> Mass vegetative propagation of an aromatic medicinal plant <i>Melissa officinalis</i> Linn for Exsitu conservation in Herbal Garden. Journal of Medicinal Plants Studies 6 (1), 6-10	2018.	ISSN – 2320-3862	-	-
58.	<b>DK Patel.</b> <i>Diplocyclospalmatus</i> (L.) Jeffry: Morphological variations and medicinal values. Journal of Medicinal Plants Studies 6 (1), 3-5	2018.	ISSN – 2320-3862	-	-
59.	Durgesh Dixena and <b>DK Patel.</b> Socio-economic study of tribal residing in Kota block of Bilaspur district, C. G, India, International Journal of Applied Research. 5(9) : 345-349	2019	ISSN - 2394-5869	Yes	8349
60.	Durgesh Dixena and <b>DK Patel</b> Morphology and Medicinal values of <i>Cardiospermum halicacabum</i> , Flora and Fauna, (25)2: 167-176	2019	ISSN - 0971 - 6920	Yes	12449
61.	Durgesh Dixena and <b>DK Patel</b> Plants as a source of Medicine among the Tribes residing in Kota block of Bilaspur District (C.G.) India, Flora and Fauna, (25)2: 195-203	2019	ISSN - 0971 - 6920	Yes	12449
62.	Durgesh Dixena and <b>DK Patel</b> Medicinal plants used for Dental problem and for Anti-diabetic purpose by the tribes in Kota block, Bilaspur (C. G.), J. of Pharmacogn. and Phytochem.9(5) : 615-620	2020	ISSN - 2278-4136	Yes	5923
63.	Durgesh Dixena and <b>DK Patel</b> Herbaceous climber medicinal plants recorded from Kota, Bilaspur, Chhattisgarh in India, The Pharma Innovation, 9(8): 298-301	2020	ISSN - 2277-7695	Yes	7693
64.	Durgesh Dixena and <b>DK Patel</b> Some efficient medicinal plants used for joint pain purpose by the tribes in Kota block, Bilaspur, International Journal of Botany Studies, 6(3): 977-980	2021	ISSN - 2455-541X	Yes	7847
65.	Durgesh Dixena and <b>DK Patel</b> Ethnobotanical knowledge of medicinal plants among tribal communities in Kota block of Bilaspur district, C. G. with special ref. to cut and wounds, International Journal of Botany Studies, 6(4): 993-1003	2021	ISSN - 2455-541X	Yes	7847
66.	AK Patel and DK Patel Medicinal trees diversity in tribal village KewaliKataud, tehsil Kharsia, district Raigarh (C.G.) in central India, Journal of Medicinal Plants Studies, 9(6): 53-59	2021	ISSN - 2320-3862	Yes	8162 Yes
67.	Satruhan and DK Patel. A Review on <i>Tinospora cordifolia</i> : Biological and Medicinal Properties, Journal of Pharmaceutical Negative Results, 13(7): 3929-3939	2022	ISSN - 2229-7723	Yes	-
68.	Satruhan, Ramkumar Rajwade and DK Patel. A Review on Plant Diversity effective for controlling mosquito populations, International	2022	ISSN - 2348-5906	Yes	-



	Journal of Mosquito Research, 9(6):163-167				
69.	Satruhan and DK Patel. A review on medicinal properties of turmeric ( <i>Curcuma Longa</i> L.), International Journal of Pharmacognosy and Pharmaceutical Sciences, 4(2): 49-53	2022	ISSN 2348-5906	Yes	-
70.	Satruhan and DK Patel. A review on phytochemicals composition and medicinal properties of <i>Aloe vera</i> Plant, International Journal of Pharmacognosy and Life Sciences, 3(1): 50-55	2022	ISSN 2348-5906	Yes	-

## 24. RESEARCH PAPER PRESENTATION IN SEMINARS/ CONFERENCES etc.

### i. International Level

S. No.	Title of the Paper presented	Details of Conference / Seminar	Organizing Institution	Category	Paper Presentation date
1.	Study on utilization of duckweed ( <i>Lemna minor</i> ) for the removal of nutrients from domestic wastewater.	International Symposium on Microbial diversity: Challenges, Opportunities and Relevance in new millennium,	Deptt. of Biological Sciences, Rani Durgavati University, Jabalpur, (M.P.)	International (Within Country)	19 - 21, Nov. 2004
2.	Treatment of domestic wastewater by an aquatic plant <i>Trapa bispinosa</i> Roxb.	International Conference on Modern trends in Plant Sciences with special reference to the role of biodiversity in conservation	Deptt. of Botany, Amravati University, Amravati (M.H.)	International (Within Country)	17 - 20 Feb. 2005
3.	Management of domestic wastewater by using Phyto-remediation Technique.	International conference on Land use change, Biodiversity and Sustainable resource management,	Deptt. Of Geography, C.M.D. College, Bilaspur (C.G.)	International (Within Country)	07 - 09 Oct. 2009
4.	Importance of Medicinal plants	International conference on Bharat Rejuvenation	GGV-Bilaspur (C. G.)	International (Within Country)	15 - 17 October. 2017
5.	Herbal Garden	International	Zoology	International	2018

for Ex-situ conservation of Medicinal and Aromatic plants in GGV campus	conference on Emerging researches on Biosciences	Department. GGV-Bilaspur (C. G.)	(Within Country)	
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## ii. State Level

S. No.	Title of the Paper presented	Details of Conference / Seminar/	Organizing Institution	Category:	Paper Presented date
1.	Domestic wastewater treatability potential of a free-floating aquatic weed <i>Eichhornia crassipes</i>	2 <sup>nd</sup> Young Scientist Congress (Chhattisgarh)	Guru Ghasidas University, Bilaspur (C.G.)	Chhattisgarh / State Level	28 - 29 Feb., 2004
2.	Study on domestic wastewater treatment by using a submerged and a free-floating aquatic plant	3 <sup>rd</sup> Young Scientist Congress, (Chhattisgarh),	Pt. R. S. U. Raipur (C. G.)	Chhattisgarh / State Level	28 Feb.- 01 March, 2005
3.	Quality of well water near the major drainage of Raipur	3 <sup>rd</sup> Young Scientist Congress, (C. G.)	Pt. R. S. U. Raipur (C. G.)	Chhattisgarh / State Level	28 Feb.- 01 March, 2005
4.	Phytoremediation of Domestic wastewater by using <i>Ceratophyllum demersum</i> , a submerged rootless aquatic plant.	4 <sup>rd</sup> Young Scientist Congress, (Chhattisgarh),	Indira Gandhi Agriculturea lUniversity, Raipur, (C.G.)	Chhattisgarh / State Level	28 Feb.- 01 March, 2006
5.	Bioremediation of municipal wastewater by a submerged aquatic plant <i>Hydrilla verticillata</i> .	5 <sup>rd</sup> Young Scientist Congress, (Chhattisgarh),	Swami Vivekanand Technical University, Bilai (C.G.)	Chhattisgarh / State Level	28 Feb.- 01 March, 2007

## iii. National Level

S. No.	Title of the Paper presented	Details/Title of Conference / Seminar	Organizing Institution	Category	Paper Presented date
1.	Study on Nutrient removal potential of an aquatic plant <i>Pistia stratiotes</i> from domestic wastewater.	Innovation and prospects in Life Sciences,	School of Life Sciences, Pt. R. S. U. Raipur (C.G.)	National Level	14-16 Dec. 2002
2.	Study on Nutrient absorption potential of an aquatic plant <i>Hydrilla verticillata</i> from domestic wastewater.	National Conference on changing Environ. and Biodiversity with Physico-chemical parameters,	Deptt. Of Botany, Zoology and Chemistry, K. G. Arts and Science College, Raigarh (C. G.).	National Level	10 -11 March, 2003
3.	Some Cyanobacteria of Doodhari pond of Raipur Chhattisgarh.	National symposium on Biology and Biodiversity of fresh water algae	Center for advance study in Botany, University of Madras (T.N.).	National Level	8 and 9 Sep. 2004
4.	Treatment of domestic wastewater by some common aquatic plants.	National Seminar on Environmental Pollution,	Center for Environmental Science and Engineering, BIT, Durg(C.G.)	National Level	07 Oct. 2004
5.	Study on use of an aquatic plant <i>Ceratophyllum demersum</i> L for domestic wastewater treatment.	92 <sup>th</sup> Indian Science Congress	Nirma University of Science and Technology, Ahmadabad G.J.)	National Level	03 - 07 Jan. 2005
6.	In vitro study on <i>Salvinia rotundifolia</i> L for nutrient removal potential from domestic wastewater	National Symposium on Biodiversity: Current status and prospects,	School of Life Sciences, Pt. R. S. U. Raipur (C. G.)	National Level	17 - 18 Oct. 2005
7.	Diversity of aquatic plants in some ponds of Raipur City.	National Conference on Plant Diversity and its Conserv.	ST. Thomas College, Bhilai, (C. G.).	National Level	11 - 12 Nov. 2005
8.	Prospects of	National	Deptt. of Botany,	National	18 - 19

	aquatic plants in Phytoremediation of domestic wastewater.	Symposium on Bio-resources: Technology and Prospects,	Govt. College of Science, Bilaspur, (C. G).	Level	March, 2007
9.	Comparative phytoremediation potential of two aquatic plants in Domestic wastewater culture.	National Seminar on Botanical researches: Present scenario and future prospects.	Deptt. of Botany, Govt. College of Science Raipur, (C. G.).	National Level	29 and 30 Jan. 2008
10.	Eco-environmental study on some aquatic plants in phytoremediation of domestic wastewater.	Central region Science Conference by Indian Science Congress,	Govt. Home and Science College Jabalpur, (M. P.)	National Level	21 – 22 Feb. 2009
11.	Phyto-remediation of Domestic Wastewater by <i>Hydrilla verticillata</i> L,	National Seminar on Bio resources: Its implication, Alteration and Management for the Welfare of Living kingdom,	Deptt. of Bio technology and Govt. V. Y. T. P. G. Autonomous College, Durg, (C. G.).	National Level	11 – 12 Oct. 2011
12.	Medicinal Plants: Collection and Conservation in Nursery of Rural Technology Department, G. G. V.	National Seminar on Standardization of Herbal Formulations: A Holistic Goal,	Deptt. of Pharmacy, G.G.V. - Bilaspur, (C. G.).	National Level	25 – 26 Feb. 2012
13.	Importment Medicinal Plants from Chhattisgarh.	National Symposium on “Plant Biology and its role in Sustainable Food and Energy Production,	Deptt. of Botany, G.G.V. - Bilaspur, (C. G.).	National Level	17- 18 March, 2012
14.	Herbal Garden Development for Ex-Situ Conservation of Medicinal and Aromatic Plants	National Seminar On Innovations and Entrepreneurship in Biotechnology	BIOTECHNOLOGY - GGV- Bilaspur, C.G.	National Level	26, 27 Dec. 2016
15.	Ex-situ Conservation of	National Conference on	BOTANY - GGV- Bilaspur, C.G.	National Level	21- 23 March

	<i>Commiphora wightii</i> (Arnott) Bhandari in Herbal Garden.	Plant Science Technologies: Current status and future prospects			2017
16.	Ex-situ conservation of Medicinal and Aromatic Plants in Herbal Garden.	National Conference on Plant and Microbial Products: Progress, Potentials and IPR issues.	Deptt. of Botany G.G.V. - Bilaspur, (C. G.).	National Level	07 – 09 February 2018
17.	Ex-situ conservation of Medicinal and Aromatic Plants -- in Herbal Garden	National Conference on Plant and Microbial Products: Progress, Potentials and IPR issues.	Deptt. of Botany G.G.V. - Bilaspur, (C. G.). <b>Best paper presentation award</b>	National Level	07 – 09 February 2018
18.	Xerophytic Plants: Role in conservation of water and soil	National Seminar on Water Conservation: Demand of Time	Pt. Sundarlal Sharma Sharma Open University Bilaspur, (C. G.).	National Level	29 – 30 – March 2018
19.	Act As a judge for Model exhibition	National Seminar on Water Conservation: Demand of Time	Pt. Sundarlal Sharma Sharma Open University Bilaspur, (C. G.).	National Level	29 – 30 – March 2018
20.	Ex-Situ Conservation of Medicinal and Aromatic Plants in Herbal Garden	Biodiversity and its Utilization and Conservation in Central India	G.G.V. - Bilaspur, (C. G.).	National Level	21 - 22nd February 2022
21.	Herbal Garden: A Center for Conserving Valuable Medicinal Plants	Strengthening environmental health: Role of Society, Science and Technology	G.G.V. - Bilaspur, (C. G.).	National Level	26-27 September 2022

## iv. University Level

S. No.	Title of the Paper Presented	Level of Conference, Seminar	Invited/Organized by	Date of Events	API Score	Annexure No. of Proof Enclosed
1.	Workshop on Curriculum development in Rural Community Engagement in Higher Education at Post Graduate level	Local /University Level	G.G.V. - Bilaspur, (C. G.)	29-30 November, 2017	2	
2.	Regional workshop of Unnat Bharat Abhiyan	Local /University Level	Shri G. S. Institute of Technology and Science, Indore	03 August, 2018	2	
3.	A virtual learning initiative and health awareness program on COVID19-5 Days webinar	Local /University Level	Regional Coordinating Institute (RCI), NIT- Raipur (C.G.)	25 July to 29 July 2021.	2	
4.	Workshop on NEP 2020: Academic Bank of Credit (ABC)	Local /University Level	HRDC-GGV, Bilaspur (C.G.)	27/06/2022 to 27/06/2022.	2	
5.	Workshop On NEP 2020: Multidisciplinary	Local /University Level	HRDC-GGV, Bilaspur (C.G.)	28/06/2022 to 28/06/2022.	2	
6.	Workshop on NEP 2020: Good Academic Research Practices/Academic Research Integrity.	Local /University Level	HRDC-GGV, Bilaspur (C.G.)	30/06/2022 to 30/06/2022	2	
7.	Workshop On NEP 2020: Internationalization of Higher Education	Local /University Level	HRDC-GGV, Bilaspur (C.G.)	30/06/2022 to 30/06/2022	2	
<b>TOTAL SCORE</b>					<b>06</b>	

**25. Invited lectures / Resource Person/ paper presentation in Seminars/ Conferences/full paper in Conference Proceedings (Paper presented in Seminars/Conferences and also published as full paper in Conference Proceedings will be counted only once)**

S. No.	Title of the Invited Lecture delivered/Paper presented	Details of Conference / Seminar/ FDP and Organizing Institution	Category: International (Abroad)/ International (within country)/ National/ State/University	Please select Invited Talk/Paper Presented date
1.	Science for Nation Building	Govt. Rajmata Vijayaraje Sindhya Girls College, Kawardha (C. G.)	University Level	03 March, 2015
2.	Vermicompost Production Technique	SKill Development Cell and Rural Technology Department, GGV Bilaspur (C.G.)	University Level	7-9 March, 2016
3.	Importance of Medicinal Plants	National Service Scheme, GGV Bilaspur (C.G.)	University Level	10 March, 2016
4.	Medicinal plants and Society	Uttam Memorial College, Raigarh (C.G.)	National Level	10 January - 2020
5.	Medicinal plants Uses and need for Conservation	Govt. J.M. P. College Takhatpur (C. G.)	National Level	13 September, 2020
6.	Biodiversity/Flora and Fauna: Role and Need for Conservation	Govt. College Baloda (C. G.)	University Level	11 March 2022
7.	Medicinal plants: uses and need for conservation	Mizoram University	University Level	02 August 2022

#### Research Papers Presented: Summary

S. No.	Conference, Seminar Types	Number of Papers Presented	Marks of Presentation-API	Per Total Marks-API
1.	International Conferences	05	05	25
2.	State Level Conferences	05	02	10

3.	National Conferences	Level 21	03	57
4.	University Level	03	02	04
<b>TOTAL SCORE</b>				<b>87</b>

## 26. CONFERENCES ORGANIZED -

- Organizing committee – National Symposium cum workshop on Biodiversity, its utilization and conservation in central India, 21-22 February 2022.
- Co - Convenor - National Conference on Fungal Diversity for Sustainable Future: Potential, Progress, Conservation and IPR Issues & 49<sup>th</sup> Annual Meeting of Mycological Society of India. 28 – 30 November 2022. Department of Botany, GGV Bilaspur (C.G.)

## 27. RESEARCH PAPERS REVIEWED -

S. No.	Journals	Research Paper Title	Manuscript no.
1.	International Journal of Water Resources and Environmental Engineering,	Process Design for Decentralized Sewage treatment System with Total natural Resources and Management	IJWREE-11-016
2.	International Journal Biodiversity and Conservation,	Spatio-temporal dynamics of macrophytes in relation to Ecology of a Kashmir Himayalian Wetlands	IJBC – 11- 052
3.	International Journal of Plant Physiology and Biochemistry,	Heavy Metal Phyto-remediation by Plants Growing in Urban Stream sediments.	IJPPB-11-025
4.	International Research Journal of Microbiology	Production of biogas from water hyacinth ( <i>Eichhornia crassipes</i> ) seeded with ruminant microorganisms	IRJM-11-106
5.	Global Advanced Research Journal of Biotechnology	Physico-chemical and Microbial Analysis of Well water in noculum metropolis, ogun –state, Nigeria.	GARJB- 12 – 035
6.	Herald Journal of agriculture and Food Science Research	Phytoremediation Potentials of <i>Lepidum sativum</i> L., <i>Lactuca sativa</i> L., <i>Spinacia oleraceae</i> L. And <i>Raphanus sativus</i> L.	HJAFSR-12-008
7.	International	Assessment of water quality and major Threats of morna Reservoir in western ghats	IRJAS-12-165



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|-----|---|--|-------------------|
|     | Research Journal of Agricultural Science and Soil Science (M. S.) India     |  |                   |
| 8.  | Basic Research Journal of Agricultural Science and Review                   | Comparison of nitrogen, phosphorus and potassium contents in cow dung and slurry generated in biogas plant   | BRJASR-29-012     |
| 9.  | Global Advanced Research Journal of Physical and Applied Sciences (GARJPAS) | Effect of Different Types of Plants ( <i>Lemna Sp.</i> , <i>Azolla filiculoides</i> and <i>Alfalfa</i> ) and Artificial Diet (With Two Protein Levels) on Growth Performance, Survival Rate, Biochemical Parameters and Body Composition of Grass Carp | GARJPAS-12-026    |
| 10. | Journal of Forest Research  | Pollution Studies of Monomictic Lake, Srinagar, J&K, India   | JFOR-13-8278      |
| 11. | Journal of Biodiversity & Endangered Species                                | Landscape structure indicators as a key feature in habitat selection: An operational approach to conservation planning   | 774 -JBES-7       |
| 12. | American Journal of Environmental Science Research – Impact Factor-1.22     | Trace Metal Profile of <i>Moringa oleifera</i> (Linn.) Seedlings Sown in Spent Lubricating Oil 9881Contaminated Soils.   | ASRJ-13-002       |
| 13. | Journal of Agrotechnology   | Effect of conservation trenches on plantation crop in degraded watershed in Kandhamal district of Odisha   | AGT-13-9766       |
| 14. | Journal of Agrotechnology   | Modeling soybean ( <i>glycine max l.</i> ) root growth under different tillage system  | AGT-13-9764       |
| 15. | INTERNATIONAL JOURNAL OF BIODIVERSITY AND CONSERVATION                      | Impact of an invasive shrub, <i>Lantana camara</i> on soil properties in Nairobi National Park, Kenya  | IJBC09.08.1306 23 |
| 16. | Horizon Research Publishing, USA (HRPUB)                                    | Rejuvenation and adventitious Rooting in shoot cuttings of <i>Tectona grandis</i> under protected conditions in new locality of Western Himalayas  | 10302181          |
| 17. | International Journal of Plant & Soil Science                               | Biodiversity management and plant dynamic in a cocoa agroforest (Cameroon)   | 2014_IJPSS_10 347 |

<b>18.</b>	Journal of Biodiversity & Endangered Species	of Status and distribution of <i>Coleus barbatus</i> Benth. in Tehri Garhwal district, Uttarakhand	Ms. No. ENVIRONSCI-14-333
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### 27. REVIEW PAPER/S REVIEWED - 03

S. No.	Journals	Research Paper Title	Manuscript no.
1.	Sky Journal of Medicinal Plants Research	A comprehensive Ethno-pharmaceutical Review on <i>Euphorbia hirta</i> L.	SJMPPR-12-032
2.	Journal of Medicinal Plant Research	Comprehensive Review of <i>Hemigraphis colorata</i> (Blume) H.G. Hallier	JMPR.14.01.13.2 576
3.	International Journal of Biodiv. and Conservation,	A Review on agronomy and breeding studies on <i>Stevia rebaudiana</i> (bertoni) in Malaysia.	IJBC - 11- 052

### 28. RESEARCH PROJECT COMPLETED - 01.

- **Project Title** – “Ex – situ Conservation of important Medicinal and Aromatic Plants (MAPs) Resources from Chhattisgarh in Guru Ghasidas Vishwavidyalaya (A Central University) Campus, Bilaspur (C.G.)”. Financial Assistance (Approved amount Rs.6.00Lakhs) –:  
Released amount - 5,40,000=00
- PI – Dr. Devendra Kumar Patel
- Funding Agency – UGC, New Delhi
- Worth in lakhs- Six lakh
- Grant received- 5,40,000
- Under the above research project an Herbal Garden has been developed for Ex-situ conservation of the Medicinal and Aromatic plants from Chhattisgarh.

### 29. ABOUT HERBAL GARDEN:

Developed in GGV campus, Bilaspur, Chhattisgarh aimed for -

#### ***Ex-situ Conservation of RET (Rare, Endangered, Threatened) Medicinal and Aromatic Plants of Chhattisgarh State in central India.***

An Herbal Garden has been developed under a startup grant of Rs. Six lacks sanctioned to Dr. Devendra Kumar Patel from UGC-New Delhi.

Under this project near by 30 X 60 Meter of the area in Guru Ghasidas Vishwavidyalaya campus Bilaspur (A Central University) - Chhattisgarh, India A specified area has been marked (with proper permission of the Administration) and as per need of

the Herbal Garden Fencing (Chain linked fencing with Iron pole for long durability) around the area made for protection of MAPs. There are Four Water Tanks were also made for proper supply of water to the Medicinal and Aromatic Plants (MAPs).

Additional to the above construction one shade with net developed for protection of the sensitive MAPs. The area is also utilized as a small-scale propagation of the MAPs for their regeneration as well as for Ex-situ conservation in Herbal Garden. Plant propagules were collected from different parts of the Chhattisgarh state and bring in Herbal Garden for their introduction aimed for Ex-situ conservation.

- ✚ Whole area is protected/covered by **chain linked fencing** supported by Iron pole for long durability (Height five feet from ground surface). Whole area of Herbal Garden is divided in four parts. In middle part and near of fencing area temporary pathway has been developed for proper monitoring of the introduced Medicinal and Aromatic plants collected from different parts of the Chhattisgarh state aimed for their Ex-situ conservation purpose in Herbal Garden.
- ✚ **Entry/Gate of the Herbal Garden** is 10 ft so small vehicles/tractors can easily enter to supply required goods, manures etc.
- ✚ There are four **water tanks** (1.5 x 1.5 x 1.5 Meter) developed in Herbal Garden. Each one water tank is connected with water source and further used to supply water in different prepared beds for growing varied Medicinal and Aromatic plants.
- ✚ **Additional to the above construction one shade with net cover and store room** jointly has been also developed. The area is utilizing for propagation of different Medicinal and Aromatic Plants and to protect the important Medicinal and Aromatic plants/plant propagules in summer season. Suitable plant parts were collected from varied parts of the state and are brought in Herbal Garden for their Introduction. Continuously the seeds of different Medicinal and Aromatic plants were also collected to regenerate them in coming season. For the same purpose a Seed Bank also made to support the Ex-situ conservation of varied Medicinal and Aromatic Plants in Herbal Garden.

In first stage more than 150 species of valuable and Endangered Medicinal and Aromatic plants has been introduced and multiplying using their different parts like by seeds as well as by potential application of their vegetative plant parts. The above process as introduction of Medicinal and Aromatic plants is continuously going on.

Seasonal Medicinal and Aromatic plants are grown in their favourable season using suitable methods.

**Outcome** – Due to various human activities and by environmental variations, Overexploitation etc. plant populations are facing problems. Such degree is increasing day by day and is leading for loss of different plant species in including Medicinal and Aromatic Plants. So, the current effort to develop HRBAL GARDEN aimed for Ex-situ conservation of Medicinal and Aromatic Plants is significantly remarkable for multifold directions such as –

- Herbal Garden is a suitable Step towards protecting endangered Medicinal and Aromatic plants which are under the threat of extinction.
- Herbal Garden is a Repository of different Medicinal and Aromatic Plants.
- It is a center of Different valuable/Endangered Medicinal and Aromatic Plants.
- Exploring the diversity of Medicinal and aromatic plants in Herbal Garden.
- Developing Botanical knowledge on varied Medicinal and aromatic plants.
- Supporting the process of Ex-Situ conservation of varied Medicinal and Aromatic Plants.
- Rich diversity of Medicinal and Aromatic Plants can be observed in a same place.
- Maintaining species diversity of Medicinal and Aromatic Plants
- Finally, For Ex- situ conservation of Medicinal and Aromatic plant species many efforts in our country is going on, in same connection many Herbal Gardens also developed for the same targets. Similarly, the protection of Medicinal and Aromatic Plants in Herbal Garden is better performing to conserve the important/Endangered Medicinal and Aromatic plant species in Chhattisgarh State in Central India.

### 30. SUBMITTED PROJECT/PROPOSALS

S. No.	Title of the project	Funding Agency	Period	Grant
1.	STI Hub in GGV for Socio-economic development of ST communities of Chhattisgarh through Science and Technology intervention. Dr. SK Shahi, Dr. KK Chandra, <b>Dr. DK Patel</b> and Dr. Subal Das	DST- New Delhi	03 Year	4,33,92,000 /-
2.	Diversity of Tree species in District Bilaspur, Chhattisgarh	Chhattisgarh Biodiversity Board, Raipur (C.G.)	01 Year	4,50,000 /-
3.	Assisted in preparation of Biodiversity Mapping and Conservation in GGV, Bilaspur (C. G.)- Ministry of Environment, Forest and Climate change, GOI, New Delhi			
4.	Assisted in the Preparation of proposal of Center for food processing services and food park in central India in GGV Bilaspur (C.G.)- Ministry of food processing industries, GOI, New Delhi			

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