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The use of leaves and roots of Laurus novocanariensis as an indicator for soil and rock chemical composition in the environment of a subtropical cloud forest (Tenerife, Canary Islands, Spain).

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On the Canary Island of Tenerife exists a sensitive and endangered ecosystem called "laurel forest". Laurel forest is an endemic type of a humid subtropical forest and it still covers a terrain of roughly 60 km2 on Tenerife (nearly 7% of the territory) (FERNANDEZ et al. 2001). The existing Laurel forest soils have been developed on different rocks. Corresponding to different moisture regimes, Vertisols, Alfisols, Ultisols, and Inceptisols are developed on basaltic lava flows. Inceptisols, allophanic Andisols, and vitric Andisols are present on pyroclastic rocks (ARNALDS et al., 2007). Three volcanic rock types of the basanite-phonolite assemblage are recognised (Rothe, 2008): Basic (basanites, ankaramites), intermediate (trachybasanites, plagioclase phonolites), and salic (trachyte, trachyphonolite, phonolite). Trachytes (sensu stricto) are comparatively rare.

The present study aims to understand the element cycle and feed back mechanism between volcanic rocks, soils, roots, and leaves. Laurus novocanariensis stands as a key example how leaves and roots in a subtropical cloud forest, such as on Canary Islands, can be used as an indicator for soil and rock geochemistry. To obtain a wide spectrum of inorganic elements, we chose for our samples a combination of ICP-OES and ICP-MS. Our results show clearly that certain elements are enriched or depleted in leaves and roots. Other elements mirror the chemical composition of the soils and the volcanic rocks in great detail. This study indicates that Laurus novocanariensis can be used to trace the element distribution of certain elements from volcanic rocks thru soils to roots and leaves without a large disturbance of a sensitive ecosystem.