



## Combining ability for yield and fruit quality in the pepper *Capsicum annuum*

N.F.F. do Nascimento<sup>1</sup>, E.R. do Rêgo<sup>2</sup>, M.F. Nascimento<sup>1</sup>, C.H. Bruckner<sup>1</sup>,  
F.L. Finger<sup>1</sup> and M.M. do Rêgo<sup>2</sup>

<sup>1</sup>Laboratório de Análises de Progênes, Departamento de Fitotecnia,  
Pós-Graduação em Genética e Melhoramento, Centro de Ciências Agrárias,  
Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brasil

<sup>2</sup>Laboratório de Biotecnologia Vegetal, Centro de Ciências Agrárias,  
Universidade Federal da Paraíba, Areia, PB, Brasil

Corresponding author: E.R. do Rêgo

E-mail: elizanilda@pq.cnpq.br / elizanildaramalho@hotmail.com /  
elizanilda@cca.ufpb.br

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**ABSTRACT.** The objective of this study was to determine the effects of the general and specific combining abilities (GCA and SCA, respectively) of 15 characteristics and to evaluate the most promising crosses and the reciprocal effect between the hybrids of six parents of the *Capsicum annuum* species. Six parents, belonging to the Horticultural Germplasm Bank of Centro de Ciências Agrárias of Universidade Federal da Paraíba, were crossed in complete diallel manner. The 30 hybrids generated and the parents were then analyzed in a completely randomized design with three replicates. The data were submitted to analysis of variance at 1% probability, and the means were grouped by the Scott-Knott test at 1% probability. The diallel analysis was performed according to the Griffing method, model I and fixed model. Both additive and non-additive effects influenced the hybrids' performance, as indicated by the GCA/SCA ratio. The non-additive effects, epistasis and/or dominance, played a more important

role than the additive effects in pedicel length, pericarp thickness, fresh matter, dry matter content, seed yield per fruit, fruit yield per plant, days to fructification, and total soluble solids. The GCA effects were more important than the SCA effects in the fruit weight, fruit length and diameter, placenta length, yield, vitamin C, and titratable acidity characteristics. The results found here clearly show that ornamental pepper varieties can be developed through hybridization in breeding programs with *C. annuum*.

**Key words:** General combining ability; Specific combining ability; Chili; Additive effect; Non-additive effect