Seasonal Variation of Tannin Content on Pigeon Pea (*Cajanus Cajan* (L.) Millsp) Plants

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Introduction Tannins reduce forage digestibility and palatability by reacting with proteins (Makkar, 1989) and due to that, tannin content is considered to be an important characteristic of leguminous crops and it has been used as a selection criterion on pigeon-pea improvement programs (Godoy et al., 1994). In Southeastern Brazil, pigeon pea is less consumed by bovines in the rainy season (October through March) than in the dry season (from April on), when flowering occurs. Alencar et al. (1991) found very little consumption by Canchim cows during the rainy season, and Lourenço et al. (1984) recommend pigeon-pea for feeding bovines in the dry season.

Materials and methods In 5 locations (São Carlos, Pirassununga, Jaboticabal, Itapuí and Pratânia) in São Paulo State, Brazil, trials with 17 pure pigeon pea lines and 3 cultivars were planted in December 1998. In all locations 4 cuttings were performed, in April and August 1999, January and May 2000. In the first 2 locations, 2 other cuttings were also performed, in December 2000 and June 2001. Plants were cut at 40 cm height and the material was dried, ground and their tannin contents, expressed in equivalent percents of tannic acids, were determined, according to the Folin-Denis method, described by Burns (1963). To make possible the performance of cluster analysis, as described in the SAS cluster procedure (SAS, 1999-2001), data of the 3 first cuttings of 18 genotypes were submitted to an analysis of variance for each location. This analysis revealed no significant interaction of cutting date and genotypes for Itapuí and Pratânia but that interaction was significant in the other 3 locations. Two cluster analysis were then performed, one with the data from Jaboticabal, Pirassununga and São Carlos and the other with the data from Itapuí and Pratânia. Variance analysis was performed within the clusters and a genotype group was considered to be made when no significant genotype interaction was found. Average tannin content, expressed as dry matter percentage, was then calculated for each time of cutting and these means were compared with each other by the Tukey test, as described in the SAS GLM procedure (SAS, 1999-2001). Assuming these groupings to be correct, means for all 3 of cuttings of these 18 genotypes were compared.

Results Three groups of genotypes were found within the data from Jaboticabal, Pirassununga and São Carlos. Group 1 had with 9 genotypes, Fava Larga, g3-94, g6-95, g18-95, g19b-94, g27-94, g29b-94, g47-94 and g66-95. Group 2 had 6 genotypes, Caqui, g124-95, g146-97, g154-95, g167-97 and g184-97; Group 3 had only three, g17c-94, g101-97 and g127-97. In all 3 groups, the August 1999 means (3.31, 2,70 and 2,58%) were significantly higher than the January 2000 means (2.41, 2.05 and 2.25%), that were significantly higher than the April 1999 means (2.00, 1.75 and 2.02%). One single group was formed with the Itapuí and Pratânia data and also in this case, the August 1999 mean (2.20%) was significantly higher than the January 2000 mean (2.00%) which was significantly higher than the April 1999 mean (1.63%). The same trend occurred when means for the other cutting dates were calculated. Then, when animal consumption is higher (Alencar *et al*., 1991 and Lourenço *et al*., 1994), during the dry season, after flowering, tannin contents were also higher.

Conclusions Tannin contents increase in the period when bovine consumption of pigeon pea is higher. This indicates that tannins are not responsible for its low palatability in summer. Tannin contents should not be used as a selection criterion in pigeon pea selection programmes.

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