Cytoplasmic Heterosis of Yield and Yield Components in Rice Hybrids

Ch V Durga Rani and S C Kundu

Dept. of Agricultural Biotechnology, College of Agriculture, Rajendranagar, Hyderabad 500 030.

ABSTRACT

Thirty- two aF_1 and thirty- two bF_1 rice hybrids were evaluated in two seasons to study the effects of wild abortive and ARC sources of male sterile cytoplasms on cytoplasmic heterosis (%) of grain yield and yield components. Four aF_1 hybrids in kharif season and eleven aF_1 hybrids in rabi season were considered to be promising as they registered >20% yield increase than their fertile counterparts. Of them APMS1A x WGL3962, IR67683A x Vajram and IR62829A x IR46 were the top three hybrids registered consistent cytoplasmic heterosis for grain yield. The results inferred that both wild abortive and ARC cytoplasms were observed to be suitable for practical breeding if judicious selection of appropriate male parent and cytoplasm combination is identified to ensure the required heterotic effect on grain yield. Significant positive cytoplasmic heterosis of yield components viz., fertile spikelets per panicle, 1000- grain weight, panicle length, ear bearing tillers per plant, and harvest index contributed towards positive cytoplasmic heterosis of grain yield of aF_1 hybrids.

Key words : aF_1 and bF_1 hybrids, ARC Cytoplasm, Cytoplasmic heterosis, Wild abortive cytoplasm.