CENTESIMAL COMPOSITION OF CREOLE ACCESSIONS OF COMMON BEANS CULTIVATED IN NORTH OF MINAS GERAIS STATE, BRAZIL

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The bean (*Phaseolus vulgaris* L.) is an important food because of its nutritional composition and has high mineral content, vitamins, carbohydrates, fiber and protein (Broughton et al., 2003). Creole or traditional accessions can be defined as genotypes in use by farmers, obtained from natural crossings and that have not undergone any genetic breeding (Elias et al., 2007). The cultivation of these genotypes by small and medium farmers provides the conservation of genetic resources. Furthermore, there is the possibility of this diversity is exploited by the bean crop breeding programs, since they are well characterized according to the agronomic interest in technological and nutritional qualities (Pereira et al., 2009). The aim of this study was to analyze the centesimal composition of Creole accessions of common beans cultivated in mesoregion of North of Minas Gerais State, Brazil.

Ten Creole bean accessions commonly grown by small farmers in the mesoregion of Northern of Minas Gerais State were analyzed: 'Curiango', 'Penquinha', 'Meia Corda', 'Roxo', 'Olho de Pombo', 'Cores', 'Branco', 'Mulatinho', 'Fava Branca' and 'Fava Cores'. Samples were collected in August 2015 in the county of Montes Claros-MG, in geographical coordinates of 15º96'69" South Latitude, 08º50'59" West Longitude and 596 meters. Samples were collected at random from different points of crops. The analysis of the centesimal composition involved the moisture content, ash, lipids, carbohydrates and proteins, which were performed according to the methodology described by AOAC (1995). Statistical analyzes were carried out from 30 repetitions of each completely randomized design (CRD) access. The means (μ), variances (σ^2) and analysis of variance (ANOVA) were calculated using the statistical program GENES (Cruz, 2006).

The variance analysis of centesimal composition was significant for all contents (Table 1). When considering the wide genetic base of a Creole genotype it is known that the response to environmental conditions can also be changed. Thus, there is both effect on climate variations, such as genotype and location on the differential accumulation in the centesimal composition (Rangel et al., 2007). For example, the protein content varies from 18.1173% to 26.1524% (Table 2), demonstrating broad-spectrum with respect to the materials traditionally improved (Lemos et al. 2004). The use of Creole genetic resources in research can contribute to increasing the technological and nutritional quality of beans.

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Table 1. Summary of analysis of variance on the centesimal composition of Creole accessions of common beans cultivated in mesoregion of the North of Minas Gerais State, Brazil.

ANOVA	DF	SS	MS	F	P value	F critical
Proteins	9	153.0576	17.0064	35.1268	2.5041E-10	2.3928
Lipids	9	3.2431	0.3603	24.3369	1.9572E-11	2.2106
Carbohydrates	9	79.4180	8.8242	16.5496	1.9861E-07	2.3928
Ash	9	4.0827	0.4536	237.9143	2.2239E-25	2.2106
Moisture	9	20.5644	2.2849	13.8546	8.7122E-07	2.3928

ANOVA: Analysis of variance; DF: Degree of freedom; SS: Sum of Square; MS: Mean Square.

Table 2. Means (μ) and variances (σ^2) of centesimal composition of Creole accessions of common beans cultivated in mesoregion of the North of Minas Gerais State, Brazil.

Creole common bean accessions	Contents (%)									
	Proteins		Lipids		Carbohydrates		Ash		Moisture	
	μ	σ^2	μ	σ^2	μ	σ^2	μ	σ^2	μ	σ^2
Curiango	23.9874	0.9668	1.0804	0.0143	62.0888	1.5587	3.9231	0.0016	8.9200	0.1236
Penquinha	24.9945	0.7370	1.1841	0.0069	61.0519	0.5820	3.8389	0.0045	8.9304	0.0468
Meia Corda	23.2322	1.9234	1.5572	0.0194	62.5735	1.5184	3.3852	0.0010	9.2517	0.0236
Roxo	22.5752	0.0819	1.6444	0.0087	63.7764	0.2569	3.3429	0.0003	8.6609	0.1467
Olho de Pombo	23.5970	0.1801	0.8161	0.0049	62.7126	0.2630	3.3083	0.0052	9.5658	0.0029
Cores	26.1524	0.0449	0.7172	0.0667	62.3220	0.0121	3.4569	0.0001	8.3513	0.3775
Branco	19.7293	0.1652	1.2437	0.0220	65.9643	0.0340	3.7575	0.0016	9.3050	0.0297
Mulatinho	20.4943	0.4568	0.9533	0.4920	64.8341	0.5636	3.4965	0.0003	10.2214	0.0104
Fava Branca	19.4345	0.2197	1.2111	0.0014	65.4877	0.1724	3.2670	0.0014	10.5994	0.1783
Fava Cores	18.1173	0.0651	1.0720	0.0033	65.4768	0.3705	4.3040	0.0025	11.0297	0.7093