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## Multivariate analysis in guava (*Psidium guajava* L.) hybrid population

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### Abstract

An experiment was conducted at College of Horticulture, Anantharajupeta, to know variation of guava hybrid population. First two principal components with Eigen values more than one contributed to 71.05% of cumulative variance among guava hybrid population. Estimation of growth parameters like plant height, stem circumference, leaf length and leaf width might be helpful to know the potentiality of vegetative growth of hybrids.

**Keywords:** Guava, leaf length, leaf width, plant height and stem circumference

### Introduction

Guava is grown in tropical and subtropical climatic conditions of the world. Guava belongs to family Myrtaceae (Govaerts *et al.*, 2008) [5]. In India, the area under guava is 292 thousand hectares with a production of 4361 thousand metric tonnes (Anon., 2019) [2]. Major growing states are Maharashtra, Bihar, Uttar Pradesh, Gujarat, Madhya Pradesh, Odisha, Andhra Pradesh and Punjab. In Andhra Pradesh, guava is grown over an area of 9.53 thousand hectares with an annual production of 229.78 thousand metric tonnes (Anon, 2018) [1]. There are about 160 cultivars in India, among which Allahabad Safeda, Lucknow-49, Red Fleshed, Banarasi, Arka Kiran, Lalit, Chittidar, Hafsi, Dharwar etc. varieties are mainly cultivated. Water soaked guava fruit is used for the treatment of diabetes (Mitra *et al*, 2012) [10]. Guava is usually eaten raw and its use in jams, jellies, juices, preserves and sauces shows its economic importance. Guava has a high concentration of pectin (0.1-1.8%), which may play a significant role in cholesterol reduction and help in decreasing cardiovascular disease (Singh, 2005) [12]. High heterozygosity, frequent cross pollination resulted in present day variation among seedling populations from which promising genotypes have been selected (Dinesh and Vasugi, 2010) [4]. Several guava germplasm evaluations was reported by Sharma (2019) [11], Bui *et al.*, (2021) [3], Sohi *et al.* (2019) [13] and Jain (2021) [7]. Further, Mark and Mukunda (2007) [9] studied on open pollinated progeny of guava cv. Apple colour. It is claimed that characterization of progenies determines the expression of heritable characters such as morphological, agronomical, biochemical features to molecular markers aspects. Hence, characterization of progeny either full sib or half sib progeny was essential to acquire information on different traits.

### Materials and Methods

An experiment was worked out on three year old hybrids of guava at College of Horticulture, Dr. Y.S.R. Horticultural University, Anantharajupeta, Andhra Pradesh. The crosses were attempted by Fruit science department (2017-2018) and full and half sib progenies of guava were planted at spacing of 2 x 2 m in fruit science block during August, 2019. Hybrids include H1 (ARP selection x Lalit), H2 (Lalit x ARP selection), H3 (Allahabad Safeda x ARP selection), H4 (Lalit x Allahabad Safeda), H5 (Allahabad Safeda x Lalit) and OP (Open pollinated progeny of Allahabad Safeda). With help of standard wooden scale, height of individual plant height was measured from base of the plant near surface to the highest point of the crown and expressed in metre (m). Stem circumference was measured with the help of measuring tape and expressed in centimeter (cm). Length and width of the index leaf (middle or third leaf of current season growth) was measured with the help of measuring scale and expressed in centimeters. Length/ width ratio was calculated by dividing the value of leaf length with that of leaf width.



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