



Genetic divergence of common bean cultivars

J.S. Veloso¹, W. Silva¹, L.R. Pinheiro¹, J.B. dos Santos¹, N.S. Fonseca Jr.²
and M.P. Euzebio³

¹Departamento de Biologia, Universidade Federal de Lavras, Lavras, MG, Brasil

²Instituto Agronômico do Paraná, Londrina, PR, Brasil

³Universidade Estadual de Londrina, Londrina, PR, Brasil

Corresponding author: J.V. Veloso

E-mail: bio.juveloso@gmail.com

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ABSTRACT. The aim of this study was to evaluate genetic divergence in the 'Carioca' (beige with brown stripes) common bean cultivar used by different institutions and in 16 other common bean cultivars used in the Rede Cooperativa de Pesquisa de Feijão (Cooperative Network of Common Bean Research), by using simple sequence repeats associated with agronomic traits that are highly distributed in the common bean genome. We evaluated 22 polymorphic loci using bulks containing DNA from 30 plants. There was genetic divergence among the Carioca cultivar provided by the institutions. Nevertheless, there was lower divergence among them than among the other cultivars. The cultivar used by Instituto Agronômico do Paraná was the most divergent in relation to the Carioca samples. The least divergence was observed among the samples used by Universidade Federal de Lavras and by Embrapa Arroz e Feijão. Of all the cultivars, 'CNP 10104' and 'BRSMG Realce' showed the greatest dissimilarity. The cultivars were separated in two groups of greatest similarity using the Structure software. Genetic variation among cultivars was greater than the variation within or between the groups formed. This fact, together with the high estimate of heterozygosity observed and the genetic divergence of the samples of the Carioca cultivar in relation to the original provided by Instituto

Agronômico de Campinas, indicates a mixture of cultivars. The high divergence among cultivars provides potential for the utilization of this genetic variability in plant breeding.

Key words: *Phaseolus vulgaris*; Mixture of cultivars; Genetic purity; Microsatellite markers; Simple sequence repeat; Genetic dissimilarity