ANALYSIS OF CORRELATION COEFFICIENTS FOR YIELD AND QUALITY CHARACTERS IN AROMATIC ADVANCED BREEDING LINES OF RICE (ORYZA SATIVA L.)

Sujeet Singh Kanwar, Raushan Kumar

Department of Genetics and Plant Breeding, Indira Gandhi Agriculture University, Raipur, 492006, Chhattisgarh, India Email: Sujeetgpb89@gmail.com, Raushan.ogrey@gmail.com

Abstract: The experiment was conducted at Research Farm, Department of Genetics and Plant Breeding, College of Agriculture, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) during kharif 2010 to assess the agromorphological characterization, genetic variability, association analysis and genetic divergence among the ninety eight aromatic advanced breeding lines of rice along with popular standard checks namely Indira Sugandhit Dhan-1, Pusa Basmati-1, Badsha bhog, Dubraj, Chinnor, Mahisugandha and Kalanamak. In the present investigation Grain yield per plant was positively and significantly associated with 100-seed weight, Number of total effective tillers per plant, Filled spikelets per panicle and Total spikelets per panicle.

Keywords: Aromatic Rice, Genotypic Correlation Coefficient, Phenotypic Correlation Coefficient

REFERENCES

Anonymous (2011a). World Agricultural Production. United States Dept. of Agril. Service. p. 7.

Anonymous (2011b). The Hindu Survey of Indian Agriculture. Agril. Statistics Division Directorate of Economics & Statistics Dept. of Agriculture and corporation, p. 125.

Anonymous (2011c). Credible Chhattisgarh, Raipur. p. 8.

Shastry, S.V., Tran, D.V., Nguyen, V.N. and Nanda, J.S. (2000). Sustainable integrated rice production. In: Nanda, J.S. (Ed) Rice Breeding and Genetics: Research Priorities and Challenges. Oxford and IBH Pub., New Delhi. pp. 53-72.

Juliano, B.O. (1970). Relation of physic-chemical properties to properties characteristics of rice. Proc. 5^{th} Cental and Board Congress, 4: 21-27.

Miller, D.A., Williams, J.C., Robinson, H.F. and Comstock, K.B. (1958). Estimations of genetic and environmental varieties and covariances in upland cotton and their implication in selection. Agron. J., 50: 126-131.

Chauhan, J.S., Chauhan, V.S. and Variar, M. (1993). Genetic variations and characters of rice grain in segregating rice (Oryza sativa L.). Oryza, 20: 209-215.

Sarawgi, A.K., Rastogi, N.K. and Soni, D.K., (1997). Correlation and path analysis in rice accessions from Madhya Pradesh. Field Crop Res., 52(1/2): 161-167.

Prashanth, G., Bangali, P.G., Hittalmani, S. and Shashidhar, H.E. (1999). Character association and path coefficient analysis in indica \times japonica doubled haploid population of rice. Oryza, 36(1): 10-12.

Singh, V.K., Mishra, S.B. and Jha, P.B. (2000). Variability and interrelationship studies of some quantitative traits in boro rice. Oryza, 37(3): 187-190.

Shivani, D. and Rama Reddy, S.N. (2000). Correlation and path analysis in certain rice (Oryza sativa L.) hybrids. Oryza, 37(3): 183-186.

Surek, Halil and Beser, Necmi. (2003). Correlation and path coefficient analysis for some yield-related traits in rice (Oryza sativa L.) under thrace condition. Turk J. Agric., 27: 77-83.

Sourosh, H.R., Mesbah, M., Hossainzadeh, A. and Bozorgipour, R. (2004). Genetic and phenotypic variability and cluster analysis for quantitative and qualitative traits of rice. Seed Plant, 20(2): 167-182.

Veni, B.K. and Rani, N.S. (2006). Association of grain yield with quality characteristics and other yield components in rice. Oryza, 43: 320-322.

Nath, Shiva, Vishwakarma, D.N. and Chouhan, M.P. (2008). Association study in yield and yield components traits in hybrid rice (Oryza sativa L.) under stress and saline/sodic condition. Agric. Sci. Digest, 28(1): 73-74.

Basavaraja, P., Rudraradhya, M. and Kulkarni, R.S. (1997). Genetic variability, correlation and path analysis of yield components in two F_4 population of five rainfed . Mysore J. Agric. Sci., 31(1): 1-6.

Rani, S.N., Prasad, G.S.V., Reddy, Bhaskar P. and Veni, Krishna B. (2001). Genetic variability for yield components in aromatic and quality rice germplasm. Indian J. Plant Genetic Resources, 14(2): 206-209.

Shashidhar, H.E., Pasha, F., Janamatti, M., Vinod, M.S. and Kanbar, (2005). Correlation and path coefficient analysis in traditional cultivar and doubled haploid lines of rainfed lowland rice (Oryza sativa L.). Oryza, 42: 156-158.

Kumar, P. (2008). Combining ability analysis and heterosis for grain yield and its related characters in rice. M.Sc.(Ag.) Thesis, Indira Gandhi Krishi Vishwavidyalaya, Raipur, 135-136.

Chakraborty, R. and Chakraborty, S. (2010). Genetic variability and correlation of some morphometric traits with grain yield in bold grained rice (Oryza Sativa L.). Gene Pool of Barak Valley American-Eurasian J. of Sustainable Agriculture, 4(1): 26-29.

Sawant, D.S. (1995). Character association and pathcoefficient analysis in rice (Oryza sativa L.). Indian J. Agric. Sci., 65(10): 752-753.

Sarawgi, A.K., Rastogi, N.K. and Soni, D.K., (1997). Correlation and path analysis in rice accessions from Madhya Pradesh. Field Crop Res., 52(1/2): 161-167.

Chaudhary, M. and Motiramani, N.K. (2003). Variability and association among yield attributes and grain quality in traditional aromatic rice accessions. Crop Imp., 30(1): 84-90.

Patil, P.V., and Sarawgi, A.K. (2005). Character association and component analysis in aromatic rice accessions from Chhattisgarh and Madhya Pradesh. PKV Res. J., 29(1): 59-65.

Monalisa, M., Ali, M.N. and Sasmal, B.G. (2006). Variability, correlation and path coefficient analysis in some important traits of lowland rice. Crop Research Hisar, 31(1): 153-156.

Johnson, P.L., Sarawgi, A.K. and Verma, R.K. (2007). Correlation coefficient and path analysis for quantitative characters under rainfed lowland rice. J. Agril. Issues, 12(1): 46-51.

Yalanda, J.L., and Das, L.D.V. (1995). Correlation and path analysis in rice (Oryza sativa L.). Madras Agric. J., 82(11): 576-578. Iftekkharuddula, K.M., Akhtar, K., Hassan, M.S., Fatema, K. and Badshah, A. (2002). Genetic divergence, character association and selection criteria in irrigated rice. J. Biol. Sci., 2(4): 243-246.

Akter, K., Bashar, M.K., Iftekkharuddula, L.M., Ahmed, M.S. and Rashid, E.S.M.H. (2002). Genetic diversity among irrigated traditional and modern rice germplasm. J. Biol. Sci., 2(10): 659-661.

Arumugam, M., Rajanna, M.P., Rao, M.P.R. and Kulkarni, R.S. (2008). Correlation and path coefficient analysis for grain yield and yield attributing characters under different environment in rice. Mysore J. Agric. Sci., 42(3): 444-449.

Nath, Shiva, Vishwakarma, D.N. and Chouhan, M.P. (2008). Association study in yield and yield components traits in hybrid rice (Oryza sativa L.) under stress and saline/sodic condition. Agric. Sci. Digest, 28(1): 73-74.

Subudhi, H.N. and Dikshit, N. (2009). Variability and character association of yield components in rain fed lowland rice. Indian J. Plant Genetic Resources, 22(1): 271-274.

Chandra, B.S., Reddy, T.D., Ansari, N.A. and Kumar, S.S. (2009). Correlation and path analysis for yield and yield components in rice (Oryza sativa L.). Agricultural Science Digest, 29(1): 214-315.