



Results-Framework Document (RFD)

for

DIRECTORATE OF MEDICINAL AND AROMATIC PLANTS RESEARCH

(2012 – 2013)

**Boriavi, Anand -387 310, Gujarat
Website: <http://www.dmap.org.in>**

Section 1: Vision, Mission, Objectives and Functions

Vision

Systematic and continued accelerative efforts in research of medicinal and aromatic plants directed towards sustainable quality production for maintaining the socio-economic and ecological balance. The institute aims at achieving the future demand by working out innovative technologies with the commitments towards health security to face the challenges of population growth, soil health and biosphere management for increased productivity and cope with emerging challenges resultant of globalization

Mission

The Directorate of Medicinal and Aromatic Plants Research (formerly NRCMAP), Boriavi, Anand, was established in 1992 has been working for enhancing, sustaining production and utilization of major agriculturally important medicinal and aromatic plants through research and development to meet the present day demands and to address future national and international challenges.

Objectives

- To identify plants which need attention of agricultural scientists and to collect, maintain and evaluate the identified plants and develop improved varieties.
- To carry out those basic researches on the chosen crops, which are useful to develop their Good Agricultural Practices (GAP).
- To coordinate the activities of the centres of AINRP on Medicinal & Aromatic Plants and Betelvine located in various agro-climatic zones of India.
- To provide planting material and technical know-how generated for further testing and refinement by the centres of the co-ordinated project and DMAPR.

Functions

To plan, coordinate, implement and monitor R&D programmes for sustainable medicinal and aromatic plants production and resource conservation.

		Characterization compound								
		Development and validation of HPLC methods for identification and quantification of major marker compounds	Methods developed	Number	3	4	3	2	1	-
		Determination of the structures of pure compounds isolated from leaves and roots of <i>E. axillare</i>	Compound identified	Number	2	10	9	8	7	6
		Development of CPC method for separation of swertiamarin	Method developed	Number	2	2	1	-	-	-
		Update herbal gardens database	Collection, registration & updation of new herbal gardens data	Number	3	12	10	9	8	7
		Collection, updation and maintenance of digital herbarium database	Number of data base	Number	3	55	50	45	40	35
		Standardization of enzyme assays involved in seed development	Enzyme assays standardized	Number	1	5	4	3	2	1
		Standardization of SDS-PAGE protocol for isabgol mucilage	Protein profile	Number	1	2	1	-	-	-
		Standardization of protocol for seed constituents in isabgol	Protocols standardized	Number	1	5	4	3	2	1
		Determination of isabgol seed properties and development and fabrication of experimental setup/prototype	Seed properties	Number	1	3	2	1	-	-
			Machine/tool	Number	1	2	1	-	-	-
		Isolation and identification of <i>Trichoderma</i> spp. from rhizosphere of medicinal and aromatic plants.	Potential <i>Trichoderma</i> spp. isolated and identified	Number	1	3	2	1	-	-

		Isolation and identification of soil borne fungal pathogens of medicinal and aromatic plants	Major soil borne fungi isolated and identified	Number	1	3	2	1	-	-
To coordinate the activities of the centres of AINRP on Medicinal & Aromatic Plants and Betelvine located in various agro-climatic zones of India.	12	Conduct experiments in AICRPMAP&B centres for development of region specific technologies	Experiments conducted	Number	12	110	100	90	80	70
To provide planting material and technical know-how generated for further testing and refinement by the centres of the co-ordinated project and DMAPR.	12	Production of seeds of asalio, isabgol, ashwagandha,	Quantity of seeds produced	Kg	6	3000	2500	2300	2000	1700
		Production of planting material of aloe, lemongrass, palmrosa, guggule	Planting materials produced	Number	5	80,000	75,000	70,000	65,000	60,000
		Training to officers/researchers	No of trainings	Number	1	3	2	1	-	-
Efficient Functioning of the RFD System	3%	Timely submission of RFD for 2012-13	On-time submission	Date	2	Mar. 23 2012	Mar. 26 2012	Mar. 27 2012	Mar. 28 2012	Mar. 29 2012
		Timely submission of Results for 2012-13	On-time submission	Date	1%	May 1 2013	May 2 2013	May 3 2013	May 6 2013	May 7 2013
Administrative Reforms	5%	Implement ISO 9001	Prepare ISO 9001 action plan	Date	1%	June 4 2012	June 5 2012	June 6 2012	June 7 2012	June 8 2012
			Implementation of ISO 9001 action plan	Date	2%	March 25 2013	March 26 2013	March 27 2013	March 28 2013	March 29 2013
		Implement mitigating strategies for reducing potential risk of corruption	% of implementation	%	2%	100	95	90	85	80
Improving Internal Efficiency /	4%	Implementation of Sevottam	Independent Audit of Implementation	%	2%	100	95	90	85	80

responsiveness / service delivery of Ministry / Department			of Citizen's Charter							
			Independent Audit of implementation of public grievance redressal system	%	2%	100	95	90	85	80

**Section 3:
Trend values of the success indicators**

Objectives	Action	Success Indicators	Unit	Actual value for FY 10/11	Actual value for FY 11/12	Target value for FY 12/13	Projected value for FY 13/14	Projected value for FY 14/15
To identify plants which need attention of agricultural scientists and to collect, maintain and evaluate the identified plants and develop improved varieties.	Collection of germplasm of MAPs	Germplasm collected	Number	37	72	40	45	50
	Maintenance of germplasm of MAPs	Germplasm maintained	Number	641	712	762	772	782
	Evaluation of germplasm of MAPs	Germplasm evaluated (Tinospora)	Number	14	129	12	14	16
	Hybridization, generation advancement, selection and yield evaluation of breeding lines of mandate MAPs.	Crosses made	Number	6	14	10	12	14
		Breeding lines/selections advanced	Number	160	150	175	185	200
		Breeding lines evaluated	Number	5	16	15	17	18
To carry out those basic researches on the chosen crops, which are useful to develop their Good Agricultural Practices (GAP)	Analysis of soil and plant samples for different parameters (micronutrient cation in soil, micronutrient uptake by plant and Isabgol husk quality)	Soil and plant samples analyzed	Number	-	-	100	110	120
	Carry out nutrient management studies in <i>Centalla asiatica</i>	Plant and soil sample analyzed	Number	-	-	63	65	70
	Isolation of non obligate pathogen in Medicinal and Aromatic plants	Medicinal crop plants	Number	-	-	3	4	5
	Investigation of the role of Bio-agents in disease	bio-agents	Numbers	-	-	2	3	4

	management.							
	Extract preparation	Extracts	Number	-	-	4	5	6
	Isolation and of Characterization compound	Marker compound	Number	-	-	3	4	5
	Development and validation of HPLC methods for identification and quantification of major marker compounds	Methods developed	Number	-	-	3	4	5
	Determination of the structures of pure compounds isolated from leaves and roots of <i>E. axillare</i>	Compound identified	Number	-	-	9	-	-
	Development of CPC method for separation of swertiamarin	Method developed	Number	-	-	1	-	-
	Update herbal gardens database	Collection, registration & updation of new herbal gardens data	Number	-	-	10	12	15
	Collection, updation and maintenance of digital herbarium database	Number of data base	Number	-	-	50	55	60
	Standardization of enzyme assays involved in seed development	Enzyme assays standardized	Number	-	-	4	-	-
	Standardization of SDS-PAGE protocol for isabgol mucilage	Protein profile	Number	-	-	1	1	-
	Standardization of protocol for seed constituents in isabgol	Protocols standardized	Number	-	-	4	-	-
	Determination of isabgol seed properties and development and fabrication of experimental setup/prototype	Seed properties	Number	-	-	2	2	2
		Machine/tool	Number	-	-	1	-	-

	Isolation and identification of Trichoderma spp. from rhizosphere of medicinal and aromatic plants.	Potential Trichoderma spp. isolated and identified	Number	-	-	2	3	4
	Isolation and identification of soil borne fungal pathogens of medicinal and aromatic plants	Major soil borne fungi isolated and identified	Number	-	-	2	3	-
To coordinate the activities of the centres of AINRP on Medicinal & Aromatic Plants and Betelvine located in various agro-climatic zones of India.	Conduct experiments in AICRPMAP&B centres for development of region specific technologies	Experiments conducted	Number	85	100	100	110	120
To provide planting material and technical know-how generated for further testing and refinement by the centres of the co-ordinated project and DMAPR.	Production of seeds of asalio, isabgol, ashwagandha,	Quantity of seeds produced	Kg	2400	2450	2500	2600	2700
	Production of planting material of aloe, lemongrass, palmrosa, guggle	Planting materials produced	Number	74,000	74,500	75,000	75,500	76,000
	Training to officers/researchers	No of trainings	Number	2	2	2	3	4
Efficient Functioning of the RFD System	Timely submission of RFD for 2012-13	On-time submission	Date	-	-	Mar. 26 2012	-	-
	Timely submission of Results for 2012-13	On-time submission	Date	-	-	May 2 2013	-	-
Administrative Reforms	Implement ISO 9001	Prepare ISO 9001 action plan	Date	-	-	June 5 2012	-	-
		Implementation of ISO 9001 action plan	Date	-	-	March 26 2013	-	-
	Implement mitigating strategies for reducing potential risk of	% of implementation	%	-	-	95	-	-

	corruption							
Improving Internal Efficiency / responsiveness / service delivery of Ministry / Department	Implementation of Sevottam	Independent Audit of Implementation of Citizen's Charter	%	-	-	95	-	-
		Independent Audit of implementation of public grievance redressal system	%	-	-	95	-	-

Section 4: Description and definition of success indicators and proposed measurement methodology.

Objective 1: The objective aims at development of improved varieties of medicinal plants. This activity will be achieved by collection, conservation, evaluation and utilization of MAP germplasm for breeding improved cultivars. Both conventional and non-conventional approaches will be used for germplasm management as well as breeding improved cultivars in major medicinal and aromatic plants. The success of the task will be measured in terms of germplasm conserved and utilized, number of improved germplasm registered with NBPGR, New Delhi and development of improved varieties.

Objective 2: As the demand of MAPs are increasing both in national and international market and supply from the natural resources is decreasing, the future requirement should come out from the cultivation of these plants. Hence, the identification of suitable plant for cultivation and development of Good Agricultural Practices (GAP), Good Collection Practices (GCP) are very important in this point of time. The activity will be assessed based on information generated towards the development of number of cultivation practices for each MAPs.

Objective 3: Some MAPs are location and season specific, and hence efforts will be made in the AICRP centres located in different regions of our country so as to develop location specific technologies. This will be measured in terms of number of successful experiments conducted in these centres and technologies developed.

Objective 4: Production and supply of quality seed and planting material of medicinal and aromatic plants is an important activity for ensuring the supply of required quality quantity raw material for MAP bases industries. Success will be measured in terms of quantity of good quality planting materials produced.

Section 5: Specific performance requirements from other Departments.

1. With respect to survey and collection of MAPs the assistance from Forest Department, Biodiversity Authority of India, SAUs / Hort. Departments and local bodies would be required.

Section 6: Outcome / Impact of activities of organisation

S. No	Outcome / Impact of organisation /RCs	Jointly responsible for influencing this outcome / impact with the following organisation (s) / departments/ministry(ies)	Success Indicator (s)	Unit	2010-11	2011-2012	2012-2013	2013-2014	2014-2015
1	Production of quality seed/planting material, development of improved varieties/germpalsm, and technologies including value added products	DAC/SAU/NHB/NHM/NMPB, SMPB /KVKs, NGOs, NBPGR, etc.	Increase in production of major medicinal and aromatic plants (MAPs)	%	3	4	4	5	
			Development of improved varieties of MAPs	Number	0	1	1	1	2
			Registration of elite germplasm of MAPs with NBPGR	Number	2	2	3	4	5
			Development of production technologies for MAPs	Number	1	1	2	2	3
			Production of quality seed/planting material	Kg	1500	2500	2500	2600	2700
			Development of value added products and post harvest technology	Number	1	1	2	3	4
			Awareness of Stakeholders/farmers and capacity building of the scientists through training/demonstration	Number	1	1	2	3	5