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DIVERSITY OF PLANT SPECIES, PARTS USED FOR ETHNO-MEDICINE AND ITS MARKET VALUE IN HOME-GARDENS OF SAKAWRTUICHHUN, AIZAWL, MIZORAM

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ABSTRACT: The importance of agroforestry systems has been a talk about in recent years when it comes to sustainable method of land use systems. The systems not only provide an alternative method from shifting cultivation for checking soil erosion and soil deterioration, it also contributes to a number of ecosystem services. However, reports on the benefits of agroforestry sytems in the conservation of biodiversity and its utilization are scarce. The present study examines the importance of agroforestry systems (home gardens) in conserving the biodiversity and a viable land- use option to alleviate poverty in rural areas. A total of ten (10) home-gardens were selected for the study and analysis was done using quadrat method. The result of the study reveals that 60 species of plants belonging to 31 families were observed in the study area. Plant species belonging to family Mimosaceae, Arecaceae and Poaceae occupies the highest. *Trevesia palmata* and *Clerodendrum colebrookianum* occupies the highest frequency and density among plant species, while *Trevesia palmata* shows the highest value of abundance.

Keywords: *Agroforestry, biodiversity conservation, carbon-sequestration, homegarden, shifting cultivation*

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Shifting cultivation has long been a way of farming practices adopted in the tribal areas of the NE India since time immemorial. The North eastern region of the country constitutes only 7.98 per cent of the geographical area of the country, accounts for nearly one fourth of its forest cover. Shifting cultivation has traditionally been the main source of livelihood of the tribal people and is intricately linked to their socio-cultural life (FSI, 2011). The total forest cover in the region is 1,73,219 km^2, which is 66.07 per cent of its geographical area in comparison to the national forest cover of 21.05 per cent. When compared to the 2009 forest cover assessment, the 2011 assessment shows a decrease of 549 km^2 of forest cover in the north eastern region. The main reason for this decrease is attributed to the biotic pressure and shifting cultivation in the region (FSI, 2011).

The fallow period of 10-15 years help the vegetation to regenerate naturally which again restored their fertility for future used. However, due to an increase in population pressure and different anthropogenic factors, the fallow period has been reduced to 2-3 (Tripathi and Barik, 2003) years which is too short for the natural vegetation to regenerate successfully causing several negative impacts including viz. soil erosion, decline in soil fertility, habitat destruction leading to decrease in biodiversity. It is estimated that 85% of the total cultivation in northeast India is by shifting cultivation (Singh and Singh, 1992).

The incorporation of trees or shrubs in agro-forestry systems can increase the amount of carbon sequestered compared to monoculture field of crop plants or pasture (Sharrow and Ismail, 2004; Kirby and Potvin, 2007). In a companion study by Udawatta et al. (2008b) showed improved soil aggregates stability, soil carbon, soil nitrogen and soil enzyme activity in soils under agroforestry systems, thus providing an ideal condition for soil fauna and flora thereby conserving soil micro-biodiversity. The amount of carbon in the above-ground and below- ground biomass of an agroforestry system is generally much higher than in an equivalent land-use system without trees (Murthy et al., 2013). The average carbon storage potential in Indian agroforestry has been estimated to be 25t C ha^{-1} over 9 million ha (Sathaye and Ravindranath, 1998).

Various authors have examined the mechanism by which agro-forestry systems contribute to biodiversity (Schroth et al., 2004; McNeely, 2004; Harvey et al., 2006). Agro-forestry systems harbored bats and birds assemblage that were as abundant, species-rich and diverse as forest (Harvey and Gonzalez Villalobos, 2007). Kumar and Nair (2004) have also reported