



Floristic Composition, Community Structure and Biological Spectrum of Vegetation at Sarsawa Hills District Kotli Azad Jammu and Kashmir

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Abstract

Sarsawa Hills in District Kotli, Azad Jammu and Kashmir, Pakistan, harbor significant subtropical vegetation, yet their floristic composition and community structure remain poorly documented, limiting conservation and ecological management efforts. This study aimed to characterize the plant diversity, phytosociology, biological spectrum, and leaf size spectra of vegetation across ten sites at Sarsawa Hills (altitude 700–1150 m) during 2023–2024. Field surveys were conducted using the quadrat method, and plant communities were identified through the Importance Value Index (IVI); life forms were classified following Raunkiaer's system while leaf size classes were determined according to standard leaf spectra categories. A total of 92 plant species belonging to 83 genera and 41 families were recorded, with Amaranthaceae, Asteraceae, and Lamiaceae as the leading families (9 species each), followed by Fabaceae (8 species). Ten distinct plant communities were identified, with *Cynodon dactylon* as the dominant species (IVI = 60.00), followed by *Olea ferruginea* (IVI = 14.70) as co-dominant and *Dalbergia sissoo* (IVI = 13.1) as an associated component. Analysis of the biological spectrum revealed Therophytes as the dominant life form (41.3%), followed by Nanophanerophytes (19.6%), and Hemicryptophytes and Megaphanerophytes (16.3% each); no Chamaephytes were recorded. Microphylls dominated the leaf size spectrum (35.9%), followed by mesophylls (23.9%) and nanophylls (14.1%). These results indicate that Sarsawa Hills support rich subtropical floral diversity shaped by a warm climate, moderate altitude, and ongoing anthropogenic pressures including overgrazing and deforestation. The dominance of Therophytes and microphylls reflects the seasonal, dry-adapted character of the vegetation, and the findings provide a baseline for biodiversity conservation and sustainable land management in the region.

Keywords: Floristic composition, community structure, biological spectrum, Importance Value Index, Raunkiaer life forms, Sarsawa Hills.

