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### Comparison of stability models for identification of stable thebaine rich lines in opium poppy (*P. somniferum* L.)

Brij Kishore Mishra, Sudhir Shukla, and Anu Rastogi  
National Botanical Research Institute, India

Successful development of stable and adaptable crop varieties solely depends on the positive results obtained from the interaction between genotype and the environment which consequently has significant impact on breeding strategies. G x E is a finest breeding approach that helps in breeding for specific or wide adaptation, which depends on the expression of stability. The present study aimed to estimate the pattern of genotype x environment interaction for seven advanced breeding high thebaine lines developed through rigorous selection from advance generations of interspecific population derived from cross between *Papaver somniferum* L. and *Papaver setigerum* DC. to find out the stable genotype rich in specific alkaloid especially for thebaine based on regression and graphical model and simultaneously to access their yield potential and comparison among these models to find out the best suited model to select stable and adaptable genotype. The results of ANOVA showed wide variability in the genotypes under testing which suggested that the genotypes interacted differentially with respect to yield performance so further stability analysis across environments should be followed before being released for commercial cultivation. The overall stability analysis following different stability models (including regression and graphical models) concluded that the genotypes NBIHT-1, NBIHT-3 and NBIHT-4 were highly stable and adaptable genotypes for seed, opium and thebaine in different agro-climatic conditions. Genotypes NBIHT-5 and NBIHT-6 can also perform drastically good in specific climatic conditions to obtain maximum gain. It is clearly evidenced from the comparison of different stability models that GGE Biplot model proposed by Yan and Hunt is best suited for stability analysis, due to ease in visualization of stable genotypes from the graphical representation.

#### Biography

Brij Kishore Mishra completed his Post Graduation in Botany from Lucknow University in the year 2007 and thereafter joined Genetics & Plant Breeding Division of CSIR-NBRI, Lucknow. His major work is on genetic improvement of opium poppy and recently had submitted his Ph.D.. Thesis in the Oct. 2013 in Department of Biochemistry and Genetics, Barkatullah University, Bhopal, M.P. Presently he is Senior Research fellow at Genetics & Plant Breeding Division of CSIR-NBRI, Lucknow. He has six years research experience in genetic improvement of medicinal, underutilized and oilseed crops. During this journey he had published 11 research papers in reputed national and international journals beside four book chapters also.

[brijkishore07@rediffmail.com](mailto:brijkishore07@rediffmail.com)