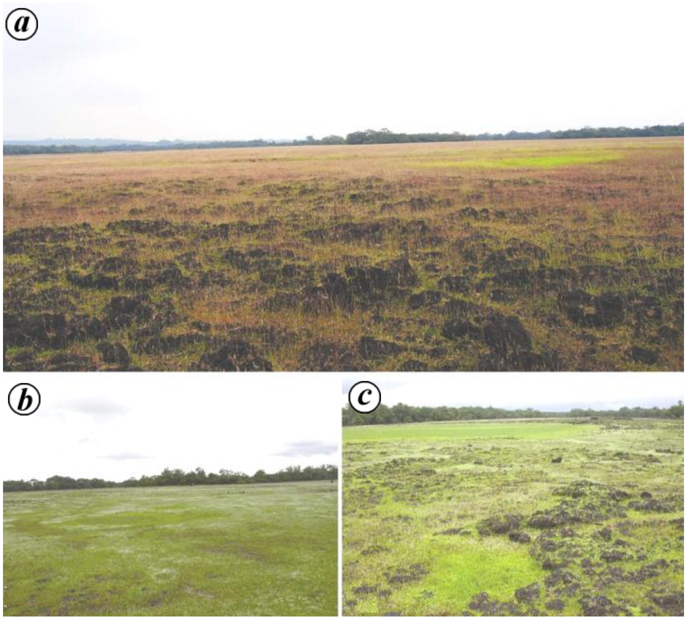

Figure 1. Manmanhara plateau views: ***a***, During pre-monsoon. ***b***, ***c***, During monsoon.

igenia indica, *I. magnifica*, *I. pallida*, *Jansenella griffithiana*, *J. neglecta*, *Lepidagathis prostrata*, *Murdannia juncoides*, *M. lanuginosa*, *M. semiteres*, *M. versicolor*, *Naregamia alata*, *Neanotis foetida*, *N. montholoni*, *Pimpinella heyneana*, *P. wallichiana*, *Pogostemon deccanensis*, *P. stellatus*, *Pseudanthistiria hispida*, *Rotala malampuzhensis*, *Senecio belgaumensis*, *S. edgeworthii*, *Smithia hirsuta*, *S. purpurea*, *S. setulosa*, *Sonerila scapigera*, *Themeda tremula*, *Theriophonum dalzellii*, *Torenia bicolor*, *Utricularia albocaerulea*, *Wiesneria triandra*, etc. Additionally, this is the only repository of the extant, but scanty, population of *Canscora stricta* Sedgw.[4], known to be extinct from its type locality in Castle Rock Plateau of North Kanara district. The plateau therefore embraces an unparalleled, fragile ecosystem, unique to Karnataka as well as the whole country.

The existence of such a distinctive, vast stretch of uniformly flattened plateau at an elevation (700 m) comparable to the largest Kaas plateau (about 850 m) invokes stipulations on its formation, perhaps parallel to the formation of Kaas Plateau, or to have come into existence during continental drift and upheaval of the Western Ghats. At present, conservation of this newly discovered plateau is of prime concern, as it is slowly becoming prone to stray cattle grazing by the local inhabitants of the Meghani valley in its proximity.

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Need to strengthen analytical support in agricultural research

The need for analytical support in agricultural research has long been recognized, especially in the context of soil fertility evaluation and nutrient management, and crop quality assessment and monitoring for selecting and breeding nutritious food staples. For soil fertility evaluation and management, soil and plant testing are the obvious means. Simultaneously, it was realized that soils indeed differ in their capacity to supply nutrients (major, secondary and micronutrient elements) to plants growing on them. From this, it follows that different soils will require different amount of plant nutrient elements as inputs from outside sources mostly through mineral and organic fertilizers, to achieve a target yield[1,2].

Moreover, fertilizers are becoming increasingly expensive, and for a rational and judicious use of nutrients added as amendments from outside sources be based on the nutrient supplying capacity of the soil for individual nutrients. As necessity is the mother of invention, obviously techniques and methods were developed to assess soil quality. Initially, soil quality tests were developed for soil organic matter and potentially available major nutrients (nitrogen, phosphorus and potassium), as they were considered as the foundation of soil quality, especially organic matter status. With time, the deficiencies of secondary (sulphur, calcium and magnesium) and micronutrients (iron, zinc, manganese, copper, molybdenum and boron) became apparent, and their use became essential as those of major nutrients for maintaining or enhancing productivity and crop quality[1–3]. Before the advent of chemical or mineral fertilizers, organic matter in various forms (e.g. as farmyard manure, green manure, crop residues and diverse waste and by-products) was the sole source of plant nutrients[3].

Since the soil tests only indicate the status relative to potentially available nutrients, the availability and uptake by plants can only be ascertained by actually analysing the plant tissue. Thus, the role of plant (grain or non-grain parts of plant) testing to complement soil testing was realized as soil testing alone was not sufficient to establish uptake in the plant. Moreover, for assessing quality as influenced by nutrient input management, analysis of both non-grain and grain parts of the crops is essential. Also, other biotic and abiotic stresses and interactions among them greatly influence the uptake and utilization of the soil and added nutrients by the growing plants[4].

Analytical support provided through soil and plant testing and crop quality assessment has been receiving attention in the past two or so decades. With developments in the instrumentation coupled with its automation, it has become possible to provide analytical research support as a service through high volume and timely analysis of soil and diverse plant materials for a range of parameters[3]. This has helped in the rational and judicious use of nutrients, and selection of cultivars of crops for crop quality parameters (e.g. cultivars of crops denser in iron and zinc, two important micronutrients for human health) related to health and nutrition[5,6].

However, with time the need for analytical support in the area of environmental (including contamination of soil, water and production systems) quality has been increasing at a phenomenal rate. Indeed, environmentalists are driving the research on the pollution of natural resources, e.g. the contamination of soil, and surface and groundwater quality[7]. The accumulation of various pollutants in the soil and groundwater has implications for human health, as there a link between soil quality and food quality, and food quality and human health through the food chain[3].

The demand for analytical research support in the general areas of agricultural research interfacing human health and environmental quality is most likely to increase in the future. To meet such diverse and increasing demand, there is an obvious need to lay appropriate stress on the teaching and training of students and young researchers for preparing them in the use of modern analytical research support tools for providing effective, efficient and timely service[3]. With the ever-increasing demand for such a service, we should not be found wanting and inadequate in providing the needed analytical support, which is the backbone for monitoring, assessing and maintaining soil, food and environmental quality for human health.

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