Chapter 1

INTRODUCTION
For centuries, wild plants have served as the main source of drugs. However, in recent decades, the equilibrium between their supply and demand has tilted in favour of the latter due to a number of reasons. First, the "Population Explosion", with its attendant food shortage leading to malnutrition and disease, has resulted in a manifold increase in the consumption of drugs. Secondly, the need to grow more food has compelled Government agencies and farmers alike to bring every inch of arable land under the plough. Concurrently, the clearing of woods and the reclamation of vast areas for farming, together with the indiscriminate felling of trees for timber and firewood, has disturbed entire ecosystems to such an extent that a variety of plants, including those used as drugs, are threatened with extinction. Thirdly, the gathering of wild medicinal plants all-year-round, sometimes in difficult, almost inaccessible, terrain with its accompanying dangers, is no more a lucrative job for the collector. No doubt, drug dealers have been compelled to enhance considerably the wages paid to collectors to match those of farm workers.
and other labour. It is quite natural that the cost of almost all indigenous drugs has consequently gone up considerably. This situation has also encouraged unscrupulous traders to indulge in a number of malpractices among which the worst is adulteration which causes great suffering among patients and brings bad name to the very profession on which their own livelihood depends.

To offset this difficult situation, a number of medicinal plants, including asafoetida and anise; cardamom and betel; cardamon and chicory; cinnamon and cumin; fennel and fig; garlic and ginger; hemp and henna; laburnum and linseed; pepper and poppy, among others, have had to be cultivated for decades to ensure continuous supply of quality drugs. However, such cultivation of medicinal plants has not been attempted on scientific lines and there is no reference in the available literature of any intensive research on their nutritional requirements. This lacuna mainly prompted the present investigator to study the nutritional requirements, as well as growth and yield patterns, of three important medicinal plants namely Kasondi, Kasni and fennel under field condition. Of these, the first two grow wild in the area and the
last thrives very well under field conditions. It may be pointed out that, in addition, the leaf of Kasni is recommended as an excellent cattle feed and its root, as roasted and powdered chicory, is in great demand as a substitute for coffee, whereas the seeds of fennel are used for culinary purposes.

It was, therefore, decided to investigate:

(1) the effect of four doses each of nitrogen and phosphorus on the growth and yield characteristics of Cassia occidentalis Linn. and of five doses of nitrogen on the growth and vegetative yield of Kasni (Cichorium intybus Linn.) keeping constant the quantity of the remaining two macronutrients (potassium and phosphorus or nitrogen as the case may be), in three separate field trials, and

(2) the effect of three doses each of nitrogen, phosphorus and potassium and of their first and second order interactions on the growth and yield characteristics of fennel (Foeniculum vulgare Mill.) in the fourth field experiment.

It may be added that, of the four field trials undertaken during the period 1975-78, the first three
were conducted according to simple randomized block
design to keep the number of variables as low as possible,
in view of the total lack of information on the cultural
practices for Kasendi and Kasmi. With the experience
thus gained, the fourth experiment on fennel was planned
according to partial confounded design, inspite of its
complexity, for gathering maximum valuable information
that such a design permits.

All experiments were properly replicated. The
data were statistically analysed according to the
design of the experiment and the conclusions drawn from
them, discussed in the light of the findings of other
workers, from physiological point of view, are presented
in this thesis.