

Biophysical and structural vegetation characterization of *Moringa* agroecosystems in Sub-Saharan Africa: A Case from Far North-Cameroon

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1 ABSTRACT

The aim of this study was to assess the floristic composition and vegetation structure of *Moringa* agro-ecosystems in the Far North of Cameroon. The data were collected in 25 m x 25 m quadrat method was undertaken to measure floristic diversity through the use of species richness, Shannon index, Pielou equitability, Simpson index and importance value index. The vegetation structure is determined by density, basal area and regeneration rate. The inventory included trees with a dbh ≥ 5 cm on an area of 1 ha per plot. The experimental device installed is a split plot with 16 repetitions. A total of 10524 individuals distributed in 15 families, 22 genera and 29 species were recorded. Ecologically, the most dominant species are *Mangifera indica*, *Azadirachta indica* and *Acacia nilotica*. In addition, the grouping of species into three subdivisions (Diamaré, Mayo-Danay and Mayo-Tsanaga) showed that the Shannon diversity index varies from 0.63 - 0.67 bits, Pielou index varies from 0.63 - 0.67, Density ranges from 855 ± 21.69 - 1604 ± 50 stems/ha, basal area ranges from 26 ± 0.005 - 11.83 ± 0.011 m²/ha. The diametric structure of the population reveals the predominance of individuals with a diameter of less than 5 cm (Diamaré) and 5-10 cm (Mayo-Danay and Mayo-Tsanaga) reflecting the abundance of individuals of small diameters. The regeneration rate varied on average from 25.14 % - 64.11 %. These results can be used as a reference in monitoring the vegetation dynamics of agroecosystems subject to recurrent droughts and anthropogenic pressures. This study provides a better understanding of the vegetation in agroecosystems in order to better manage these plant resources.