



Influences of Soil, Community Composition and Species Traits on Steroidal Sapogenin, Zinc and Iron Concentration in Fruits of *Tribulus terrestris*

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ABSTRACT *Tribulus terrestris* L. (Herbal Viagra) is an annual herb, popularized for its pharmacological properties, especially related with its efficiency for correcting male infertility disorders. In present study, impacts of environmental variables on quantitative characters of steroidal sapogenin, iron and zinc in fruit of *T. terrestris* were assessed. Five different sites within the arid area of the Indian Thar desert were selected and sampled during the pulse event (rainy season). Principal Component Analysis ordinate metabolites along-with soil, community factors and plant variables. Suitability of this factor analysis was assessed through Bartlett's test of sphericity and Kaiser-Meyer-Olkin tests. ANOVA revealed the high level of spatial variability in zinc, iron, steroidal sapogenin and for plant cover ($P < 0.01$). Among soil variables, silt and clay fractions are very crucial for enhancing iron and steroidal sapogenin concentration; however, sand fraction and soil pH suppressed iron and zinc concentrations, respectively. Negative relationships were established between soil moisture and steroidal sapogenin. Result revealed saturation growth rate relationships between fruit output and steroidal sapogenin. Thus, present findings can be use as protocol through which different environmental factors can be identified and cognition of these would facilitate harvest of these bio-components in larger quantity.