ORYZA 50(3), 2013

Stability analysis of quality traits in rice hybrids

PV Padmavathi*, PV Satyanarayana, Lal Ahamed M and N Chamundeswari
Agricultural College, Bapatla - 522101, Andhra Pradesh
E-mail: padmaphd05@gmail.com

Page : 199-204

ABSTRACT

Fifty two hybrid combinations were evaluated for yield and yield contributing characters over four different agro-climatic zones in Andhra Pradesh, India during dry season 2010-11. Eighteen promising hybrids from all locations viz., Maruteru, Warangal, Jagtial and Ragolu which recorded significant higher yield than check were subjected to analysis for eleven quality characters. The analysis of variance of Eberhart and Russell model indicated the genotypes and environments were significant for all the quality characters except for milling per cent for genotypes indicating the diversity among the genotypes and environments studied. The GE interaction was significant only for head rice recovery, water uptake and kernel elongation ratio and non-significant for remaining characters. The high yielding hybrid APMS 9A x MTU II-143-26-2 was stable for head rice recovery and kernel elongation ratio while APMS 10A x MTU 1071 was stable for kernel elongation ratio, alkali spreading value and amylose content.

Key words: *rice hybrid, Eberhart and Russell model, GxE interaction and stability parameters*

DNA fingerprinting of root-knot nematode resistant rice genotypes

S Mohapatra*, Mamta Jena, RS Panda, SK Mohanty, L Behera and SC Sahu
Central Rice Research Institute, Cuttack-753006, Odisha
Email : slmohapatra2009@gmail.com

Page : 205-2013

ABSTRACT

Forty seven microsatellite markers were used for fingerprinting and assessing genetic diversity of eight rice genotypes differing in resistance to root-knot nematode. Forty five marker loci revealed polymorphism among these genotypes. A total of 104 alleles were amplified, of which 97 were polymorphic. The number of alleles detected per locus ranged from two to five with an average of 2.21. The polymorphism information content (PIC) ranged between 0 and 0.941 with an average of 0.64 per locus, indicating the suitability of the markers for the detection of genetic diversity. Genetic similarities among the genotypes varied from 0.367 to 0.792 with an average of 0.56. The UPGMA cluster analysis grouped the rice genotypes into two major clusters at 49% level of genetic similarity. Twelve unique alleles were identified which could be useful for developing diagnostic markers.

Key words: *DNA fingerprinting, genetic diversity, rice, root-knot nematode*

Waxy gene polymorphism and its association with grain quality traits in selected landraces of rice

Divya Balakrishnan*, S Robin[1] and A John Joel[1]

Directorate of Rice Research -ICAR, Rajendranagar, Hyderabad -500 030
[1]Centre for Plant Breeding and Genetics, Tamil Nadu Agricultural University, Coimbatore -641 003, Tamil Nadu
Email : divyabalakrishnan05@gmail.com

Page : 214-221

ABSTRACT

The quality breeding of rice is mainly based on the amylose content, which is in turn determined by waxy gene locus. The genetic polymorphism of the Wx gene in 82 rice landraces and varieties were studied using a simple sequence repeat (SSR) marker RM 190. The genotypes were studied for amylose content, grain length, grain breadth, LB ratio, grain colour, alkali spreading value and gelatinisation temperature. Based on amylose content, the genotypes were classified into different categories as low amylose (10-20% amylose), intermediate amylose (20-24% amylose) and high amylose (>25% amylose). The amylose content ranged from 14.22% (Ganthasala) to 33.6% in (Vadivel). The employment of SSR markers in genetic diversity analysis also helped in grouping the genotypes on amylose content. The SSR primer, RM190 showed 48.95% correlation with phenotypical variation of amylose in the selected landraces.

Key words: *rice, quality, amylose content, SSR markers, waxy gene*

Evaluation of root characters and its relation to drought tolerance in rice

Lakshmi Hijam* and KK Sarkar

Bidhan Chandra Krishi Viswavidyalaya Mohanpur, Nadia, West Bengal -741252
Email:lakshmihij52@gmail.com

Page : 222-227

ABSTRACT

The present experiment was conducted on ten genotypes viz. Dular, IET 826, Aditya, Browngora, IR 64, IR 30, Satabdi, Bandana, Rasi and Panke during wet season of 2008, 2009 and 2010. The experiment was conducted with an objective to identify genotypes with favourable root architecture to reduce yield loss under water stress conditions and to study the genetics of tolerance followed by identification of hybrids with high heterosis for yield and important root characters. On the basis of evaluation for root characters Dular and Browngora proved their efficiency to maintain yield under water stress condition and root volume and root shoot ratio were predominantly controlled by additive gene effect.

Key words: *rice, genotype, root character, drought*

Genetic divergence analysis for yield and quality traits in scented rice

Vineet Kumar*, PK Singh, OP Verma, S Dixit and ON Singh[1]

Narendra Deva University of Agriculture & Technology, Kumarganj, Faizabad- 224229, Uttar Pradesh
[1]Central Rice Research Institute, Cuttack-753006, Odisha
Email: *vineetsvineet@yahoo.co.in*

Page : 228-231

ABSTRACT

Genetic divergence in 62 genotypes of scented rice was assessed on the basis of grain yield, yield components and quality traits using Mahalanobis D^2 analysis. Based on the genetic distance (D^2 values) genotypes were grouped into a distinct clusters of which cluster VII with 14 genotypes was the largest followed by cluster IV with 11 genotypes. Clustering pattern was of genotypes showed lack of corresponding between geographic origin and genetic divergence. Maximum inter-cluster distance was observed between clusters VIII and IX. Very high inter-cluster distances were also shown by cluster II and IV from cluster IX; cluster I from VIII and III and cluster III from VIII.

Key words: *aromatic rice, genetic divergence, yield and yield components, quality traits*

Effect of different vermicomposts under integrated nutrient management on soil fertility and productivity of rice

Ch S Rama Lakshmi*, PC Rao, T Sreelatha, M Madhavi, G Padmaja and A Sireesha

Regional Agricultural Research Station, Anakapalle - 531001
Email : *sitaramalakshmi20@yahoo.com*

Page : 232-239

ABSTRACT

Studies on effect of different vermicomposts under integrated nutrient management (INM) on soil fertility status, soil humic substances, grain yield and benefit cost ratio in rice were conducted at Anakapalle during wet season 2009 and 2010. Rice was grown with 12 treatments, consisting of INM practices (where 50 % or 75 % recommended dose of fertilizer (RDF) was integrated with vermicomposts prepared from sugarcane trash, weeds, vegetable waste and rice straw) and certified organic manures. The data indicated that, there was no change in the pH and EC of the soil, whereas the values of available macro and micro nutrients (N, P, K, Zn, Fe, Cu and Mn) were higher with INM practices, specially when vermi compost prepared from vegetable waste was applied. A distinct decrease was noticed in all the values, when crop was raised without any external supplement of nutrients. Application of vermicomposts enhanced the humic and fulvic acid content in the soil over initial value. Significantly higher grain yield was recorded in 75 % RDF + vegetable market waste vermicompost @ 2.5 t ha^{-1} and it was on par with 50 % Prathista organic manures + 50 % chemical fertilizers. The treatment with 100 % Prathista organic manures recorded highest (BCR = 2.92).

Key words: *vermicompost, INM, rice, soil fertility and grain yield*

A new phenotyping technique for salinity tolerance at the reproductive stage in rice

Cecilia Diana C Palao[1], Celia B Dela Viña[1], Glenn B Gregorio[2] and Rakesh Kumar Singh*[2]

[1]University of the Philippines at Los Baños, Laguna, Philippines
[2]International Rice Research Institute, DAPO 7777, Metro Manila, Philippines
E-mail: r.k.singh@irri.org

Page : 240-248

ABSTRACT

Reproductive-stage salinity tolerance has been difficult to study due to the complexity of the trait and the lack of reliable stage-specific phenotyping techniques. A leaf-cutting technique was developed with the minimum number of leaves needed by the rice plant that will not significantly affect grain yield and yield components in order to standardize rice screening for reproductive-stage salinity tolerance. Salt stress equivalent to EC 10 dSm^{-1} was imposed to rice plants with trimmed leaves starting from boot leaf emergence up to 10 days in a pot experiment under controlled conditions. The stage-specific effect of salt stress was verified by observing salt-sensitive (IR64) and salt-tolerant (IR4630-22-2-5-1-3) genotypes, as well as 201 F_2 plants derived from their cross. Leaf cutting before the booting stage efficiently directed the salt concentration to the reproductive stage and helped in discriminating the tolerant genotypes from the sensitive ones as evidenced by the low pollen viability and higher accumulation of toxic ions in the flag leaf of the sensitive genotype (IR64). The opposite was found true for the tolerant genotype (IR4630-22-2-5-1-3).

Key words: *rice, leaf cutting, phenotyping, reproductive stage, salinity tolerance, pollen viability, salt stress*

Effect of organic nutrient management on productivity and economics of scented rice

Niru Kumari, SK Pal and Sheela Barla*

Birsa Agricultural University, Ranchi, Jharkhand 834006
E-mail: sheela_barla123@yahoo.com

Page : 249-252

ABSTRACT

Field experiments were conducted at Ranchi, Jharkhand to study the effect of organic nutrient management on productivity and economics of scented rice indicated that scented rice (Birsamati) grown with 100:21.8:20.8 Kg NPK ha^{-1} through inorganic fertilizer produced maximum grain (3.95 t ha^{-1}) and straw yield (5.55 t ha^{-1}), net return (39,557 ` ha^{-1}), and benefit: cost ratio (3.62), with higher value of yield attributing characters. Among various organic sources, use of green manuring @ 5 t ha^{-1} + farm yard manure @ 10 t ha^{-1} produced maximum grain (3.28 t ha^{-1}) and straw yield (4.35 t ha^{-1}), maximum net return (35,975 ` ha^{-1}) and benefit: cost ratio (2.61) compared to rest of the organic treatments.

Key words: *scented rice, organic nutrient management, yield, yield attributes, economics*

Nitrogen scheduling, phosphorus management and green manuring for increasing productivity of lowland rice

SK Chaudhary*, Yogeshwar Singh, DN Pandey and Dharminder

Rajendra Agricultural University, Pusa, Samastipur (Bihar)-848125
Email : skcrau@gmail.com

Page : 253-258

ABSTRACT

Field experiment was conducted during dry and wet seasons of 2005, 2006 and 2007 at Pusa, Bihar to assess the effect of phosphorus management in pre-rice green manure crop dhaincha and rice on the biomass production of Dhaincha and its effect on yield and nutrient uptake of succeeding rice crop and residual fertility build up in soil. Dhaincha biomass production increased with increasing phosphorus level and seed rate, achieving 21.89 t ha^{-1} when entire dose of phosphorus was given to the green manure crop at higher seed rate. The increase in biomass production was 37.2% over no phosphorus to dhaincha. Addition of nitrogen to the soil ranged from 36.7 to 74.4kg N ha^{-1}. Maximum grain and straw yield of rice was recorded when entire dose of phosphorus was added to dhaincha with 75% recommended dose of nitrogen (RDN) to rice crop, however, this remained at par with 50% RDN added to the rice crop. NPK uptake by rice crop also increased significantly due to these treatments. Second experiment was conducted to schedule the nitrogen splitting in summer green manuring- rice system to optimize the efficiency of applied fertilizer N through better synchronization between crop demand and supply. Significantly maximum grain and straw yields , and net return was recorded when N fertilizer was applied in three splits as ¼N at active tillering + ½N at panicle initiation + ¼ N at flowering.

Key words: *rice, green manuring, nitrogen scheduling, phosphorus*

Delineation of larval instars in field populations of rice yellow stem borer, *Scirpophaga incertulas* (Walk.)

AP Padmakumari*, G Katti, V Sailaja, Ch Padmavathi, V Jhansi Lakshmi, M Prabhakar[1] and YG Prasad[1]

Directorate of Rice Research, Rajendranagar, Hyderabad -500 030
[1]Central Research Institute for Dryland Agriculture, Hyderabad -500 059
Email : padmaapk@lycos.com
Page : 259-267

ABSTRACT

Delineation of larval instars of an insect is important in morphological and physiological studies. We applied Dyar's rule to morphometric measurements of larval instars from field populations of the yellow stem borer (YSB), Scirpophaga incertulas (Walk.) collected on two paddy cultivars over three seasons. The conventional head capsule width (HCW) measurement was compared with mandibular width (MW) of larvae from both field and laboratory populations. Frequency distribution of HCW showed seven peaks with size overlaps indicating seven instars in field populations. Distinct size classes were observed in MW with means of 0.042, 0.083, 0.125, 0.166, 0.208, 0.250 and 0.291 mm for 1st, 2nd, 3rd, 4th, 5th, 6th and 7th instars, respectively, in the field population. However, size classes fell into five instars from HCW and MW measurements of larvae reared on cut paddy stems under constant temperature (25 ± 1°C) and humidity (60± 5%) indicating two additional, late larval instars under variable field conditions. For the same instar, mean HCW size slightly varied and was overlapping while mean MW size was identical between field and laboratory populations for each of the first five common larval instars.

Key words: *Dyar's rule, mandibular width, rice, yellow stem borer, Scirpophaga incertulas*

Efficacy of fungicides for the management of blast disease in rice seed production

PJ Devaraju*, NKS Nagaraju and Shashidhara

University of Agricultural Sciences, GKVK, Bangalore - 560 065
Email : pjdseedtech@gmail.com

Page : 268-272

ABSTRACT

Efficacy of different fungicidal sprays viz., carbendazim, mancozeb and tricyclazole were tested at three growth stages viz., fifty per cent flowering, milk/dough stage and physiological maturity for control of blast disease (Pyricularia grisea) in rice cv. Shalivahana at Ponnampet, Karnatak. The seeds produced were evaluated for various seed quality parameters including standard blotter test. Among the 10 treatment combinations, tricyclazole significantly increased number of tillers hill^{-1} (8.63), productive tillers hill^{-1} (8), number of filled spiklets panicle^{-1} (58) and germination (91 %). Whereas, number of chaffy seeds panicle^{-1} (14), infected seeds (1 %) and discoloured seeds (5 %) were reduced significantly. Spraying the crop, once at 50 per cent flowering + milk/dough stage and at physiological maturity recorded higher yield, quality and disease free seeds. Detection of seed borne and storage fungi by "standard blotter test" revealed that the percentage of seeds infected ranged from 4-63(%). Lowest infection (4 %) of samples by pathogens were recorded upon spraying of tricyclazole at all the three critical stages indicating it as potential chemical for controlling rice blast in seed production.

Key words: *rice blast, seed quality, standard blotter test, tricyclazole*

Field efficacy of insecticides against chaffer beetle, *Popillia lucida* Newman infesting rice

Yash Pal, Pawan K Sharma* and Sumit Vashisth

College of Agriculture, CSK HPKV, Palampur-176 062
Email : pksgarg@rediffmail.com

Page : 273-277

ABSTRACT

Field experiments were conducted at Amatrahar, Ansui and Ladoh in Kangra district of Himachal Pradesh to evaluate efficacy of insecticides viz., bifenthrin (Talstar 10 EC), imidacloprid (Confidor 17.8 SL), thiamethoxam (Suckgan 25 WG), indoxacarb (Aalwant 14.5 SC), cypermethrin (Cypermil 10 EC) and biopesticide azadirachtin (Neem Baan 1500 ppm) against chaffer beetle Popillia lucida Newman. Order of efficacy of insecticides was cypermethrin > imidacloprid > thiamethoxam > bifenthrin > indoxacarb > azadirachtin. Cypermethrin @ 62.5 g.a.i ha^{-1} was found to be the most effective insecticide against chaffer beetle. The treatments imidacloprid @ 25 g.a.i ha^{-1} and thiamethoxam @ 25 g.a.i ha^{-1} were at par with cypermethrin for the control of chaffer beetle. The treatments also resulted in significant reduction in infested panicles and damaged florets leading to higher yields in different treatments. In all the three experiments on evaluation of efficacy of insecticides similar trends in grain yield and additional return were observed with cypermethrin treated plots resulting in highest grain yield and additional return followed by imidacloprid, thiamethoxam, bifenthrin, indoxacarb and azadirachtin.

Key words: *rice, chaffer beetle, insecticides, field efficacy*

Selection of effective natural fungal pathogens of the rice leaf folder *Cnaphalocrocis medinalis* (Guenee) by *in vitro* assay

B Sahoo, KS Behera and TK Dangar*

Central Rice Research Institute, Cuttack 753006, Odisha, India
Email: dangartk@gmail.com

Page : 278-283

ABSTRACT

The rice leaf folder (LF), Cnaphalocrocis medinalis (Guenee) was naturally infected by the fungal pathogens viz. Beauveria bassiana, Metarhizium anisopliae, Nomuraea rileyi, Fusarium oxysporum and Verticillium lecanii. In vitro condition, the pathogens affected 0-93.3% mortality of the 3rd instars LF larvae within 1-4 d. The isolates of Beauveria and Metarhizium spp. were more effective pathogens infecting 80-93.3% insects, whereas, the other fungi infected only 20-23.3% larvae in 96h. The isolates of B. bassiana and M. anisopliae produced different pathogenicity related exotoxins viz. amylase, cellulase, protease, chitinase, pectinase, lipase and lecithinase which would enhance their virulence. Higher level (>50%) of infectivity of B. bassiana and M. anisopliae envisaged that they can be exploited to control LF in the field. Besides, as all other fungi were also virulent to varying extents, they can be effective against LF in favourable conditions.

Key words: *rice, leaf folder, fungal pathogen*

An economic evaluation of system of rice intensification in Odisha

Arun Pandit*, Jyoti Ranjan Mishra and BN Sadangi

Central Rice Research Institute, Cuttack - 753 006, Odisha
Email : arunpandit74@yahoo.co.in

Page : 284-290

ABSTRACT

Seventy five rice farm families of Odisha practising system of rice intensification (SRI) were personally interviewed during 2011. Data envelopment analysis (DEA), a nonparametric technique was employed for technical efficiency estimation using computer software DEAP ver. 2.1. The investigation shows that farmers allocated a little more than 25% of the total rice area to SRI. Pooja was the most preferred variety both in the SRI and conventional system of cultivation. The study further indicated that the SRI package was not being followed in its entirety. However, even with partial adoption of SRI practices the average grain and straw yield on SRI plots was 25 and 13% higher than the conventional plots. Farmers who followed the SRI packages in a better manner produced higher output, indicating that possibilities exist for many farmers to increase average output further. Evidence from the study suggests that though the cost of cultivation was 3.2% higher, the cost of production was almost 19% lower in SRI due to higher grain yield. Gross and net returns were higher in SRI by more than 30% and 69% respectively. Technical efficiency (TE)analysis indicated that the average TE was about 88% in SRI and 75% in conventional. Further, farmers had positive perception about the SRI.

Key words: *rice, SRI, technical efficiency, economic impact, perception*

Analysis of production and marketing status of Gobindabhog rice in Nadia district of West Bengal

M Ghosh*, D Mazumder, A Biswas, KK Goswami, S Banerjee, R Mondal and S Roy

Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia 741252, West Bengal
E-mail: mghoshbckv@rediffmail.com

Page : 291-296

ABSTRACT

The area and production of Gobindabhog, a popular indigenous aromatic rice of West Bengal, India is going down during last 30-40 years due to rapid adoption of high-yielding varieties in the state. A base-line survey was conducted on 261 randomly selected Gobindabhog farmers of 6 blocks in Nadia district through personal interview using structured and pre-tested schedule during 2010 to assess the production status; while on 46 growers for post-production parameters like use of paddy, processing, marketing, etc. during 2010-11. Most (90.8%) of the respondent farmers, being small and marginal ones, cultivated Gobindabhog rice upto 0.3 ha land, with district average of 0.2 ha. Mean seed rate of the district was 30.0 kg ha^{-1} and major (83.1%) transplanting operations were done during the period between 2nd fortnight of July and 1st fortnight of August. Most of the farmers adopted nutrient, weed and water management practices in their fields planted with Gobindbhog as they expected higher returns compared to other rice varieties. With mixed responses in use of paddy, milling and marketing, about 58.7% farmers sold their paddy at district average selling price of `1116.00 per 60 kg bag. Analysis of grain samples across the blocks showed that mean hulling, milling and head rice recovery were 78.9, 69.0 and 59.6%, respectively.

Key words: *aromatic rice, Gobindabhog, cultivation, grain quality, marketing, West Bengal*

SHORT COMMUNICATION

Evaluation of advanced backcross lines for drought tolerance in rice

M Girija Rani*, D Adilakshmi, BNVSR Ravi Kumar, KSN Prasad, PV Satyanarayana and Y Suryanarayana

Andhra Pradesh Rice Research Institute & Regional Agricultural Research Station, Maruteru 534122, Andhra Pradesh
Email: girija_aprri@yahoo.co.in

Page : 297-299

ABSTRACT

Drought is one of the serious abiotic stresses limiting rice productivity under prolonged dry spells. The present study was aimed to estimate heritability of yield and its components under lowland stress for direct selection of yield in fifty advanced back crosslines derived from drought susceptible Samba Mahsuri and tolerant Azucena besides screening with yield QTL linked molecular markers. High heritability for broad sense was observed in days to 50% flowering followed by spikelet fertility and grain yield $plant^{-1}$ indicating direct selection for yield under stress is practicable in evolving drought tolerant rice varieties with yield potential. Thirty one advanced back cross lines (BC_2F_3) lines co segregating for simple sequence repeats (SSRs) linked to yield QTLs under low land stress viz., RM 520 linked to DTY 3.1 on chromosome 3 and RM 236 linked to DTY 2.1 on chromosome 2 exceeding yield of susceptible parent were advanced to BC_2F_4. These results suggested that direct selection for yield under water stress coupled with marker assisted screening would help in precise selection of genotypes for drought prone areas.

Key words: *drought tolerance, rice, SSRs, yield*

On farm demonstration of herbicide usage in transplanted rice

P Muthuraman*, B Sreedevi, Vinod Kumar, SP Singh and MPS Arya[1]

Directorate of Rice Research, Rajendranagar- 500 030
[1]Directorate of Research on Women in Agriculture, Bhubaneshwar - 751 003
***Email :** sreedevi.palakolanu@gmail.com*

Page : 300-302

ABSTRACT

An on-farm field demonstration was conducted involving herbicide in order to reduce drudgery of farm women in transplanted rice at village Mirzapur, Rangareddy District (Andhra Pradesh) during wet season 2011. The study revealed that plant height, tiller number m^{-2} , panicle number m^{-2}, panicle length, grain number $panicle^{-1}$, filled and unfilled grain $panicle^{-1}$, panicle weight, grain yield and straw yield differed significantly for different treatments under study. The mean maximum grain yield was recorded in the treatment plot of improved practice + herbicide application (5.39 t ha^{-1}) and significantly superior to all other treatments. Improved practice was also significantly superior to farmer's practice (4.70 t ha^{-1}) as well as farmers practice + herbicide (4.96 t ha^{-1}). Intervention of herbicide has reduced cost of cultivation and more net returns with higher Benefit Cost ratio as well as reduced the operational drudgery of farm women in transplanted rice.

***Key words:** farm women, transplanted rice, herbicide use, on farm demonstration*

Screening of improved rice genotypes and their hybrids against rice blast (*Pyricularia oryzae*) under foot hills of north western Himalayas

Sanjeev Kumar* and JK Sharma

CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur, Himachal Pradesh
***Email :** ssalgotra@gmail.com*

Page : 303-305

ABSTRACT

Nine diverse rice genotypes viz. HPR1164, HPR2047, China 988, VL91-1754, VL93-3613, VL93-6052, IR578793-08, VL Dhan221 and JD8 which were crossed in a diallel mating design and screened in a uniform blast nursery. Among the parents, China 988 was susceptible, IR57893-08 was resistant while VL Dhan 221 was highly resistant and remaining six genotypes were moderately resistant to leaf blast. Out of thirty six hybrids, six were highly resistant and remaining ones were moderately resistant to leaf blast and neck blast. Cross combinations HPR2047 x VL93-6052, HPR2047 x IR57893-08, China 988 x VlDhan221, China 988 x JD8 and VLDhan221 x JD 8 exhibited resistance against neck blast in F_1 and F_2 generations.

***Key words:** rice, blast, resistance, hybrids, segregating generations*

Two breeding lines CR3003-184 and CR3003-1-186 of rice found resistant to the rice root-knot nematode

Mamta Jena, LK Bose, BC Patra and SC Sahu*

Central Rice Research Institute, Cuttack, Odisha 753006
***Email :** scsahu_crri@yahoo.co.in*

Page : 306-307

ABSTRACT

Screening of rice germplasm at Central Rice Research Institute showed that rice cv. Ramakrishna is tolerant and Annapurna is highly susceptible to the Cuttack population of the rice root-knot nematode under artificial infection. F_2 plants of the cross Annapurna/Ramakrishna showed transgressive segregation of resistance.

These F_2 plants were further advanced to F_8 and F_9 by single-seed-descent method. Screening of F_9 RILs under artificial infection conditions confirmed transgressive segregation and lead to identification of two lines, CR3003-184 and CR3003-1-186, highly resistant over the parent Ramakrishna both in reducing production of galls on the roots and fecundity of the parasite.

Key words: *rice, root-knot nematode, resistance, inbred lines*

Isolation and screening of rice rhizobacteria against bacterial leaf blight of rice

RK Ranjan, Bimla Rai, PK Chaudhari and RC Rai

Rajendra Agricultural University, Bihar, Pusa (Samastipur) - 848125
E-mail : ***rkrrau@rediffmail.com***

Page : 308-310

ABSTRACT

The bacterial leaf blight of rice caused by Xanthomonas oryzae pv.oryzae is the disease of great economic importance in Asia. Biological control of bacterial leaf blight disease can play a vital role in integrated rice disease management. In the present investigation isolation and screening of different rice rhizobacteria isolates were conducted and antagonistic activity were tested. Nineteen isolates were isolated from the rhizosphere of basmati rice i.e. susceptible variety of bacterial leaf blight of rice disease. All the nineteen isolates were screened in vitro for the antagonistic activity against Xanthomonas oryzae pv. oryzae (Xoo). Among the nineteen tested rice rhizobacteria (RRb) isolates against Xoo, three RRb isolates i.e. RRb 2, RRb 3 and RRb 4 showed inhibition zone at the site of antagonistic growth i.e. 0.767, 1.233 and 0.650 cm, respectively. The seed treatment with three effective isolates i.e. RRb2, RRb3 & RRb4, RRb3 and RRb4 provided good protection of seed against seed borne pathogens resulting increased seed germination and seedling vigour of rice varieties as compare to control.

Key words: *rice, Xanthomonas oryzae, rhizosphere, bacteria, antagonistic activity*

Identification of sources of leaf blast resistance in rice in the mid hills of Himachal Pradesh

Sachin Upmanyu*

CSK Himachal Pradesh Krishi Vishwavidyalaya, Rice and Wheat Research Centre, Malan -176 047, Himachal Pradesh
Email : ***sachinupmanyu_mpp@rediffmail.com***

Page : 311-312

ABSTRACT

Sixty one rice genotypes included in coordinated trials were screened for leaf blast resistance under natural epiphytotic conditions adopting uniform blast nursery (UBN) pattern during wet season 2009 and 2010 at CSK HPKV Rice and Wheat Research Centre, Malan, Himachal Pradesh. Of these, twenty six genotypes were rated as resistant; twenty one as moderately susceptible while rest of the genotypes were found susceptible to leaf blast as per scoring procedures of standard evaluation system for rice on 0-9 scale. Twelve genotypes namely, SKAU 353, HPR 2555, HPR 2557, HPR 2143, HPR 2625 (DH(D)24), VL 30569, VL 7852, VL 31339, RCPL 1-116, VL 31452, VL 31451 and Sukaradhan consistently showed resistant reaction to leaf blast during both the years which may be included as donors in breeding programme for leaf blast resistance.

Key words: *rice, genotypes, screening, leaf blast, Himachal Pradesh*

Identification of blast resistant landraces of North-East India

DK Chetri*, L Daiho and DN Upadhyay

School of Agricultural Sciences and Rural Development, Medziphema-795106, Nagaland University
Email : dkchetri@rediffmail.com

Page : 313-315

ABSTRACT

Result of testing 110 rice landraces from North-east region of India for blast resistance over 2 screenings in the foot-hills of Medziphema, Nagaland, showed 67 resistant,10 moderately resistant/tolerant and the rest susceptible. The resistant entries in the second test exhibited high level (93.1%) consistent resistant reaction. The resistant landraces identified in this study could be utilized in the breeding programme for blast resistant high yielding varieties. Evaluation of resistance to blast disease should be continuously done over location and cropping season.

Key words: *rice blast, Pyricularia grisea, screening*