



Epistasis and inheritance of plant habit and fruit quality traits in ornamental pepper (*Capsicum annuum* L.)

R.M.C. Santos¹, E.R. do Rêgo², A. Borém³, M.F. Nascimento¹,
N.F.F. Nascimento¹, F.L. Finger³ and M.M. Rêgo²

¹Programa de Pós-Graduação em Genética e Melhoramento,
Universidade Federal de Viçosa, Viçosa, MG, Brasil

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

³Departamento de Fitotecnia, Centro de Ciências Agrárias,
Universidade Federal de Viçosa, Viçosa, MG, Brasil

Corresponding author: R.M.C. Santos

E-mail: rusthoncortez@hotmail.com / rusthon.santos@ufv.br

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ABSTRACT. Two accessions of ornamental pepper *Capsicum annuum* L., differing in most of the characters studied, were crossed, resulting in the F1 generation, and the F2 generation was obtained through self-fertilization of the F1 generation. The backcross generations RC1 and RC2 were obtained through crossing between F1 and the parents P1 and P2, respectively. Morpho-agronomic characterization was performed based on the 19 quantitative descriptors of *Capsicum*. The data obtained were subjected to generation analysis, in which the means and additive variance (σ_a^2), variance due to dominance deviation (σ_d^2), phenotypic variance (σ_f^2), genetic variance (σ_g^2) and environmental variance (σ_m^2) were calculated. For the full model, we estimated the mean effects of all possible homozygotes, additives, dominants, and epistatics: additive-additive, additive-dominant, and dominant-dominant. For the

additive-dominant model, we estimated the additive effects, dominant effects and mean effects of possible homozygotes. The character fruit dry matter had the lowest value for broad sense heritability (0.42), and the highest values were found for fresh matter and fruit weight, 0.91 and 0.92, respectively. The lowest value for narrow sense heritability was for the minor fruit diameter character (0.33), and the highest values were found for seed yield per fruit and fresh matter, 0.87 and 0.84, respectively. The additive-dominant model explained only the variation found in plant height, canopy width, stem length, corolla diameter, leaf width, and pedicel length, but in the other characters, the epistatic effects showed significant values.

Key words: Full model; Additive-dominant model; Additive effects; Mean analysis; Analysis of variance