

Determination of Combining Ability of Parents for Harnessing Heterotic Potential in Bitter Gourd (*Momordica charactia* L.)

Vibha Mishra¹ and D.K. Singh¹

¹Department of Vegetable Science,
GBPUAT, Pantnagar (UK)

Abstract—Bitter gourd is one of the most important members of cucurbitaceous family which is widely cultivated in India. The present investigation on Combining ability and Heterosis Studies in bitter gourd (*Momordica charactia* L.) was carried out during 2013-2015 at Vegetable Research Centre, G.B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India. Analysis of variance revealed highly significant variances among all the genotypes for 18 characters. The best three parents identified as general combiners over both the seasons and pooled over environment were US 33, VNR 28 and VNR 22 for earliness and yield characters. For earliness, the cross combinations VNR 28×US 33 (-3.31), VNR 22×PBIG 2 (-2.92) and VNR 28×MC 84 (-1.83) emerged as good specific combiners. For average fruit weight, MC 84× Pant Karela 3 (13.51), PDM ×VNR 28 (11.14) and Pant Karela 3× PBIG 2(10.80) were found with significant SCA effects. For number of fruits/plant and fruit yield/plant, the crosses VNR 28×Pant Karela 3(21.66), VNR 22×MC 84 (19.78), VNR 28×MC 84 (10.45), VNR22×Pant Karela 1(398.51g), US33×Pant Karela3 (346.95g) and MC84×Pant Karela 3(264.74g), respectively were found to have promising SCA effect. Maximum amount of standard heterosis for no. of fruits/plant and yield/plant were noted in crosses VNR22×MC 84 (139.44) and US33×Pant Karela3 (26.40). The best parents with desirable and significant gca effects may be used in hybrid breeding programme for developing high yielding hybrids in bitter gourd.