Other Activities

Shriram Gramin Sanshodhan Va Vikas Pratishthan's

Lokmangal College of Agril. Biotechnology

(Affiliated to Mahatma Phule Krishi Vidyapeeth, Rahuri)

Wadala, Tal-North Solapur, Dist.-Solapur

B.Tech. Biotechnology

College Code: 19210 (Est. 2009)

Grade : B

Contacts

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About College and Campus

- Trusted educational institute for quality education in different fields of education
- Innovative teaching and learning process
- Good infrastructure with well-equipped laboratories
- Highly motivated, experienced and self-dedicated faculties
- Career development facilities for students
- Library with large collection of books
- Hostel, mess and canteen facility for boys and girls
- Computer and language lab with internet facility
- Good scope for exploring sports, cultural and other talents
- Educational visits to research institutes all over India
- Smart Classroom with CCTV surveillance

Institute level special scholarship for students : UDAN

Departments & Laboratories

Plant Biotechnology

Animal Biotechnology

Microbial and Environmental Biotechnology

Bioinformatics

Scope and Opportunities

- Proven prominent field for career development
- Career opportunities in research and development sector
- Opportunity to become an entrepreneur
- Eligible for appearing competitive exams like MPSC, UPSC, IBPS, SSC, Agril-MPSC, RRB etc.
- Opportunity to complete research project in reputed research institute
- Opportunities to go for higher education with fellowship (ICAR, DBT, MCAER etc.)
- Job opportunities in government, semi-government and private agricultural as well as biotechnological companies
- Foreign opportunities for jobs and higher education

Achievements :

Students selection for higher education

M.Sc.	Ph.D.	Abroad University	Other Higher Education
74	11	6	28

Students achievements

Administration	16	Research	15
Banking	18	Teaching	18
Entrepreneurship	27	Marketing and Industries	32

- Students participation in intercollegiate, inter-university and national level sports competition

Campus Highlights

Scientific efforts towards innovation at Lokmangal

"Effect of chemical mutagen on in *vitro* propagation of pomegranate"

Miss. Netake Pranjali Rameshwar

Pomegranate (*Punicagranatum* L.) is an important horticultural crop which supports the livelihood of about 2.5 million families in climatically and edaphically challenged areas of arid and semi-arid regions. Pomegranate variety Bhagwa is mostly cultivated in India, due to its attractive rind and aril colour, high yield potential, good shelf life and great market demand. The variability of pomegranate is very low hence we aimed to create variation by adopting chemical mutagens. In mutation breeding, the estimation of LD_{50} is the initial step to finding the optimal dose to determine the best dose to produce a better revival of mutants with little population diminution.The main objective of this study to evaluate the effect of chemical mutagen on in-vitro shoot proliferation of pomegranate. In the current experiment, mutagenesis was performed on nodal segment of 'Bhagwa' pomegranate using Chemical mutagen Acridine orange and 5-Bromo Uracil. A total of 4 different mutagenic media of concentration 0.15% and 0.25% were tested against control and different treatments of chemical mutagen of concentration 0.15% and 0.25% for different interval of time i.e., 10 min, 15 min, 20 min against control for their effect on different growth parameter like no. of shoots, average height and average survivability of plant. The chemical mutagenic media of Acridine Orange 0.25% showed best effect on growth parameter of plant. Also, the mutagenic treatment of 5-Bromo uracil 0.15% at 10 min shows positive effect on growth of plant. Based on survival percentage of plant the LD_{50}value was calculated. It showed that chemical mutagens Acridine Orange and 5-Bromouracil treatment showed a gradual decrease in the survivability of explant with increase in dose of chemical mutagen.

"Biochemical analysis and Molecular Characterization of Germplasm Lines of Pomegranate"

Mr. Zodage Siddharth Dagadu

Pomegranate (*punicagranatum*L.) is a fruit tree species showing high plant diversity. Biochemical analysis of pomegranate juice involves studying its composition and identifying various chemical components. Pomegranate juice is known for its rich content of antioxidant, polyphenols, vitamins and minerals. The pomegranate juice sample undergoes various biochemical parameters, such as TSS, Acidity, Total Phenolics, DPPH Assay, Anthocyanin content and ascorbic acid. Need to perform biochemical analysis because the results showed that nutritional information, sugar content, quality control, & the results were helpful to improvement of pomegranate. Molecular techniques are required for quick and precise characterization and certification of different cultivated varieties in India.

This study evaluates the genetic method to identify pomegranate cultivars. This procedure is depended on the application of Simple Sequence Repeats (SSR) and Polymerase Chain Reaction (PCR). A total 10 pomegranate varieties were screened using 4 SSR markers. SSR9, SSR10, SSR11 and SSR12 these primers were screened and showed polymorphism. Genetic similarity coefficient among the 10 genotypes was estimated by Jaccard's coefficient ranging from 0.50 to 1.00 Maximum similarity was observed in between Bhagwa (1.00) and as lowest similarity were observed in between Super Bhagwa (0.50). PCR amplification result amplicons, polymorphic percentage and PIC value were used to reconfirm the SSR marker system leading to DNA fingerprinting.

"Assessment of genetic diversity of rosecultivars using molecular marker"

Miss. Jagdale Rajashri Mahadev

Rose is considered as "Queen of the Flowers", belonging to the Rosaceae family.In the case of rose plants, Genetic diversity can be valuable tool for identifying and verifying the genetic identity of different rose genotypes or cultivars.Genetic diversity study was undertaken for 12 rosegenotypes to determine genetic relationship and differences between these genotypes. SCoT primers (R-15, F-8, F-9, F-10, F-16, F-26) were used for polymorphism study. Different combinations were tried. Of the 22 combinations 5 combinations gave polymorphism. Of these 5 primer combinations yielded total 33 fragments having size ranges from 208bp to 1310bp with number of polymorphic fragments22 with an average of 63% the most discriminating primers were SCoT –F-15 and R-10which showed highest level of polymorphism 85% &SCoT –F-15 and R-10showed lowest value of polymorphism 72%. Genetic similarity coefficient among the 12genotypes was estimated jaccard's coefficient ranging from 0.57 to 0.93. The lowest similarity (57%)was found between Pusa Muskan and Arka Swadeshgenotypes, whereas the highest genetic similarity (93%) was found between Jantar Mantar and Cardinal. The result of this study clearly indicated that the SCoT analysis can be used to estimate genotypic similarity and DNA fingerprinting.

"Biochemical analysis and identification of polymorphic SSR markers for Fruit cracking in pomegranate (*Punicagranatum*L.)"

Mr. Gawade Nikhil Santosh

Pomegranate (*Punicagranatum*L.) is a fruit tree species showing high plant diversity. fruit cracking is a significant issue affecting fruit quality and marketability in pomegranate. Biochemical analysis of pomegranate fruit helps to identify various chemical components. The pomegranate juice sample undergoes various biochemical parameters, such as TSS, Acidity, Total Phenolics, DPPH Assay, Anthocyanin content and ascorbic acid. Need to perform biochemical analysis because the results showed that nutritional information, sugar content, quality control, & the results were helpful to improvement of pomegranate.

In this study we employed molecular techniques to identify polymorphic Simple Sequence Repeat (SSR) markers associated with fruit cracking resistance. Genomic DNA was extracted from leaf of pomegranate and subjected to PCR amplification using SSR primers targeting potential candidate genes/ traits involved in fruit development and stress response. In this study we have identified 8 monomorphic markers for fruit cracking which is not useful for study related the fruit cracking. To ensure the actual polymorphic molecular marker responsible for fruit cracking, more number of markers needs to be screened.

After getting the polymorphism the identified markers provide a valuable genetic resource for marker assisted breeding program aimed at developing pomegranate cultivars with enhanced resistance to fruit cracking. This research contribution to the understanding of the genetic basis of fruit cracking and offers practical tools for sustainable fruit production.

"DNA Fingerprinting of Sunflower Genotypes Using Molecular Marker"

Mr. Phugate Vaibhav Rahul

Inter Simple Sequence Repeat (ISSR) markers were used to develop fingerprint of 10 varieties of sunflower (*Helianthus annuus* L.) and to determine genetic relationships between these varieties. DNA polymorphisms were scored within amplified fragments (their numbers and molecular weight) on agarose gel electrophoresis stained by ethidium bromide. 5 ISSR primers yielded total 26 bands (DNA fragments) having size ranges from 150 to 1700 bp with number of polymorphic bands 17 with an average of 3.4. The most discriminating primers were UBC-820 which showed highest level of polymorphism 88.33%.

Genetic similarity coefficient among the 10 varieties was estimated by Jaccard's coefficient ranging from 0.63 to 0.79. Maximum similarity was observed in between EC- 279309-1 and IC-502017 (0.92) as well as lowest similarity were observed in between 12R-1 and LSFH-171 (0.58). Based on genetic similarity all 10 sunflower genotypes were divided in 2 main clusters. Cluster 1 was constituted maximum number of genotypes namely, R-856,NDCMS-2B, IC-502017, EC-198077, LSFH-171, EC-178168 and EC-279309-1. Among these 7 the IC-502017 and EC-279309-1 observed to be more similar with 0.92 value of genetic similarity. Thus, PCR amplification result amplicons, polymorphic percentage and PIC value were used to reconfirm the ISSR marker system leading to DNA fingerprinting.

"DNA fingerprinting of chickpea using molecular markers"

Mr. More Tushar Sanjay

Random Amplified Polymorphic DNA (RAPD) markers were used to develop fingerprint of 8 genotypes of chickpea (*Cicerarietinum*L.) and to determine genetic relationships between these genotypes. DNA polymorphisms were scored within amplified fragments (their numbers and molecular weight) on agarose gel electrophoresis stained by ethidium bromide. 5 RAPD primers yielded total 50 bands (DNA fragments) having size ranges from 150 to1690 bp with number of polymorphic bands 46 with an average of 9.2 The most discriminating primers were OPA 06 & OPA 10 which showed highest level of polymorphism 100%. Genetic similarity coefficient among the 8 genotypes was estimated by Jaccard's coefficient ranging from 0.34 to 0.79. Maximum similarity was observed in between NBEG-47 and SA-1 (0.79) as well as lowest similarity were observed in between BGD-103 and DBGV-204 (0.34). Based on genetic similarity all 8chickpea genotypes can be grouped into two major clusters viz. A and B. Cluster A was constituted genotypes namely BGD-111-1, BG-1105 and DBGV-204. Cluster B was constituted genotype is BGD-103, MNK-1, NBEG-47, A-1 and SA-1. Thus, PCR amplification result amplicons, polymorphic percentage and PIC value were used to reconfirm the RAPD marker system leading to DNA fingerprinting.

"DNA Fingerprinting of Soybean Genotypes Using ISSR Marker"

Mr. Kadam Aditya Tukaram

DNA fingerprinting of 7 soybean varieties were performed to determine genetic relationship between these varieties. DNA polymorphism were scored within amplified fragments on agarose gel electrophoresis stained by ethidium bromide. 5 ISSR primer were used for analysis the 5 primers yielded total 36 bands (DNA fragments) having size ranges from 303 bp to 1988 bp with number of polymorphic bands 20 with an average of 56.16% polymorphism. The most discriminating primers were UBC-849 and UBC-856 which showed highest level of polymorphism 66.66% & UBC-850 showed lowest value of polymorphism 37.5%.

Genetic similarity coefficient among the 7 varieties was estimated jaccard's coefficient ranging from 0.64 to 0.89. The lowest similarity was found between MAUS-71 & AMS-1001 varieties showing (44%) similarity, whereas the highest genetic similarity was found between DS-228 & MAUS-71.. Similarity cluster analysis revealed two distinct clusters representing AMS-1001,KDS-726, KDS-753 and MAUS-612 whereas MAUS-162,MAUS-71, & DS-228 included in cluster 2. The result of this study clearly indicated that the ISSR analysis can be used to estimate genotype similarity and genetic diversity.

"Identification of polymorphic SSR marker in Pomegranate"

Miss. Deshmukh Durga Laxman

Pomegranate (*Punicagranatum* L.) belongs to the genus Punica and family *Lythraceae* (2n=16, 18) commonly known as 'Anar'. It is one of the oldest known edible fruit but aril browning is one of the major physiological problems of pomegranate, resulting in diminution of quality and commercial value of the fruits. This disorder critically affecting fruit quality in some commercially important varieties such as cv. Ganesh and cv. Bhagwa. In present study for 8 genotypes total 18 markers were screened from that 8 were amplified properly out of that 8 markers 3 were polymorphic and 5 were monomorphic. 3 polymorphic markers were able to produce 6 alleles with an average of 2 alleles/primer. According to this data PIC value was calculated. Polymorphic information content (PIC) value is 0.22 in all the markers. From overall study we concluded that to ensure the actual polymorphic molecular marker responsible for aril browning, a greater number of markers needs to be screened.

"*In vitro* regeneration of Brahmi (*Bacopamonnieri* L.)"

Mr. Mote Shankar Managini

The tissue culture studie was performed on *Bacopamonnieri*L., Axillary shoots (small bud already formed) was used as the explant material. Surface sterilized explants were aseptically cultured on MS medium supplemented with different plant growth regulators. The most successful formation of buds was seen in the MS medium with 1.5 mg/l of BAP, where achieved a 100% success rate in bud growth.

EDUCATIONAL VISIT