

HETEROSIS AND INBREEDING DEPRESSION FOR SEED AND OPIUM YIELD IN OPIUM POPPY (*PAPAVER SOMNIFERUM* L.)

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Abstract: The degree of heterosis in F₁ progenies and inbreeding depression in F₂ generations was studied for seed and opium yield in opium poppy (*Papaver somniferum* L.) in set of crosses derived from partial diallel breeding design. Mid and better parent heterosis for seed yield was recorded in between -48.35 to 87.69% and -54.38 to 71.15% respectively. Likewise, for opium yield it varied from -39.06 to 71.13% and -42.74 to 52.04% for mid and better parent respectively. Significant and desirable heterosis over mid and better parent for seed yield was observed in forty five and twenty six crosses respectively. The crosses ND1002 x NBRI-11 and ND1002 x BR241 showed higher better parent heterosis both for seed and opium yield. Considerable amount of inbreeding depression in F₂ generation were also recorded. Significant inbreeding depression in F₂ generation were observed in seven crosses for seed yield/plant, and twenty two for opium yield/plant indicating deterioration in their performance in F₂ generation. The magnitude of inbreeding depression varied from -125.60 to 24.16% and -60.14 to 33.07% for seed and opium yield/plant respectively.

Keywords: Heterosis, Inbreeding depression, Opium poppy

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