New Technical Programme:

01.	Experiment No. and Title	:	Survey of native entomopathogenic fungi in South Gujarat condition
02.	Budget Head	:	18198
03.	Collaborative department, if any	:	Nil
04.	Background information	:	Increasing awareness and interest in organic and sustainable agriculture in the last few decades, and the ability of entomopathogenic fungi (EMPF) to kill insects, have attracted the attention of environmentally friendly biocontrol strategies to counteract insect pests' negative impact on crop yield and quality. Entomopathogenic fungi occurred naturally as infections in insect or in living hosts for a relatively short period of time during their life cycle. Use of entomopathogenic fungi as biological control agents for insect species has increased the global attention during the last few decades. The remainders of the life cycle of these species presumably lurk as dormant propagules in the vicinity of the dead host cadaver. To imminent the knowledge on catalogue of naturally occurring entomopathogenic fungi and their potential role in the regulating the major insect population, the present investigation will be carried out under South Gujarat. Considering its significance in pest management, it is felt necessary to investigate on EMPF under south Gujarat, where humid atmosphere prevail throughout the year, provide congenial environment for the growth of fungus. In the present investigation, the presence of EMPF is collected from various cropping ecosystem majorly grown in South Gujarat conditions.
05.	Objectives	:	1. To know the presence of entomopathogenic fungi under natural condition in South Gujarat. 2. To confirm the pathogenicity of various entomopathogenic fungi.
06.	Principal investigator and associates	:	Dr. Snehal Patel, Asstt. Prof. PI Dr. P.R. Patel, Asso. Prof. & Head Co-PI Dr. Hement Sharma Asso. Prof. Co-PI Dr. Viral Prajapati, Asstt. Prof.Co-PI

07.	Location and Agro-climatic sub-region		:	South Gujarat Heavy Rainfall Zone-I, AES-III			
08.	Year and Season		:	-			
09.	Crop and Variety		:	-			
10.	Experimental details		:	-			
	(a)	Treatments	:	Factors, levels and other details			
	Tr. No.	Treatment				Conc.(%)	Quantity of formulation kg /ha
		-				-	-
	(b)	Experimental Design	:	-			
	(c)	Replications	:	-			
	(d)	Plot size (if applicable)	:	Gross	-	-	
				Net	-	-	
	(e)	Spacing	:	-			
	(f)	Seed rate (kg/ha)	:	-			
	(g)	Manures and fertilizer	:	-			
	(h)	Any other detail, if required	:	-			
11.	Observations to be recorded		:	1. Collection of cadavers under natural conditions for the presence of entomopathogenic fungi in South Gujarat 2. To confirm the pathogenicity of entomopathogenic fungi.			

12.	Methodology (if necessary)	:	**1. Field survey and collection of sample:** The random rowing survey for the occurrence of entomopathogenic fungi on various sucking (viz., mango hopper, aphid, thrips, whitefly, mealybug etc.) and chewing (*Heliothis, Spodoptera* etc.) types of insect pest will be conducted in Navsari, Tapi and Valsad districts at monthly interval during kharif and rabi season depending upon the cropping system and host insect availability. Survey will be undertaken in the mango and vegetables cropping ecosystem of south Gujarat to identify and catalogue of naturally occurring EMPF and their potential role in the regulation of major insect population. Survey will be conducted in the already grown cropping ecosystem of Mango and vegetables. Survey will be carried out for first two year and pathogenicity test will be carried out after two years. The cadavers collected in natural condition during survey will be transferred in sterile Petri plates and glass vials and same will be brought to laboratory and preserved with details of host insect, stage of the host, place and date of collection. Weather data will be recorded at the time of survey. **2. Isolation and multiplication of entomopathogenic fungi (EMPF):** The cadavers showing natural growth of fungi collected from the field will be surface sterilized with 1.0 per cent sodium hypochloride for five seconds and then rinsed thrice by sterile distilled water to remove the traces of sodium hypochloride. The surface sterilized specimen will be cut into bits in a sterile Petri dish and a bit of infected tissue will be transferred to Petri dishes containing potato dextrose agar (PDA) media for 10 days. **3. Pathogenicity of entomopathogenic fungi (EMPF):** For the preparation of fungal suspension, conidia will be harvested by means of scrapping using a sterilized scalpel. Fungal conidial suspension will be prepared in 5 ml of sterile water will be poured on each plate containing fungal colony to obtain spore suspension and adjusted their concentrations at 1 x 10^8 conidia/ml. Twenty adults of sucking insects/larvae of lepidopterous insects will be sprayed with 5 ml of spore suspension ($1X10^8$ cfu) of each isolate and then transferred into sterile plates containing two pieces of moistened filter papers and two host plant leaves and pods. Plates will be incubated in darkness. Infected dead insects will be inspected and counted daily. Mortality percentage will be assessed after 1, 2, 4, 6 and 8^{th} days of inoculation.

			4. Identification of entomopathogenic fungi (EMPF): Identification of the pathogen causing death of insect will be carried out by studying the cultural and morphological characters. The cultural characters will be recorded right from initiation of mycelial growth. The pure culture will be sent to Indian Type Culture Collection (I.T.C.C), Division of Plant Pathology, I.A.R.I., New Delhi-110 002 for identification.