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Phytochemical, natural ingredients and proximate composition analysis of two accessions of Vigna Subterranea (L.) verdc: Tvsu25 and tvsu2113 cultivated in high humid rainforest agro-ecology of South-South, Nigeria

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Abstract:

Bambara groundnut is an indigenous legume crop, cultivated throughout sub-Saharan countries by subsistence farmers. As a nutraceuticals this crop has great nutritional and agronomic potential, but it remains scientifically neglected and underutilized. The main reasons why Bambara groundnut have been underutilized include the knowledge gap in improved seed system, agronomic practices, processing, and nutritional values. The study investigated the proximate composition, amino acid, mineral, vitamin and phytochemical composition of two accessions of Bambara groundnut (*Vigna subterranea* (L.) Verdc) Tvsu 25 and Tvsu 2113, to protect and promote its cultivation for food (nutrients) and medicines, especially among rural communities in high humid rainforest agro – ecology of south – south, Nigeria. The results of the Pearson`s correlation performed on all parameters studied showed a significant positive association between both accessions with a very high correlation coefficient (r) in all parameters analysed. The correlations were observed to be significant as all P-value observed in all parameters analysed were found to be lower than the specified significance level of 0.05. The phytochemical studies revealed the presence of eleven bioactive compounds in both accessions of *V. subterranea* studied. The proximate result showed that crude fat, ash, fibre and protein are higher in Tvsu 2113. The analysis for minerals showed 19 minerals in the accessions. The total percentage vitamins showed that Tvsu 25 had a higher total percentage of 71.306% than Tvsu 2113 which showed 49.268%. 20 amino acids were present in the two accessions given a total of 91.23% for Tvsu25 and 75.88% for Tvsu 2113. These results showed that the two accessions are highly related with positive correlations in all. Bambara groundnut is endowed with many active chemical compounds that can be found to be very important in medical and therapeutic studies and also have useful application in pharmacological and nutritional research.

Keywords:

Phytochemical, Mineral, Amino Acid, Bambara Groundnut, (*Vigna subterranea* (L.) Verdc).