Projects/Schemes

Institutional research project including other agency projects

Sr. no.	Year	B.H.	Scheme Name	Grant (Rs.)
1	2016-17	18457-31	Bioefficacy and phytotoxicity evaluation of tebuconazole 10% + Sulphur 65% WG (XLC 750) against powdery mildew of mango"	6,68,818
2		18457-48	Bio-efficacy evaluation of a combination product PCT-16 for seed treatment in groundnut crop"	8,68,200
3		18457-57	Field bio-efficacy cum phytotoxicity evaluation of pyraclostrobin 20%WG against Soybean-Cercospora (Frog eye) & Alternaria leaf spot.	7,24,200
4		18457-58	Evaluation of bio-efficacy and phytotoxicity of Pyraclostrobin 20% WG against Alternaria leaf spot/blight disease of cotton	2,63,400
5		18457-59	Evaluation bio-efficacy and phytotoxicity of pyraclostrobin 20%WG against Early blight disease of tomato	7,24,200
6		18457-64	Chlorothalonil 40% + Difenoconazole 4%w/w SC (Bravo Top 550 w/v SC) against groundnut disease	3,11,400
7		18457-65	Evaluation of Pydiflumentofen 7.5% + Difenoconazole 12.5w/v (200 sc) against groundnut diseases	7,72,200
8	2017-18	18457-88	Development, validation & technology transfer of microbial consortium of bioagents in sustainable management of biotic & abiotic stresses in crops.	16,99,760
9	2018-19	18457-44	Bio-efficacy and phytotoxycity evaluation of Myclobutanil 10% WP against Alternaria blight in Cotton	7,242,200
10	2019-20	18558-80	Bio-efficacy of Tebuconazole 50% + Trifloxystrobin 25% WG (Nativo) on Turmeric	10,83,600

11	2019-20	18558-94	Bio-efficacy of Rallis new fungicide pre-mixture, RIL-263/CF- 22. 5% SC in soybean	8,67,600
12	2021-22	18559-47	Evaluation of bio-efficacy and phytotoxicity of GPF 215 against Alternaria blight and powdery mildew disease of cumin crop	9,68,000
13		18559-48	Evaluation of bio-efficacy and phytotoxicity of UPF 1317 against powdery mildew disease of cumin crop	9,68,000
14		18559-49	Evaluation of bio-efficacy and phytotoxicity of GPF 1215 against powdery mildew disease of cumin crop	9,68,000

S. No.	Scheme	Scheme Name	B.H.	Grant(Rs.)				
				2016-17	2017-18	2018-19	2019-20	2020-21
1	**PLAN**	Strengthening of facilities for bio-agents at Department of Plant Pathology	12929-01	7,16,000	5,65,000	20,03,000	10,18,000	7,00,000
2		Strengthening facilities for Sericulture, Apiculture and Mushroom cultivation	12931	6,92,000	5,90,000	10,68,000	9,70,000	2,65,000

3		Centre for Advance Research on Plant Viruses	12993-18	4,78,000	24,35,000	21,21,000	16,38,000	18,01,000
4	**ICAR**	AICRP on NSP (Crops)-STR	2080	30,07,000	30,00,000	34,15,893	42,50,000	31,40,000
5		AICRP on NSP (Crops)-TSP	2080-02	-	3,00,000	3,00,000	3,00,000	1,00,000

Sl. No.	**Technology Developed**	**Technology demonstrated & Adopted**	**Adopting agency/ stake holders**
2016-17			
1	**Recommendation (XXXII AGM of AICRP – NSP Crops):** Seed wash examination technique for detection of *Alternaria burnsii*, the causal agent of blight of cumin	Demonstrated	Scientific community
2	Effective management of cumin blight (*Alternaria burnsii*) may be achieved by three foliar application of Azoxystrobin-23SC @ 0.025% at 10 day interval after appearance of blight disease along with the basic seed treatment with Thiram3.0 g per kg of seed, prior to sowing. The treatment resulted in minimum	Adopted	Farmers

	disease intensity (18.01%) with highest seed yield (592 kg/ha) and consequently minimum post association (3.95) of *Alternaria burnsii* in harvested cumin seeds as compared to control with disease intensity (57.04%) and seed yield (178kg /ha) and 62.25 % post association of the fungus.		
3	**Protocol Developed:** **Rapid Detection technique:** Detection of conidia of *Alternaria burnsii* from cumin seeds by seed washing method.	Demonstrated	Scientific community
2017-18			
1	The farmers of middle Gujarat Agro climatic zone III growing cumin crop are advised to apply three sprays of azoxystrobin 23 SC @ 0.023% (ICBR 1: 18.69) first at the initiation of disease and remaining two sprays at 10 days interval for the effective management of blight disease.	Adopted	Farmers
2	For effective management of pyricularia leaf spot/blast disease of kharif pearlmillet, treat the seeds with thiram 75 WS, 3 g/kg seed at the time of sowing and apply two sprays of Tebuconazole (50%) + Trifloxystrobin (25%) 75 WG, 0.075% or Azoxystrobin (18.2%) + Difenoconazole (11.4%) 29.6 SC, 0.03% starting at the appearance of disease and second at 15 days after first spray.	Adopted	Farmers

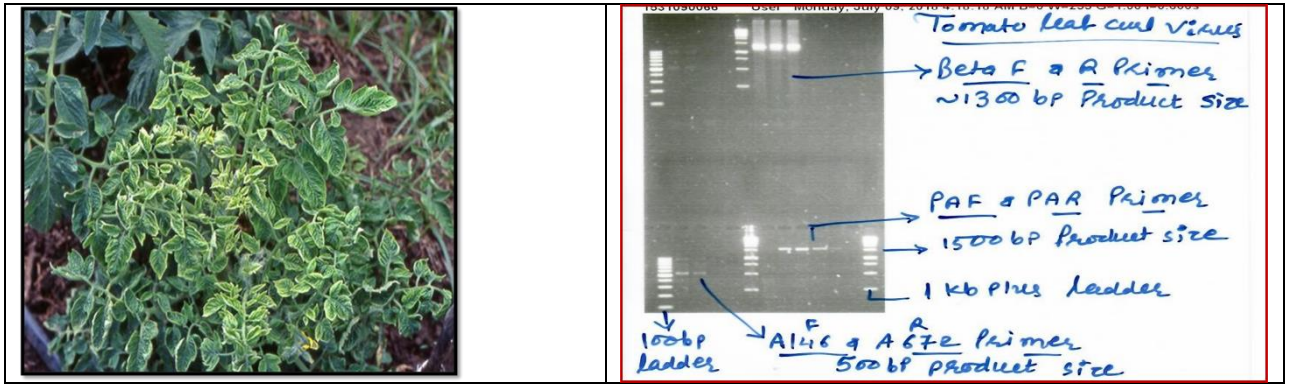
3	Mungbean genotypes *viz*., GM 02-07and LGG 460 were found resistant, while GM -9917, GM 02-01, GM 02-02, GM 02-05, GM 02-08, GM 02-10, GM 02-13, GM 02-15, GM 02-20, GM 03-04, GM 03-07, GM 03-13 and GM 03-14 were found moderately resistant against Bean common mosaic disease under field conditions. These genotypes can be used in breeding programme for developing resistant varieties.	Demonstrated	Scientific community
2018-19			
1	Mungbean yellow mosaic virus was not detected as seed-borne in urdbean, while bean common mosaic virus detected as seed-borne in mungbean.	Demonstrated	Scientific community
2019-20			
1	Seed treatment with Captan 75 WS @ 2.5 gm / kg seed and subsequent two foliar sprays of Azoxystrobin (18.2 %) + Difenconazole (11.4 %) @ 0.03% at first appearance of the disease and second after 10 days has been found best amongst all other treatments and can be recommended to farmers involved in seed production of tomato against Alternaria blight disease.	Adopted	Farmers

2	**Protocol Developed:** Protocol for detection of Bean Common mosaic virus from mungbean seeds and infected plants	Demonstrated	Scientific community

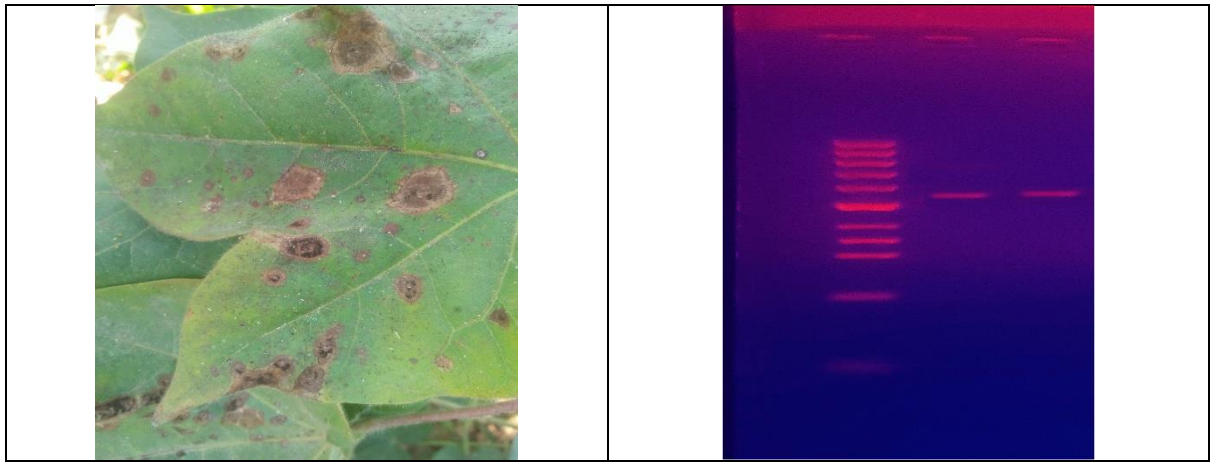
NEW FRONTIERS

1. Studies on Association of a DNA betasatellite with monopartite *Tomato yellow leaf curl virus* in Anand, Gujarat

- Tomato leaf curl virus (TLCV) is the prime limiting factor for tomato production in Gujarat. Epidemics of Tomato leaf curl virus associated with upsurge of whiteflies (*Bemisia tabaci*) on tomato crops has been frequently reported up to 100 per cent yield losses.
- Betasatellites are circular ssDNAs, approximately 1,350 nt in size, that utilize monopartite begomoviruses as helper viruses, contribute to the induction of disease symptoms and are prevalent mainly in eastern Asia.
- Betasatellites rely on the helper begomoviruses for replication, encapsidation and spread within the host.
- Betasatellites code for a single multifunctional βC1 protein, which is involved in enhancement of disease symptoms and suppression of both transcriptional and post transcriptional gene silencing.
- To confirm the presence of ToLCV in the infected plants, total genomic DNA was isolated from the both infected as well as healthy leaf samples. Isolated DNA samples were subjected to PCR using Gemini A146/Gemini A672, PAL1v1978B/PAR1c715H coat protein (CP) specific primers and Beta01/ Beta02 for detection of beta satellites which were designed during this study.



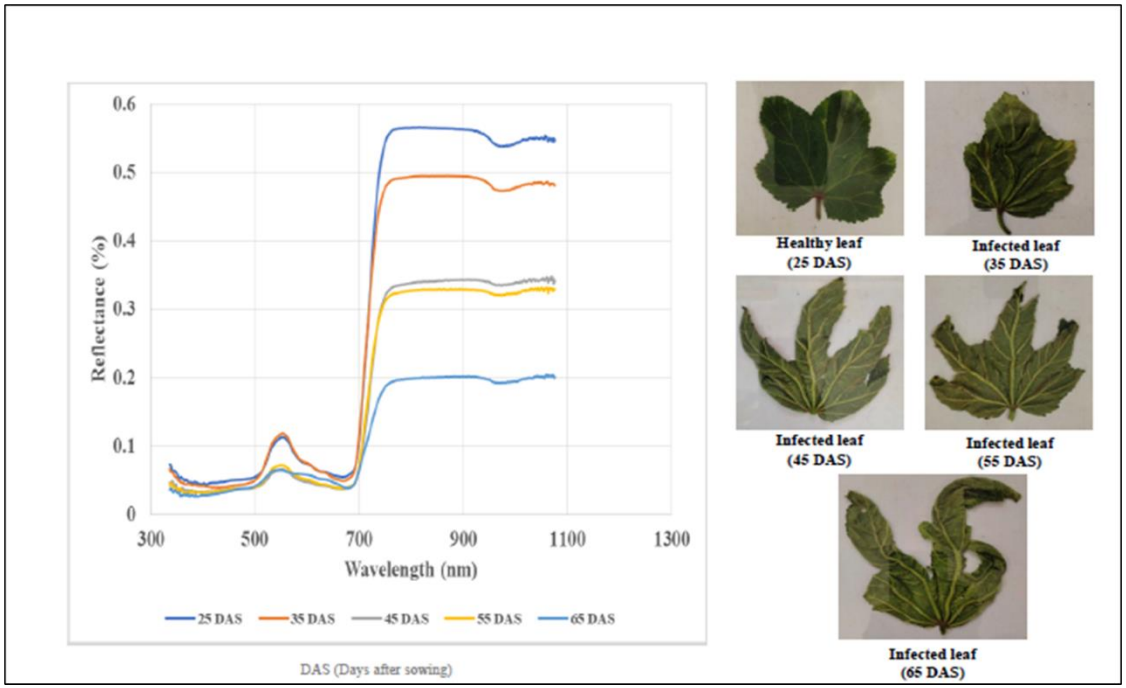
2. First report of *Corynespora cassiicola* as a causal organism of target leaf spot in cotton from Gujarat



3. Primer designing of okra enation leaf curl virus: The viral DNA was subjected to PCR (Polymerase Chain Reaction) using the *Begomovirus* universal CP gene. The sequence obtained from PCR amplification of

viral DNA by using *Begomovirus* universal primer was used to design the gene specific primer for OELCuV by using Primer3 software. Later, the specificity of the primer was checked by amplifying it with the *Mungbean yellow mosaic virus*, *Xanthomonas sp.* and *Chaetomium sp.*

4. Early detection of Okra enation leaf curl disease by hyperspectral analysis under field conditions



Submission of genome sequence of different native pathogens

Sr. No.	Microorganism Detail	Accession Number
1.	*Macrophomina phaseolina* MP1 internal transcribed spacer 1	MK651512 24-MAR-2019
2.	*Pseudomonas aeruginosa* strain PA1 16S ribosomal RNA gene, partial sequence	MK685346 31-MAR-2019
3.	*Alternaria burnsii* isolate Ab-1 internal transcribed spacer 1, partial sequence	MK758067 13-APR-2019
4.	*Alternaria alternata* isolate AAL 2 small subunit ribosomal RNA gene, partial sequence; internal transcribed spacer 1	MT831907 10-AUG-2020
5.	*Alternaria alternata* isolate AAL1 internal transcribed spacer 1	MT831906 10-AUG-2020
6.	*Xanthomonas citri* strain *malvacearum* 16S ribosomal RNA gene, partial sequence	MW867239 12-APR-2021
7.	*Fusarium oxysporum*	MK810547
8.	*Fusarium solani*	MK733312
9.	*Macrophomina phaseolina*	MT113066
10.	*Alternaria solani*	MK641499.1
11.	*Fusarium oxysporum* f. sp. *ciceris*	MZ295197
12.	*Fusarium oxysporum* f. sp. *vasinfectum*	MZ333130
13.	*Aspergillus fischeri*	MZ333227

14.	*Aspergillus tamarii*	MZ333145
15.	*Xanthomonas citri* pv. *citri*	MZ284949
16.	*Fusarium oxysporum*	MZ322396
17.	*Pyricularia oryzae*	MZ284946
18.	*Curvularia lunata*	MZ436987
19.	*Alternaria alternata*	MW035008
20.	*Xanthomonas citri* pv. *malavacearum*	MW867239
21.	*Corynespora cassiicola*	MZ350545
22.	*Alternaria burnsii*	OL304925
23.	*Fusarium oxysporum* f. sp. *cumini*	MZ314922
24.	*Alternaria solani*	MZ557830
25.	*Potato leaf roll virus*	ON458157; ON458158
26.	*Colletrotrichum truncatum*	ON645250
27.	*Rhizoctonia solani* f. sp. *sasakii*	ON637538
28.	*Fusarium oxysporum*	ON637065
29.	*Macrophomina phaseolina*	ON778591
30.	*Curvularia lunata*	ON643484
31.	*Alternaria alternata*	ON613536
32.	*Xanthomonas campestris* pv. *campestris*	MZ350213
33.	*Okra enation leaf curl virus*	OR270161; OR270162
34.	*Xanthomonas citri pv. citri*	OR287117
35.	*Alcaligenes faecalis*	OR282530
36.	*Alcaligenes faecalis*	OR277455
37.	*Alcaligenes faecalis*	OR282435
38.	*Macrophomina phaseolina*	OR144351

39.	*Sclerotium rolfsiii*	OR149017
40.	*Bacillus licheniformis AAU BCM 1*	OR002034
41.	*Bacillus stratosphericus AAU BCM 2*	OQ998805
42.	*Pseudomonas aeruginosa AAU BCM 3*	OQ998804
43.	*Pseudomonas azotoformans AAU BCM 4*	OQ998897
45.	*Stenotrophomonas sp. AAU BCM 5*	OQ998899