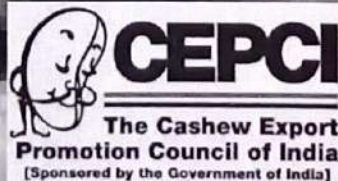




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in  
Life Sciences*

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**Seasonal influence of soil properties on population density of *Bilobella braunerae* (Dhervang 1981) - (Collembola: Neanuridae) in Rubber Plantation of Southern Western Ghats**

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**Abstract**

The present study was conducted to know the impact of soil physicochemical parameters on population density and vertical distribution pattern of a soil collembolan *Bilobella braunerae* in rubber plantation of Southern Western Ghats. The results revealed that maximum mean abundance of collembola was found during post-monsoon season ( $40.6 \pm 0.0061$ ) followed by monsoon ( $21 \pm 0.0107$ ) and pre-monsoon ( $9.95 \pm 0.0048$ ). Population density of organisms was high in 0-10 cm layer of soil during post monsoon season. A vertical migration pattern was observed with increase in soil temperature and decreasing moisture content during pre-monsoon season. During monsoon season owing to heavy rainfall organism shows a vertical migration to 10-20 cm depth and thus lesser number of organisms were seen in 0-10 cm layer of soil. Seasons exerted a strong effect on the abundance of *B. braunerae* in plantation soil. Principal Component Analysis (PCA), was used to make the selection about soil components which directly influence the population. The first three principal components (PCs) explained more than 72% of the total variance in all seasons. In plantation soil the principal component controlling the density of *B. braunerae* in pre monsoon season were moisture, EB, clay, Nitrogen, Phosphorous, Calcium and Magnesium During monsoon season primary soil variables were Moisture, organic carbon, EB, sand, silt, clay, Nitrogen and Magnesium. In post monsoon season in plantation soil Moisture, pH, Organic carbon, EA, EB, Silt, Phosphorous, Potassium and Magnesium were having positive values.

**KEYWORDS:** *Bilobella braunerae*, physicochemical parameters, population density, vertical migration, Principal Component Analysis (PCA)