

BP9.

BIOLOGICAL AND MINERALOGICAL ASPECTS OF THE DEVELOPMENT OF SOME SELECTED SOIL PROFILES FROM THE CENTRAL HIGHLANDS OF SRI LANKA

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Biological aspects of the development of soil profiles were studied by field observations and collection of samples. The mineralogy, chemistry, petrology and biological activities in 15 different soil profiles in different climatic regions were examined.

The results reveal that biological agents influence the development of soil by weathering the parent material and transforming primary minerals into secondary minerals. These processes involve the decomposition and mixing of organic and inorganic components of soil. The X-Ray Diffractometry (XRD), Differential Thermal Analysis (DTA) and Scanning Electron Microscopy (SEM) studies show the occurrence of secondary minerals in different climatic regions as follows

- (a) Up Country Wet Zone : kaolinite, vermiculite and goethite.
- (b) Mid Country Wet Zone : vermiculite, smectite.
- (c) Mid Country Intermediate Zone: vermiculite, smectite, goethite, and mica.
- (d) Low Country Wet Zone : kaolinite, gibbsite and goethite.

The SEM studies reveal that the dominating fungal genera of weathering surfaces belong to *Penicillium* and *Mucor*. A Blue-Green algal genus *Scytonema* is widely distributed in the partially weathered marble as well as on other rock surfaces where optimum environmental conditions occur. Gram-positive (+ve) bacteria are also well distributed in the weathering surfaces. Soil organisms and plants are also involved in the development of soil profiles. The interactions of microbes, macro organisms and minerals seem to operate in mutual harmony to develop the soil profiles.