

## An Interactive Web Application and Data Management System for Hosting and Managing PGR and Associated **Intellectual Property Records**

Shakti Khera, Ratnesh Tiwari, Sunil Archak ICAR-National Bureau of Plant Genetic Resources, New Delhi, India shaktiarora47@gmail.com



## Introduction

ICAR- National Bureau of Plant Genetic Resources besides being a conservator and curator of the germplasm, is a nodal organization for registering unique germplasm and facilitating registration of plant varieties including farmers varieties with the Protection for Plant Variety and Farmers Rights Authority, India . Documentation and maintenance of the information related to Intellectual Property associated with PGR including plant varieties and germplasm registrations is a prerequisite for facilitating benefit sharing procedure. PGR-IP is meant for structured documentation and maintenance of the data being generated at ICAR-NBPGR and endeavors to bring PGR information in public domain.



# A web application has been developed which

showcases institutional IP and also is a management tool for tracking and managing institutional IP records.

Besides institutional IP's. information on plant variety applications facilitated by NBPGR as a nodal organization, can be accessed

This application also hosts pertinent PGR related information in public domain and

This is in public domain



## Objectives

- Managing and tracking the IPR and IP applications viz. patents, designs, copyrights of the institute
- Managing and tracking the plant variety applications being processed by the institute
- Interface for accessing the IP and PGR information being maintained by the institute
- Exhibiting the technologies developed and PGR being curated available for commercialization
- Serve as a reference portal for hosting important PGR ownership information

Information on Institutional IPRs can be accessed by clicking on the relevant tabs on the home page.



Intellectual Property in PGR	About Us :					
International Treaties						
Institutional IPR	Patents (6)	enetic Resources besides being a conservator and curator of the germplasm, is a nodal ue germplasm and facilitating registration of plant varietiesvarieties inlcuding farmers				
Germplasm Registered (1196)	Copyrights (4)	<ul> <li>ant Variety and Farmers Rights Authority, India . Documentation and maintenance of the Property associated with PGR including plant varieties and germplasm registrations is a</li> </ul>				
Technology Showcase(7)	Trademark (0)	sharing procedure. A web application has been developed for structured documentation ng generated at ICAR-NBPGR. This application is developed in three tier architecture				
Link	Design (0)	ise has been designed in SQL Server. It has a user friendly interface through which basic germplasm, plant variety applications, technologies developed and associated IPs viz, nd designs can be accessed by all. It has six modules designed for management of user bove mentioned IP domains. This web application links two very discrete yet cognate being a hosting and management tool, it may also serve as a reference portal for hosting on which will reduce risks of misrepresentation.				
Team	Design (0)					
FeedBack						
Registered Login						

**Developed in ICAR National Fellow Project** Copyright (c) 2013 All Rights Resereved, National Bureau of Plant Genetic Resource



facilitates its easy access and enhanced use.



Team Feedback

**Management System** 



#### **Patents Details**

RESULTS

	ation No: 254341 Title : Process enabling simultaneous detection of two transgenes namely human serur bar genes using a multiplex polymerase chain reaction
atent No/Applica lead More	ation No: 258165 Title : Diagnostic kit based on polymerase chain reaction for detection of cry1Ac gene
Status	Granted
inventor's Name	Randhawa G J, and Firke PK
Commercializatio	on Available on Non exclusive basis
Abstract	The present invention comparising a process enabling detection of transgene i.e. cryAc gene responsible for production of cry1Ac protein for insert resistance in Bt cotton bollgard-1 using Polymerase Chain Reaction. the process comparises designing of the primer sequence for cry1Ac gene, Preparation of polymerase chain reation mixture, amplification of target sequence using polymerase chain reaction with three temperatures regime and conversion of the technolgy into form of a kit.
.PD	LPD Details
Vebsite	http://www.ipindia.nic.in/
atent No/Applica ad More	ation No: 4279/DEL/2015 Title : A SOXHLET EXTRACTOR
atent No/Applica ad More	ation No: 4278/DEL/2015 Title : A REUSABLE MULTIPURPOSE EXTRACTION THIMBLE APPARATUS
atent No/Applica lead More	ation No: 4277/DEL/2015 Title : A CENTRALLY FUNNELLED VALVED OR NON-VALVED CONDENSER

A framework for inventorization and documentation of plant germplasm is available at the Bureau in the form of Germplasm registrations. The main purpose of plant germplasm registration is to bring the trait-specific germplasm in public domain and to disseminate the information thereof for using the same effectively in developing new varieties. This information can be accessed by clicking relevant tab on the home page of PGR-IP.



### Architecture

This application is developed in three tier architecture using Asp.net with C# and database has been designed in SQL Server. It has a user friendly interface through which basic information related to registered germplasm, plant variety applications, technologies developed and associated IPs viz, patents, trademarks, copyrights and designs can be accessed by all. It has six modules designed for management of user authentications and records of above mentioned IP domains.

Coton	arboreum	IC296680	a-GMS 1DS -5	97004	1337	Gossypium arboreum var DS-5 of race bengalense	DP Singh, BPS L	
Mung bean	Vigna radiata	IC296679	Pentafoliate	97003	<mark>19</mark> 97	LM 696×ML33	VP Singh, RK Ya Singh	
Mustard	Brassica juncea	IC296682	CMS Trachy (Restorer)	97006	1997	Somatic hybrid, Trachystoma ballii + Brassica juncea	PB Kirti, Shyam F Bhat, V Dinesh K Chopra	
Mustard	Brassica juncea	IC296683	CMS Trachy	97007	1997	Somatic hybrid, Trachystoma ballii + Brassica juncea x Brassica juncea cv Pusa Bold	PB Kirti, Shyam F Chopra and T Mo	
Pea	Pisum sativum	IC296677	Jayanti (HFP 8712)	97001	1997	Aparna x PG3	RK Yadva, VP Si Chowdhary, BPS Tomar and Mehr;	
Pea	Pisum sativum	IC296678	Uttra (HFP 8909)	97002	1997	EC109185 × HFP4	RK Yadva, VP Si Chowdhary,	
Wheat	Triticum aestivum	IC296681	Hindi 62	97005	1997	Local germplasm	Genetic Resourc Kamal	
Aonla (indian gooseberry)	Emblica officinalis	IC296693	NA-7	98011	1998	Open pollinated strain of francis	RK Pathak IS Singh.R.Dwivedi and HK Singh	
Castor	Ricinus communis	IC296714	RG392	98033	1998	Pothineni local -I I	K Anjani, MA Ra Hanumantha Ra	
Castor	Ricinus communis	IC296715	RG 47	98034	1998	SKI-6 Collection	K Anjani, MA Rai Hanumantha Ra	
Chickpea	Cicer arietinum	IC296691	CGS 88101	98008	1998	ICCC 32	RP Dua , SK Sha	
Cotton	Gossypium hirsutum	IC296692	CA/MH-133	98010	1998	(CA/H-148 xCA/H-144)	GV Umalkar	
Cucumber	Cucumis sativus	IC296699	AHC-2	98017	1998	Local Germplasm	OP Pareekh, DK	

#### 🙈 🛓

Details of plant variety applications facilitated by NBPGR are available under the institutional IPR tab.

Bibliographic details are available with a preliminary search option.

Detailed reports can be generated on Advanced Report option wherein search reports based on various parameters can be generated on single click.

me	Link	Team	Feedback	-					रा च आ त ब्यूते NBPGR	
Pla	nt Vari	ety Lis	t			( Preliminary	Report / Advance R	eport )		
V	ariety Status	All	•	Variety Typ	e All	T	Botanical Name All			
Filing Date	Botanical Name	Crop Name	Variety Name	Category	Variety Type	Developing Institute	Developers Name	NBPGR Status	Ack.Receipt No	
19- Jan- 2015	Arachis hypogaea L.	Groundnut	GJG - 22	Extant	Typical	Main Oilseeds Research Station, Junagadh Agricultural University, Junagadh - 362001	Dr. K.L. Dobariya, Dr. J.H. Vachhani, Dr. L.L. Jivani, Dr. V.H. Kachhadia, Dr. H. G. Shekhat, Shri J. N. Fadadu	Accepted	REG/2015/120	0
19- Jan- 2015	Arachis hypogaea L.	Groundnut	GJG - 17	Extant	Typical	Main Oilseeds Research Station, Junagadh Agricultural University, Junagadh - 362001	Dr. K.L. Dobariya, Dr. J.H. Vachhani, Dr. L.L. Jivani, Dr. V.H. Kachhadia, Dr. H. G. Shekhat, Shri J. N. Fadadu	Accepted	REG/2015/121	0
19- Jan- 2015	Glycine max (L.) Merrill	Soybean	RAUS-5 (Pratap Soya-1)	Extant	Typical	Agricultural Research Station, Maharana Pratap University of Agriculture and Technology, Ummedganj, Kota- 324 001, Rajasthan	Dr. <mark>Mashiat Al</mark> i	Accepted	REG/2015/119	0
19- Jan- 2015	Glycine max (L.) Merrill	Soybean	Pratap Soya-2 (RKS-18)	Extant	Typical	Indian Council of Agricultural Research, Krishi Bhawan, Dr. Rajendra Prasad Road, New Delhi - 110 114	Dr. Mashiat Ali, Dr. Pratap singh, Dr. V.P. Gupta, Dr. H.R. Chaudhary, Dr (Mrs.) Amarheet Kaur, Dr. ( Mrs.) Vibha Doshi	Accepted	REG/2015/118	0





highlighting any actions pending along with due dates are displayed on dashboard for ready reference of the registered user.



Registered the users access can management dashboard by logging into the system.

There are six modules: five for managing each form of IP and a sixth one for managing user authentications. Registered users can be given selective access according to their role.

New records can be created, old records can be edited and reports based on multiple choices can be generated by registered users from this dashboard.

## Conclusion

This web application links two very discrete yet cognate spheres of PGR and IP. Besides being a hosting and management tool, it may also serve as a reference portal for hosting important IP ownership information which will reduce risks of misrepresentation.