

# Variability in Polyphenols, Antioxidants and Mineral Composition in different Genotypes of Pigeonpea (*Cajanus cajan*) Grown in India

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**Abstract**—The study was conducted to evaluate the polyphenols, antioxidants and minerals composition in different genotypes of pigeonpea [*Cajanus cajan* (L.) Millsp]. Different assays were performed to measure total phenolic content, total flavonoid and antioxidant activities were measured using 2,2- diphenyl-1- picrylhydrazyl (DPPH) free radical scavenging, Ferric reducing antioxidant power assay (FRAP) and mineral composition was measured using Atomic absorption spectrophotometer. The total phenolic content ranged from 5.1 to 290.2 mg GAE/g dry weight. Pusa 992 had maximum amount of phenolics in 80% acetone extract. The total flavonoid content (TFC) varied from 0.17 to 3.62mg QE/g with IPA 203 having highest TFC value in 100% methanol. DPPH activity varied from 0.18mM in Manak to 0.87 mM in IPA 203 TE per g dry seed weight. FRAP varied from 0.62mM in LGR-38 to 10.15 mM in UPAS 120. Diverse genotypes were evaluated in relation to the content of 6 minerals (Zn, Cu, Fe, Ca, Mg, and Na) important for human nutrition. The level of Ca, Mg, Na, Zn, Cu, Fe ranged from 1-19.8, 12-124.6, 2.8-6.9, 2.3-3.7, 0.20-.097, 4.3-24.1 mg/100g respectively among different genotypes of pigeonpea. The information of this study will increase the understanding of the function of the pigeonpea in the diet to reduce chronic diseases and also be used for selecting superior genotypes for breeding programmes.

**Keywords:** Antioxidants, 2,2- diphenyl-1- picrylhydrazyl, Polyphenols, Total flavonoid content, Total phenolic content